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DESARROLLANDO HABILIDADES DE PENSAMIENTO CRÍTICO PARA MEJORAR LA COMPRENSIÓN LECTORA

DEVELOPING CRITICAL THINKING SKILLS TO IMPROVE READING COMPREHENSION

María Piedad Rivadeneira-Barreiro¹

Universidad Técnica de Manabí, Ecuador

ABSTRACT

The aim of this study is to determine the relationship between critical thinking skills and reading comprehension. Data was collected from treatment sessions, a self-evaluation and a test on critical thinking skills with two groups of learners from a language department at an Ecuadorian university. The results showed insignificant relation between critical thinking skills and learners' reading comprehension. The

¹ Profesora de Inglés de la Universidad Técnica de Manabí, Ecuador. Doctora en Educación con Mención Internacional otorgado por la Universidad Autónoma de Madrid. <https://orcid.org/0000-0002-5725-6248> <http://bit.ly/2MtmaeX> mprivadeneira@utm.edu.ec +593979153759

findings also revealed both groups had small differences during the pretest and posttest. The pretest and posttest showed minimal changes between groups, as well. Participants' lack of concentration in texts, the unawareness and scarce use of their critical thinking skills were evidenced in their grammar, syntactic and semantics' mistakes. The implications of these findings suggest further research in this area, exploring teaching practices that foster students' critical thinking skills and reading comprehension.

KEYWORDS: reading proficiency, background knowledge, transfer of domains, general instruction, schema theory, motivation, attitudes, interests, self-regulation, PISA-D.



RESUMEN

El objetivo de este estudio es determinar la relación entre las habilidades de pensamiento crítico y la comprensión lectora. Se recopiló datos de las sesiones de tratamiento, una autoevaluación y una prueba de habilidades de pensamiento crítico con dos grupos de estudiantes de un departamento de idiomas en una universidad ecuatoriana. Los resultados mostraron una relación insignificante entre las habilidades de pensamiento crítico y la comprensión lectora de los alumnos. Los hallazgos también revelaron que ambos grupos tenían pequeñas diferencias durante la prueba previa y posterior. La prueba previa y posterior también mostró cambios mínimos entre los grupos. La falta de concentración de los participantes en los textos, el desconocimiento y el escaso uso de sus habilidades de pensamiento crítico se evidenciaron en sus errores gramaticales, sintácticos y semánticos. Las implicaciones de estos hallazgos sugieren una mayor investigación en esta área, explorando las prácticas de enseñanza que fomenten las habilidades de pensamiento crítico y la comprensión lectora de los estudiantes.

PALABRAS CLAVE: competencia lectora, conocimientos previos, transferencia de dominios, instrucción general, teoría de esquemas, motivación, actitudes, intereses, autorregulación, PISA-D.

A latent problem in developing countries has been the educational gap between the poor and rich sectors. In this respect, Ecuador is a country that has many problems in Education. The government of Rafael Correa invested in infrastructure of public education by building the schools of the millennium, but according to Fajardo-Dack (2016) this was not enough due to the neglect of teaching practices. The lack of enough teachers and poor teacher training prevented succeeding in the application of

teaching pedagogies that fostered critical thinking through an active participation of students.

Looking back to primary education, Mertaugh, Jimenez and Patrinos (2009) refer that there is a great gap between the poor and rich countries regarding learning achievement. They state that children are not acquiring basic literacy which is necessary to raise families and compete in an economy. This problem was also evident in Latin America, where the results from the PISA in 2012 revealed that their scores improved slightly but their school achievement were still low (Strasser, Rolla, & Romero-Contreras, 2016).

On the other hand, Ward (2018) reports the results in reading from PISA 2018 and they revealed that 15-year-old students from seven participating countries (Ecuador, Cambodia, Guatemala, Honduras, Paraguay, Senegal and Zambia) scored at the lower levels of reading proficiency, but 7% of them, who were on the average (scoring at or above level 3), showed high levels of knowledge and reading skills corresponding to this age according to the Organization for Economic Co-operation and Development countries (OECD).

Regarding Ecuador, 49% of the students reached Level 2, which is considered as the minimum level of reading proficiency at the end of lower secondary education. Although Ecuador got the highest score in reading among the participants, these findings suggest that reading is a skill that needs to be developed yet. Also, the PISA for Development (PISA-D) recognizes considering factors that influence participants' performance. They include resources, inclusive environments, learning time, quality instruction, and family and community support. Having the opportunity to compare with similar social and economic contexts is very important because it strengthens peer learning (Ward, 2018).

The picture of Ecuador's performance in the PISA-D gives a starting point to work in



developing reading skills to understand texts. Unfortunately, some population is surrounded by poverty which affects students' reading performance. Moreover, there are other factors that could affect reading, as those mentioned above. Then it is a task for stakeholders to get involved in improving quality of Education. If teachers understand the foundations of reading, it will be easy to teach this to their students. In addition, students can develop critical thinking skills that can be used not only when reading but in any situation that requires it.

LITERATURE REVIEW

Critical Thinking

Teaching critical thinking skills has been a task that many educators have been concerned with. This kind of skills were introduced about 2000 years before since Socrates used it in his approach to learning. But later, John Dewey was the one who was widely recognized as the father of modern critical thinking tradition and this is what remains to this day. He introduced this term by associating it to an active process that requires different skills such as finding answers to questions. It is also a persistent and careful process that highlights the reasons that support a belief, and the conclusions a person reaches (Fisher, 2001).

After Dewey's work, another researcher that is important to mention is Edward Glaser. He followed Dewey's line and was the co-author of one of the most widely used tests of critical thinking, the Watson-Glaser Critical Thinking Appraisal. He introduced the term "attitude" to apply the methods of logical inquiry and reasoning. On the other hand, Robert Ennis has been a researcher with a strong influence in this area. His description of critical thinking introduced the feature of making decisions. Other scholars who have contributed in this area are Richard Paul and Michael Scriven. The first one focuses on thinking about one's thinking

and the second one highlights the academic competency inherent to thinking (Fisher, 2001).

Critical thinking has been reported as used in collaborative learning, especially in non-technical disciplines. Exchanging ideas in small groups fosters critical thinking (Gokhale, 1995). Interestingly, the approach to teach critical thinking skills is an issue that remains as polemic. Thus, the approaches to teach these skills can follow the general approach, the infusion approach, the immersion approach or a mixed model approach. The general approach does not need a context because the aim is to develop critical thinking skills in non-school contexts. The infusion and immersion approaches are akin in that they get engaged with the subject, but in the first approach critical thinking skills are taught explicitly and in the second approach this teaching is not explicit. And in the case of the mixed model approach, there is a combination of the general approach and the infusion or immersion approaches (Ennis, 1989).

Globalization and changes in the labor structure require preparing people to handle critical thinking skills. Ennis (1989) highlights that developing critical thinking skills requires three principles: Background knowledge, transfer of domains, and general instruction. On the other hand, Kuhn (1999), refers that critical thinking is closely related to three kinds of meta-knowing: the metacognitive, metastrategic, and epistemological. In this point, a person should be able to reflect on what is known and how it is validated. Also, it is necessary to use standards of evaluation and examine knowledge using the tools that best suit to solve a problem.

Reading Comprehension

Reading is a very important skill that a person needs to develop as a way of succeeding as learners in professional life. In this point, Papatga and Ersoy (2016) refer that the use of reading comprehension skills directly affects



students' academic life. This skill is developed since early stages of education. Therefore, there is a need to teach children strategies to understand reading materials. Strategies that foster decoding and move forward to complex skills such as inferring.

Consequently, there is a need to promote literacy in schools. As mentioned by Richardson, Morgan and Fleener (2012), literacy is the key students need to become effective learners. In this context, students should be able to understand what they read but also to think critically. These scholars claim that critics consider learners are not able to use skills in real life. There is unimportant information we teach them, and on the other hand, they are not able to think critically.

There are many factors that can interact with reading comprehension and one of them has to do with the beliefs of teachers. One of the approaches that currently explains the construction of meaning is connected to schema theory. This theory explains how learners connect what they read to their knowledge. Because there is no consensus on approaches to the teaching of reading, the beliefs of teachers about reading comprehension and their practices tend to change, as well. Also, the results of how teachers' beliefs and their practices work together are still unpredictable (Richardson, Anders, Tidwell, & Lloyd, 1991).

On the other hand, there is evidence that reading comprehension achievement is related to reading engagement. Abdelhalim (2017) highlights that to engage students in reading it is necessary motivation, attitudes, interests, self-regulation and the ability to use cognitive strategies. On the other hand, McCullough (1974) mentions that another predictor of reading comprehension is the cultural background of the home, as it was revealed in Robert Thorndike's study about Reading Comprehension Education in Fifteen Countries.

As stated before, there are many variables that can interact with reading comprehension, for example: sociocultural factors, individual and group differences, age, sex, among others. It is the task of teachers to create a favorable environment to engage learners in understanding texts. It is necessary to use texts that adapt to students' language level. Texts should bring back their interest to the context, foster critical thinking and give them the opportunity to become independent learners through an appropriate instruction. In this point, Snow (2002) highlights the importance of comprehension instruction when she declares that it gives the opportunity to learn from text.

THE PRESENT STUDY

The aim of this study is to determine the relationship between critical thinking skills and reading comprehension. Thus, the following research questions were postulated:

RQ1: To what extent critical thinking skills affect learners' reading comprehension?

RQ2: Does training in critical thinking skills favor reading comprehension?

METHOD

Participants

Sixty EFL students from a language department of an Ecuadorian university participated in this study. Their ages ranged from 20 to 34. They came from rural and urban areas of Manabí, Ecuador. There was no random assignment of participants to the control and experimental groups. Thus, thirty students participated as the control group and the remaining ones were the experimental group. Participants had to attend two-hour meetings during ten sessions while they were taking a fourth-level English course in a language department that offers six levels of English as part of the curriculum for all university majors.

Permission to begin this study was asked by sending a letter to the coordinator of the language department. In addition, participants had to sign consent forms, where they were explained the purpose of the research, the research study methods, the requirements and benefits of the participants, risks, discomforts, and students' voluntary participation.

Instruments

One of the instruments used to determine the prevailing critical thinking skills and how they affect English language learners' reading comprehension was the test by Watson-Glaser (2002). This test contained five items related to a type of question, that is, inference, recognition of assumptions, deduction, interpretation and evaluation of arguments.

After reading a newspaper article (El Diario Manabita, 2016), participants answered a questionnaire by Browne and Keeley (2004). This instrument was taken as pretest and posttest by both groups to test out if training in critical thinking skills favors English language learners' ability to identify media bias in written press. After the pretest, students took a self-evaluation to raise their awareness on critical thinking (Cottrell, 2011). Also, both groups were explained the new terminology and allowed to use dictionaries.

Based on the literature that shows there is no concluding research which specifies that one method or strategy works better than others for developing learners' reading comprehension (Alharbi, 2015), the researcher considered that using L1 material to assess critical thinking skills in reading a news article would be a good approach to achieve the goal.

Data Collection Procedure

Initially, data was collected from a self-evaluation that provided information about students' awareness of using critical thinking skills. Later,

students used information from a newspaper article in Spanish to complete a questionnaire by Browne and Keeley to test out if training in critical thinking skills favors the ability to identify media bias in written press. They were given some vocabulary related to this questionnaire and other activities used in the process. The questionnaire was used as pretest and posttest. Participants' answers were validated regarding the answers of ten experts with postgraduate studies in economics, education, technology and administration.

Also, participants answered a test by Watson and Glaser that evaluated their inference, recognition of assumptions, deduction, interpretation and evaluation of arguments. It revealed how they use their critical thinking skills to understand information. Also, treatment sessions were used with the experimental group. These activities were modeled by the researcher and had to do with close reading, capturing author's position, identifying simple arguments, reasons and conclusions, argument and disagreement, false premises, false analogies and accurate interpretation when reading (Cottrell, 2011).

Data Analysis

Qualitative data was coded manually. Students' answers from Browne-Keeley's questionnaire were reduced by finding similar answers to become patterns. Three similar responses were considered as a pattern by including similarity and frequency as two characteristics for a pattern (Hatch, 2002, as cited in Saldaña, 2009). The same process was used for coding the treatment sessions' answers, that is, finding similar responses to interpret meaning.

Information gathered from the self-evaluation revealed their awareness on using critical thinking skills. Also, the Watson-Glaser's test and the pretest of Browne-Keeley's questionnaire help to detect how their critical thinking skills affected their reading comprehension. From



the treatment sessions, there was important information for this study, as well.

RESULTS

Quantitative Data Results

Quantitative data results revealed in the self-evaluation that there were no significant differences in the groups regarding their awareness using critical thinking skills. The results from the control group showed that eleven participants got a score under 45 and nineteen participants got a score between 46 and 74. On

the other hand, results in the experimental group showed sixteen participants got a score under 45, thirteen participants got a score between 46 and 74 and only one student got 84.

Table 3 displays a comparison of the results in both groups. Levene’s test for equality of variances reveals no significant difference between the groups regarding their awareness using critical thinking skills (.219). Moreover, Table 4 shows that the correlation between students’ critical thinking skills and their reading comprehension was negative (-.012).

Table 3.
Comparison of Control and Experimental Group’s Results in Self-evaluation

Independent Samples Test										
F		Levene’s Test for Equality of Variances		t-test for Equality of Means						
		Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
								Lower	Upper	
Score	Equal variances assumed	,219	,642	1,025	58	,310	3,133	3,057	-2,986	9,253
	Equal variances not assumed			1,025	57,987	,310	3,133	3,057	-2,986	9,253

Table 4.
Correlations

		Score	BK_PreTest
Score	Pearson Correlation	1	-,012
	Sig. (2-tailed)		,930
	N	60	60
BK_PreTest	Pearson Correlation	-,012	1
	Sig. (2-tailed)	,930	
	N	60	60



QUALITATIVE DATA RESULTS

The questionnaire by Browne and Keeley revealed that the control group had the same pattern of answers in the pretest and the posttest while the experimental group showed in the posttest a lack of understanding in more words and phrases related to valid arguments than they did in the pretest. Also, the experimental group showed poor thinking skills during the treatment sessions.

DISCUSSION

The appearance of globalization and changes in the age of information have demanded that people develop critical thinking skills. This process requires working from less complex skills to more complex ones. The interest in developing these skills has led in this study to determine the relationship between critical thinking skills and reading comprehension.

Results from the self-evaluations showed no significant differences between the groups' awareness in using critical thinking skills. On the other hand, results in Watson and Glaser's test revealed no significant relation between critical thinking skills and reading comprehension. Also, both groups performed similar in the pretest and posttest. These outcomes could probably explain why participants from the control group performed better than the experimental one.

From the treatment sessions, the experimental group showed they had to pay more attention to fine details to interpret correctly. They needed more practice in skimming to find the main message of the passages, or when identifying reasons and conclusions. During these sessions, participants showed low attention and poor critical thinking skills because they had a lot of mistakes related to grammar, semantics and syntactic.

From these outcomes, there is evidence that teaching practice should reinforce the

development of critical thinking skills. This means teaching less complex skills to more complex ones. On the other side, reading strategies should be modeled by teachers to activate background and cultural knowledge. Students should be honest and respond actively in research studies to understand a problem and try to find a solution to it.

LIMITATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

Some limitations affected this study. One of them was an earthquake that occurred in the place of the study. This could have affected their concentration during the study. In addition, the size of the sample should have been larger, and not limited to a quasi-experimental design in which students were already assigned in groups of thirty each one. Additionally, the number of sessions probably was not enough, and this could have affected their performance in this study. Another limitation was the design of the instruments that should have included participants' reading habits, their socio-cultural and socio-economic backgrounds to better understand the problem of this study.

These limitations should be considered for future research in Ecuador. Team work is necessary to exchange viewpoints and get information supported in Ecuadorian reality. The low level of English in these learners revealed their problems to communicate in English. Problems that range from recognition of words to sentence structure that generate clear ideas. Therefore, teachers should work on critical thinking skills, reading comprehension, grammar, vocabulary, semantics, syntax, and other areas of language that need attention to reinforce students' ability to read and learn independently.

THEORETICAL AND PEDAGOGICAL IMPLICATIONS

Ecuador is a country that shows low levels of



literacy and schooling (Viteri, 2006). The low levels of schooling, which has been evidenced in this study, causes researchers to be interested in proposing ways to understand it and solve it. The sample of this study showed functional illiteracy and although the results can not be generalized to an entire population, this can be used by researchers as a guide for other studies in the same field in the future.

It is important the commitment of stakeholders in this kind of studies. Teachers should be aware of language foundations and the development of cognitive structures. Paying attention to students' backgrounds and working since they are children will prevent big problems related to critical thinking skills and reading comprehension. Every context of study is different, and, in this case, it is suggested to use direct instruction as indicated by Bensley and Haynes (1995); Nieto and Saiz (2008); Penningroth, Despain, and Gray (2007). It is expected that this kind of instruction guide students in the process of using critical thinking skills (as cited in Bensley, Crowe, Bernhardt, Buckner & Allman, 2010).

CONCLUSION

Although there were some limitations in this study that could have affected the results, there is evidence that the context of this study has many things to study and solve yet. Due to the low level of literacy among Ecuadorian students', much work needs to be done to develop critical thinking and reading skills to improve comprehension.

Activities to test reading comprehension should include the practice of a variety of reading strategies to activate background and cultural knowledge. For future studies, researchers should be aware of students' attitudes, their interests, their English level. They should understand that students need to go through low level to complex critical thinking skills, but also

provide them with the tools to become active readers and independent learners.

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