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The effects of metacognitive strategy instruction on intermediate learners' reading comprehension skills in an ecuadorian efl class

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Abstract

In today's world, where information can reached be at a single click of a finger, the ability to read and understand information is vital. In Ecuador, the new regulations of the government require university undergraduate students to get B1 level before reaching 60% of the total number of credits to continue with their majors (Reglamento de Régimen Académico, 2015). The current study intends to shed some light on the importance of teaching metacognitive reading strategies to students. The study took place at a private university in Cañar, Ecuador. There were 40 participants in total at B1level. The researchers applied a placement test to confirm the English level of students and administered a pre- and post-test to them as well as the Metacognitive Reading Strategy Questionnaire (MRSQ). The results demonstrated that direct instruction of metacognitive reading strategies improved students' level of reading comprehension.

Keywords. EFL classes, metacognitive, reading strategies

Introduction

Reading constitutes an important skill when learning English as a foreign language (EFL) (Al Rasheed, 2014). Hudson (2007) emphasizes that teaching students reading strategies in their

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learning process in an EFL class improves their rate of reading and comprehension. Given this importance, developing reading comprehension skills has become a must in EFL classes, especially as it has been established that these skills help learners to make progress in other subjects as well (Anderson, 2012).

This study took place in Cañar, a town located in the highland region of Ecuador in South America. Cañar is an intercultural place where 60% of its population is indigenous and 40% identify themselves as mestizos (people of mixed racial or ethnic ancestors). Thus, both Spanish and Kichwa are official languages. *Kichwa* is a Quechuan language that includes all *Quechua* varieties used in Ecuador and Colombia.

Along with their regular undergraduate studies, students at Ecuadorian Universities have to take English classes as part of their curriculum. At the university where this study designed and was accomplish, students take four English classes per week to get to the B1 level according to the Common European Framework (CEFR). All the undergraduate students take an English placement test at the beginning of their studies to put them in the right group in accordance with the CEFR level.

The students who participated in the present study were in their last English level, which corresponded to a B1.1 level according to the Common European Framework. As for their socio-economic background, 60% were indigenous coming from urban and rural areas, and 40% were mestizos coming from urban areas. They had already finished two English levels, each lasting 64 hours. Students were taking different majors at the University. Typically, they had not had the opportunity to travel abroad to learn a foreign language nor had they received long English instruction in their high school or private educational institutions.

Problem Statement. With regard to reading skills, the Common European Framework (2001) states that a person with a B1 level can understand texts that include high frequency or job-related language. To reach such a goal, there is a need to acquire an extensive vocabulary, which is probably not learned merely through "intentional word-learning activities" (Hulstijn, Hollander & Greidanus, 2004, p. 7) but through practice, focus, and diligence. In addition, there is a need to learn about strategies to improve comprehension. The combination of practice, focus, diligence and strategy knowledge leads students to become aware of what they are doing while reading, which, in general terms, represent metacognition.

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Thus, the purpose of this study was to teach metacognitive strategies explicitly through direct instruction to evaluate if students improved their reading skills. The authors took into consideration the underpinning assumption that reading is an active process, which underlies many other sub-skills that boost the acquisition of a foreign language.

Scope of the study. The study consisted of teaching eight metacognitive strategies for the three stages of metacognition: planning, monitoring and evaluating, two strategies for each stage.

The researchers worked with 40 students in total, two entire classes; one of 25 students as part of the treatment group and other 15 students, who participated in the control group. The treatment group received the intervention during the process of the research. The control group also given the same intervention after the one delivered to the experimental group in order to avoid ethical issues. The process lasted a total of 4 weeks during the academic period of March-August, 2016.

Literature Review

Research shows that constant input in the target language increases language acquisition. This input can gained through reading, whether it is for pleasure or for academic purposes (Song & Sardegna, 2014).

Reading is a multifaceted process in which a person uses his/her prior knowledge to construct meaning (Kucer, 2005). The purpose of reading is to comprehend a piece of text (Goldenberg, 2011). According to McNamara (2007), comprehension involves not only seeing or thinking about words, but also understanding the meaning they convey. In the past, reading was assumed to be a passive process in which comprehension would develop automatically (Dole, 2000). However, Baker and Brown (1984) state that strong readers are the ones who take an active role in the reading process by using appropriate strategies. Additionally, strong readers are successful because they use strategies to understand the way they read, which is metacognition.

Hence, it is important to explore the roots of metacognition better understand its meaning. Vygotsky included metacognitive processes in his theory of "the zone of proximal development" (Vygotsky, 1978). Social interactions with others, especially with adults, who

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was represent by teachers in schools, become the medium for exposure to concepts and communicative functions of language. For Vygotsky, the above-mentioned zone is a gap between what a child can do alone and with the help of others. Self-regulation starts in this gap and enhanced within the teacher-student relationship. Vygotsky also mentioned the socio-cognitive framework, which posits that reading has a strong sociocultural backup. Moreover, language learning and classroom management have an important influence on the learner´s decisions, which fosters self-assessment, self-awareness and metacognition (Biancarosa & Snow, 2004). Likewise, Lv and Chen (2010) define metacognitive strategy as an executive function used to "manage, monitor and evaluate" the learning process (p. 136).

In addition, Flavell (1981) defined the term 'metacognition' as the knowledge a person has of his/her own cognitive processes. Metacognition consists of two main components: knowledge and processes or regulation. The former includes knowing how the brain works. The latter refers to adjustments in the executive process of planning, monitoring and regulating. Metacognitive knowledge can divided be in two: declarative knowledge and procedural knowledge. Lachman, Lachman and Battlefield (2015) explained the difference between these two types of knowledge using the analogy of a computer. Declarative knowledge is similar to the stored data, while procedural knowledge compared to the software program in a computer. Metacognitive processes involve monitoring, control and evaluation. Thus, monitoring refers to reviewing the strategies present in memory. Control deals with the handling of the strategies stored in memory. In other words, control means the selection of proper strategies. Finally, evaluation in metacognition refers to the assessment given to the whole process of remembering (Folke, Ouzia, Bright, De Martino & Filippi, 2016) and checking the usefulness of the strategies already used.

Metacognition in EFL classes. Faerch and Kasper (1984, as cited in O'Malley & Chamot, 1995) consider that in second language acquisition declarative knowledge consists of syntax, morphology, phonology and other rules learned for social interaction. Procedural knowledge activates declarative knowledge. While declarative knowledge tends to be passive, procedural knowledge is active. Schneider (2010) points out that procedural and declarative knowledge were link to good information processing. Thus, students improve their EFL reading skill by applying metacognitive strategies. Studies prove the usefulness of the direct instruction of

DOI 10.22519/2145888X.1074

metacognitive reading strategies in EFL classes (Houtveen & W. Van de Grift, 2007**;** Ismael & Tawalbeh, 2015) at different language levels (Dabarera, Renandya & Zhang, 2014) and in the digital form (Wu, 2014). As reading is a learned skill (Haller, Child & Walber, 1988), instructional characteristics can contribute to metacognitive functioning and facilitate the comprehension of texts. In spite of the positive results shown in different studies, there is a gap of research in this area in Ecuador.

Strategies. The Merriam-Webstern (2016) dictionary defines 'strategy' as "a careful plan or method for achieving a particular goal usually over a long period of time". Hence, reading strategies are intellectual operations that readers use when they examine a text. Likewise, in second language acquisition, strategies have cognitive and metacognitive characteristics.

Cognitive vs Metacognitive Reading Strategies

The difference between cognitive and metacognitive strategies lies in the fact that cognitive strategies help a reader to connect with mental processes while metacognitive strategies control those mental processes. Cognitive and metacognitive strategies may overlap. For instance, questioning is a strategy that can be cognitive if it is used to obtain information. However, if the strategy used to monitor one's progress, then it is metacognitive. This is the reason why any type of metacognitive strategy training needs to start with the knowledge of cognitive strategies and practice them in a metacognitive way to evaluate the outcome

Questionnaire. The Metacognitive Reading Strategy Questionnaire (MRSQ) developed by Taraban, Rynearson and Kerr (2004) was administer to assess the learners' use of strategies when they read. The questionnaire included "analytic-cognitive and pragmatic-behavioral components". Only the first part of the questionnaire was use in order to evaluate the effort the learners put into comprehending a text using different strategies.

CALLA Model. Aghaie, R., & Zhang, L. J. (2012) have successfully applied the Cognitive Academic Language Learning Approach (CALLA). The purpose of the CALLA method is to encourage English development through the direct strategy instruction. All the lesson plans designed for the treatment in this study based on this model. That is, the lesson plans included the objectives of the class, the objectives of the strategy to learned, a warm-up activity, an explicit presentation of the strategy, strategy practice with other types of readings, self-

DOI 10.22519/2145888X.1074

reflection and self-evaluation about the use and scope of the strategy, and finally expansion activities

Instruments

All the tests used in this research were piloted before being administered to the experimental and the control group. A placement test, taken from the Touchstone (2013) series and authorized by the publisher, applied be to both the treatment and the control group to assess their level of English proficiency. The placement test consisted of three sections: the objective placement test, the speaking section, and the placement essay. To determine the level of English the participants had, the researchers added the students' rating on the Objective Test, the speaking part and the placement essay: the scores were then divid by three. A score between 4.5 and 5.4 corresponded to the B1 level. Participants also took a pre- and post-test to assess their reading skills based on the Cambridge PET test, whose use was authorize by the publisher.

To reflect on the use of metacognitive strategies by the students of the experimental group, the Metacognitive Reading Strategy Questionnaire (MRSQ) was applied. The questionnaire was conducted in Spanish in order to get more reliable results. After the pre-test, the teacher taught the metacognitive strategies explicitly through class instruction.

Intervention

To assure the research ethical practice, all the participants signed a consent form, which was written in Spanish. The consent form guaranteed that the research would not harm or affect the participants in their grades for being part of the study.

The intervention process lasted a total of 4 weeks. Throughout this time, students received classes focused on metacognitive training. The prescribed book used was Touchstone 3, from which the reading passages were taken. Also, for the practice process in the lesson plan, additional passages were taken from the internet and other books. The researchers cautiously selected the materials to make sure that the students were sufficiently support in their level. All the lesson plans were carefully design using the CALLA model. The intervention carried out with two intact classes, which were purposefully assign to one of the researchers. It is worth mentioning that the control group did not receive the intervention during the process of the

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research. Once the intervention was over and the data was collect, the control group received the same instruction as the treatment group to address ethical considerations.

The strategies were explicitly taught on when to use them, how to use them and which was appropriate according to the situations. The participants in the treatment group were traind on metacognitive strategy use for about one month. The intervention carried out in eight class sessions. Each session lasted one hour and thirty minutes. The metacognitive reading strategies taught in the process were: making connections, skimming and scanning, note taking, and using context clues, setting goals, identifying types of questions, checking before submitting and think-aloud.

Participants

The participants in the study were both men and women 18 men and 22 women. The average age was 21 to 22 years. The participants came from different majors and had already taken two English courses in the same university each lasting 64 hours. The researchers worked with the entire population available in the B1 level in a university of Cañar. 75% of the participants were indigenous people who speak Quechua (or ***runa simi*** is an indigenous language, with variations spoken by the Quechua peoples, primarily living in the Andes and highlands of South America. Revolvy, 2016)

Methodology

The objective of this research study was to look for a cause and effect relationship between two variables: metacognitive reading strategies and reading comprehension. There was a null hypothesis and an alternative one

H0: The students' scores in reading comprehension will not improve after the teaching of metacognitive reading strategies.

H1: After teaching metacognitive reading strategies, the students' scores in reading comprehension will improve.

To analyze the results, the researchers used the t Test for independent samples.

The pre- and post-test duration was 38 minutes. The time for the test calibrated be by taking into consideration the total length provided for the full PET test.

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Results

The results of the placement test confirmed that students in both groups belonged to more or less the same B1 level of English. The researchers calculated the mean and the standard deviation in the pre-test in both groups as shown in Tables 1 and 2.

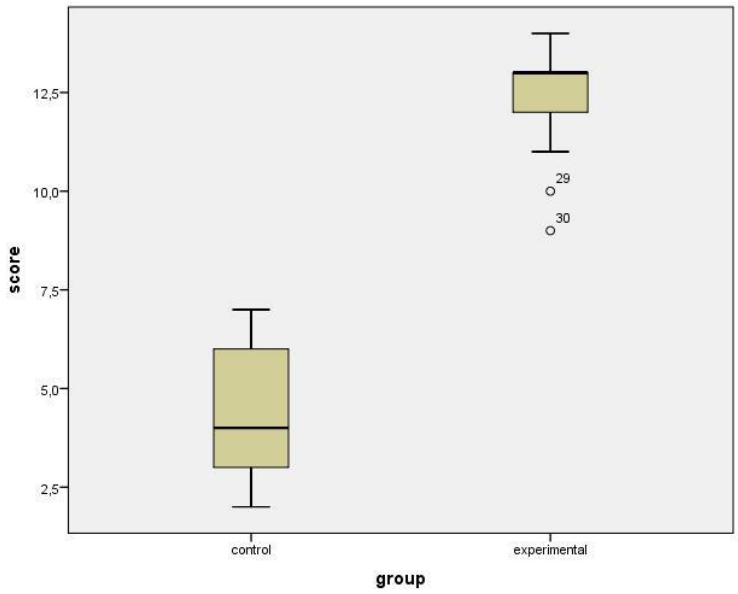

Table 1 *Mean and Standard Deviation pre-test*

	Mean	Standard deviation
Control Group	4,2	1,7
Treatment group	3,7	1,6

Table 2*Mean and Standard Deviation post-test*

	Mean	Standard deviation
Control Group	4,0	2,4
Treatment group	12,8	0,9

By looking at the skewness and kurtosis, and dividing them by their corresponding standard deviations, we obtained the skewness z value, which has to be between -1.96 and +1.96

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to be in the confidence interval. Therefore, for the control group, the skewness was 0.25 and the kurtosis -1.239. For the treatment group, the skewness was 0.75 and the kurtosis 0.234. Therefore, the data a little skewed be in both the control and the treatment group, but they were not significantly away from normality (Table 3 shows the t Test tool applied using the SPSS system).

By comparing the standard deviations in Table 3, there is just a slight difference of 0,437 between them. This fact proves that the distribution of data in both groups was also normal, and the assumption of normality meted. By looking at the skewness and kurtosis, and dividing them by their corresponding standard deviations, we obtained the skewness z value, for the control group, the skewness is 0, 25 and the kurtosis -1,239. For the treatment group, the skewness is 0,75 and the kurtosis 0,234. Therefore, the data are a little skewed be in both the control and treatment group, but they are not significantly away from normality. Therefore, the data is approximately normally distributed; consequently, they meet the assumption of normality. The scores of the control group are a little skewed to the right as the whisker is longer than the bottom. The line tends to move down to the bottom of the box. On the other hand, the treatment group skewed be to the left as the whisker is longer than the top whisker and the line rises to the top. The data do not meet the variance assumption.

Table 3 *Mean and standard deviation in the control and treatment group*

Group				Statistic	Std. Error
Score	Control	Mean		4,20	,439
		95% Confidence Interval for Mean	Lower Bound	3,26	
			Upper Bound	5,14	
		5% Trimmed Mean		4,17	
		Median		4,00	
		Variance		2,886	
		Std. Deviation		1,699	
		Minimum		2	
		Maximum		7	
		Range		5	

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		Interquartile Range	3	
		Skewness	,145	,580
		Kurtosis	-1,389	1,121
Treatment		Mean	12,74	,180
		95% Confidence Interval for Mean Lower Bound	12,37	
		95% Confidence Interval for Mean Upper Bound	13,11	
		5% Trimmed Mean	12,77	
		Median	13,00	
		Variance	,747	
		Std. Deviation	,864	
		Minimum	11	
		Maximum	14	
		Range	3	
		Interquartile Range	1	
		Skewness	-,365	,481
		Kurtosis	-,219	,935

a. Score is constant when group = 0. It has been omitted.

Source: IBM SPSS

The Levene test calculated be using the IBM SPSS program. The F value for Levene´s test is 12,451, with a significance value of 0,001. As the p value is less than 0, 05 (α=0,005), there is a difference between the group´s variances, which can be caused to the difference in the sample sizes (Leech, Barrett & Morgan, 2005). Therefore, the researchers worked with the equal variances not assumed line for the SPSS results. This equal variances not assume is known as the Welch´s t test in the SPSS, as long as the variance difference between the control and experimental group is not higher than 4 in the ratio variance (Fmax), then there is homogeneity of variance. In the present study, the value of Fmax, is 0,258, which is not 4 times superior to the lowest variance. Therefore, the independent t test is robust. The degrees of freedom were calculated. The degrees of freedom were 38.

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Table 4 *Levene´s Test for independent samples*

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Score	Equal variances assumed	12,451	0,001	-20,477	36	0	-8,539	0,417	-9,385	-7,693
	Equal variances not assumed			-18,008	18,786	0	-8,539	0,474	-9,532	-7,546

Source: IBM SPSS

Discussion

The results of the statistical analysis showed that direct training on metacognitive reading strategies improves reading comprehension. There is a close relationship between metacognitive reading strategies and reading comprehension. The null hypothesis then discarded be while the alternative hypothesis proved.

This finding concurs with the literature review about metacognition applied in EFL classes. The eight metacognitive strategies taught in the intervention are easy to explain and apply in EFL reading and do not require additional material. Given the positive results, the researchers believe that metacognitive reading instruction is a promising solution to the reading comprehension problems most of the EFL students face in class time in Ecuador. Besides, teaching such strategies can enhance the responsibility of students, as they have to think and reflect about the use of strategies when reading. This also coincides with the literature, which assures that metacognitive reading strategies enhance autonomy. The traditional view, which considers reading as a passive process that can only measured be by questions, changes completely. The teaching of metacognitive strategies forces students to take an active role in their process of reading. Hence, they have to plan, monitor and evaluate the strategies they use when they read a text.

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As the research did not focus on the perception of students about using metacognitive strategies, there is a need to carry out additional studies in this field. Further studies on metacognitive strategies applied in the development of other skills in EFL classes in Ecuador can performed be. Such studies could be helpful as the size of the classes tends to be big and English teachers face the challenge of addressing individual needs of the students. The researchers consider that there is a gap in research in using metacognitive reading strategies after a period of reading strategy training. A possible research in this matter could open space to new forms of lesson plans. Additional research about the relationship between gender and metacognitive reading strategy use recommended be as there might be differences in use related to males and females.

Limitations of the study

The analysis of the instrumentation used in the study allowed the researchers to consider that this study can repeated be in other places. However, it would be inaccurate to say that it can be a hundred per cent reliable due to certain limitations such as the number of the participants and their background. For example, 75% of participants in the study spoke Quechua, an indigenous language derived from an ancestral language Quechua as their mother tongue and Spanish as the second language. Hence, English was their third language. Consequently, the researchers suggest applying the intervention to participants whose first mother language is Spanish for results that are more generalizable.

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