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# The use of critical thinking skills to detect bias in written press

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## ABSTRACT

The present study is part of my doctoral research about university students' critical ability to identify media bias. The participants were two groups of students from a language department at an Ecuadorian university. There was no random assignment of participants to groups. Each group was composed of thirty participants. Information was collected from a test on critical thinking skills, a questionnaire on media bias, a self-evaluation on critical thinking and from treatment sessions applied to the experimental group.

The results of the first research question revealed there was no significant relation between critical thinking skills and reading comprehension. The 1 English teacher in the Department of Modern Languages at Universidad Técnica de Manabí. Master in Teaching English as a Foreign Language.

second research question regarding the training in critical thinking skills to favor or not the ability to identify media bias in written press showed little changes with little improvement in the mean of both groups. Also, there was no significant improvement in students' ability to identify media bias regarding the variable "time". On the other hand, in the interaction of "time" and "group" there was no significance either. There was a minimal difference in the groups in both tests, as well as in the two times the test was taken by both groups. Furthermore, mistakes in grammar, syntactic and semantics, as well as the continuous use of dictionaries, revealed low attention in students and scarce critical thinking skills.

**Keywords:** critical thinking, media bias, reading comprehension.



## RESUMEN

El presente estudio es parte de mi investigación doctoral sobre la capacidad crítica de los estudiantes universitarios para identificar el sesgo mediático. Los participantes fueron dos grupos de estudiantes de un departamento de idiomas en una universidad ecuatoriana. No hubo asignación aleatoria de participantes a grupos. Cada grupo estuvo compuesto por treinta participantes. Se recopiló información de una prueba sobre habilidades de pensamiento crítico, un cuestionario sobre el sesgo mediático, una autoevaluación sobre el pensamiento crítico y sesiones de tratamiento aplicadas al grupo experimental.

Los resultados de la primera pregunta de investigación revelaron que no había una relación significativa entre las habilidades de pensamiento crítico y la comprensión lectora. La segunda pregunta de investigación sobre el entrenamiento en habilidades de pensamiento crítico para favorecer o no la capacidad de identificar el sesgo mediático en la prensa escrita mostró pocos cambios con poca mejora en la media de ambos grupos. Además, no hubo una mejora significativa en la capacidad de los estudiantes para identificar los sesgos de los medios con respecto a la variable "tiempo". Por otro lado, en la interacción de "tiempo" y "grupo" tampoco hubo significación. Hubo una diferencia mínima en los grupos en ambas pruebas, así como en las dos ocasiones en que la prueba fue tomada por ambos grupos. Además, los errores en gramática, sintáctica y semántica, así como el uso continuo de diccionarios, revelaron poca atención en los estudiantes y escasa capacidad de pensamiento crítico.

**Palabras clave:** pensamiento crítico, sesgo mediático, comprensión lectora.

## INTRODUCTION

The first ideographic and phonetic signs appeared

on wood, stone and clay tablets. This happened at the end of the fourth millennium BC in Egypt and Mesopotamia. Later, the Egyptians created the papyrus. During the second millennium BC, the Phoenicians created an alphabet that led to the Greek and Aramaic scriptures which in turn gave rise to Latin, Arabic, Hebrew alphabets, among others.

In the 5th century BC, the pre-Columbian cultures created the hieroglyphic writings and three centuries after, parchment appeared and replaced papyrus. During the 8th century, paper was introduced in Europe. The introduction of print during the 15th century was a revolution in the world of writing. The same happened with newspapers, the Morse code and Braille alphabet that appeared in the 19th century. The 20th century brought the technological revolution with the creation of the diskette, CD and the Internet (Gómez, 2010).

From the above mentioned, it is possible to conclude that ancient empires and medieval Europe worked on conveying dominant ideas. Nowadays, people seem to be exposed to ideological hegemonies through the mass media. Additionally, Innis (2008) considers that each new communication technology influences aspects of economic life.

## SIGNIFICANCE OF THE STUDY

The findings of this study could give some foundations for future curriculum design associated to didactic systems for the development of reading comprehension and critical thinking. On the other hand, being immersed in this area of knowledge could give participants the opportunity to identify indoctrination in the press.

## OBJECTIVES

The general objective of this research was to determine students' critical ability to identify media bias. The specific objectives were:



To determine the degree in which critical thinking skills affect learners' reading comprehension, and to test out if training in critical thinking skills favors the ability to identify media bias in written press.

## RESEARCH QUESTIONS

The scope of the influence of critical thinking skills in learners' reading comprehension has gaps that require of more research. The same occurs with the ability of university students to identify and reject slanted information from their cognitive processes. With the intention of finding conclusions regarding traditional teaching practices aimed at developing critical reading in individuals, the following research questions (RQ) were formulated:

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

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

## THEORETICAL FRAMEWORK

### Reading Comprehension

A new form of literacy that entails students to become independent readers by using metacognitive strategies is known as 'critical literacy'. In this context, the teaching of reading comprehension strategies should foster comprehension of reading materials. Additionally, students should be engaged in reading which means not only motivation, but attitudes, interests, self-regulation and the ability to use cognitive strategies. Research has shown a strong and positive correlation between reading engagement and higher reading comprehension achievement (Abdelhalim, 2017).

Reading comprehension, as other areas of reading, needs to be evaluated. According to Bachman (1990) there are three elements that can modify test productivity: Differences in

testing methods and tasks; individual differences in language abilities, processing strategies and personal characteristics; and unplanned factors such as mental alertness, testing environment, among others (as cited in Shanian, Pishghadam & Khajavy, 2017). Regarding individual differences, it is important to mention schema theory which has been studied together with reading comprehension and it has been used in designing tests free of slanted elements.

Reading comprehension has also been associated to language learning from early years of schooling. Papatga and Ersoy (2016) refer that "acquiring reading comprehension skills seems to be even more important and functional especially in elementary school that is the first period of children's school years. Students use these skills in all their courses, and their academic life is directly affected by such skills" (p. 125). Another factor that affect reading comprehension is the kind of material one is reading and the use of strategies. "Comprehensible input revealed using authentic materials will contribute to development of reading and listening skills. In this process, knowing and using the reading strategies will be beneficial to language acquisition." (Uslu & Çubukçu, 2017, p. 2).

As many factors can affect reading comprehension, teachers should understand what is behind this process and help students become independent readers. The use of reading strategies will be useful to understand texts. If students start reading very young and combine different genres, they will tend to become successful readers. Teachers can use different materials to teach reading comprehension. One of these materials are news articles that Zalaznick (2017) encourages to use as a way of generating learners' curiosity, build critical thinking and organize writing.



## WHAT IS CRITICAL THINKING?

The literature gives many definitions of critical thinking. One of them is given by Halpern (2007) who defines it as the use of cognitive skills or strategies that will bring desirable outcomes. This thinking is related to higher order cognitive skills and needs tasks such as making judgement, analysis, synthesis and self-monitoring. Additionally, for some authors critical thinking could be transferred to other contexts. The correct instruction in teaching how to transfer this skill could lead to succeed in the process.

According to Saiz and Nieto (2002), there are three basic abilities of critical thinking: Reasoning, problem solving and decision making. Reasoning has two categories: Deduction and induction. Deduction has two kinds of reasoning: Categorical and propositional. Saiz and Nieto focus on the areas of inductive generalizations, causal reasoning, analogical reasoning and hypothetical reasoning. They are part of everyday reasoning which is known as practical reasoning.

Saiz (2002) focuses on three skills of reasoning that should be developed: Analysis, representation and evaluation. This author explains that analysis and evaluation of reasoning include identification of reasoning's elements, establishment of their relationship to each other, representation of these elements and their relationships, application of solidity's criteria, and the evaluation of this solidity. On the other hand, representation refers to the depiction of arguments' structures.

From the three basic abilities of critical thinking, reasoning has taken especial relevance. During the nineteenth century, teachers paid attention to the process of acquiring a language and many scientists collected scientific evidence on reasoning, but it was not enough to understand how people became smarter (Nisbett, 2015).

Opposite to this point of view was Jean Piaget who defended the idea that people not only use abstract rules for reasoning, but also logical rules and "schemas". Nisbett agreed with Piaget in using abstract concepts and rule systems, but he considered Piaget omitted that reasoning can be taught, as well.

From this point, educators and psychologists have tried to understand the nature of thinking styles. A theory of thinking style that has caught attention of researchers is the theory of mental self-government developed by Sternberg. This theory involves 13 thinking styles in five dimensions of mental self-government: Functions, forms, levels, scopes, and leanings of government as applied to individuals. All of them help to control someone daily activities (Zhang & Sternberg, 2001).

Different viewpoints about reasoning and the nature of thinking styles show that developing critical thinking skills includes time, practice and support. Paul and Elder (2001), suggest 9 strategies a person can use to become a critical thinker: Use "wasted" time, a problem a day, internalize intellectual standards, keep an intellectual journal, reshape your character, deal with your ego, redefine the way you see things, get in touch with your emotions, and analyze group influences on your life (as cited in The Foundation for Critical Thinking, 2015).

Also, developing critical thinking skills require that teachers foster conceptual knowledge and general culture in students. Every student has to discover the best strategy that stimulates their critical thinking. The whole educational system should contribute to develop critical thinking. "It seems that the present education requires teachers that are leaders with complex and critical thinking skills, broad knowledge of general culture and a noticeable emotional intelligence" (Gutiérrez, 2017, p. 719).



## MEDIA BIAS

Words have power especially when they are propagated by the mass media. For example, antecedents of acts of war have demonstrated how language have been used to persuade audiences. During the First World War, England and the German Reich used propaganda to disseminate ideas. Both countries had a strong sense of nationalism and used censorship to manipulate information for their own interests. Nonetheless, the German Reich had difficulties to communicate their war objectives (Brekke, 1989).

Powerful groups exert pressure by spreading their ideologies and interests. They have the power to use stereotyped expressions or prejudices to influence public. The speaker can use devices such as persuasion to convince someone, or seduction to get someone to look at situations from a friendlier perspective. According to McGuire (1973), the communication process has to do with persuasion. After comprehending the persuasive communication, the listener should have a new position to act over the persuasive material.

There are some elements that could be included in the communication-persuasion process: comprehension, fear, personality, self-esteem of the listener, and others that could affect attention and comprehension making persuasion the final goal of the sender. These variables are evaluated to make sure information gets the target audience.

Briñol, Tormala and Petty (2013) refer that "persuasive appeals that elicit thoughts that are primarily favorable toward a particular recommendation, produce agreement whereas appeals that elicit unfavorable thoughts toward the recommendation do not, regardless of whether the message content can be learned and recalled" (p.102). From this viewpoint it is understood that a person can generate thoughts

and change attitudes depending on persuasive messages.

The use of information and communication technologies in Education is also exposed to biased information. There are other settings in which people can be exposed to persuasive messages. Grabe (2009) mentions that the family unit, the school settings and the interaction with specific people influence the way people learn. Also, the wider social and cultural expectations of political, religious, ethnic, economic, and social institutions can influence people. These factors are different for L2 readers who face social and cultural influences from L1 and L2 contexts.

Media employs power over audience and commercial agencies take advantage of this to get information from samples of population in educational, political, commercial areas and others. Commercial agencies have a representative work in measuring individual's use of mass media. The techniques focus on what is being measured, the general type of data collection and the technique employed for data collection. (Rosengren, 2000).

According to Rosengren (2000), the content consumed in the present influences the content to be consumed in the future. The media influences audiences using strategies. Partington (2003) mentions five strategies used by the press: (1) simple belligerence, (2) negative and sarcastic reformulation, (3) devil's advocacy including the agent provocateur tactic, (4) embedding (hiding) the accusation, (5) dogged insistence. These strategies will influence people depending on how they discriminate or the decision of what the best is.

In this sense, it would be necessary to control media. Silverstone (2007) suggests the intervention of governments to control markets. This way the minority has the chance to be heard. National and international laws should guarantee responsibility of media production



despite the interests of powerful groups. Hence, there should be more research to comprehend the foundations of media and how to solve the biased information problem.

## METHODOLOGY

This study combined qualitative and quantitative methods. According to Creswell (2012) this kind of research allows a better understanding of a problem under study. Regarding the participants, two groups of students from a language department of an Ecuadorian university were given a participant consent form before the study and asked to attend two-hour meetings during ten sessions. There were 30 students in the control group and 30 students in the experimental group.

A quasi-experimental research design (pre-test and post-test by Browne and Keeley, 2004; Creswell, 2012) was used to evaluate participants' critical thinking skills to identify media bias. In addition, other tests such as a self-evaluation by Cottrell (2011), and Watson-Glaser test were used for the same purpose. Statistical tests such as T-test for independent samples, Pearson correlation and two-factor ANOVA were also used in this study.

The treatment sessions were applied to the experimental group. These activities were related to close reading, capturing author's position, identifying simple arguments, reasons and conclusions, argument and disagreement, false premises, false analogies and accurate interpretation when reading. Before doing these activities, they were modeled to show students how to proceed. Also, they had the chance to use dictionaries and ask any question.

## RESULTS

### Quantitative Data Results

The outcomes from the self-evaluation (Cottrell, 2011) revealed that there were no

significant differences between the control and experimental groups regarding their awareness using critical thinking skills. On the other hand, the Pearson correlation coefficient which was used to determine the correlation between students' critical thinking skills and their reading comprehension revealed there was a negative and low correlation (-,012). This is shown in Table 1 which also displays no significative relationship between the variables mentioned before because ,930 > ,05.

Table 1.

### Correlations

		Score	BK_ PreTest
Score	Pearson Correlation	1	-,012
	Sig. (2-tailed)		,930
	N	60	60
B K _ PreTest	Pearson Correlation	-,012	1
	Sig. (2-tailed)	,930	
	N	60	60

The statistical measure used to answer the second research question was a two-factor ANOVA with repeated measures in 1. Previously, the assumptions of independence, normality, homoscedasticity and sphericity of multiple samples were considered. The information was analyzed from Browne and Keeley's questionnaire which was taken as pretest and posttest by both groups. The results shown in Table 2 reveal that the mean in both groups varied slightly with little progress in them.

Table 2.

Results from the Pretests and Posttests in the



## Control and Experimental Groups

	Group	Mean	Std. Deviation	N
BK_PreTest	Control	5,47	1,502	30
	Experimental	5,43	,971	30
	Total	5,45	1,254	60
BK_PostTest	Control	5,90	1,322	30
	Experimental	5,80	1,270	30
	Total	5,85	1,287	60

The sphericity of multiple samples was assumed because  $,137 > ,05$ . This means that as the null hypothesis is maintained, it allows us to conclude that the matrix is spherical, as shown in Table 3.

Table 3.

## Box's Test of Covariance Equality Matrix

Box's M	5,748
F	1,844
df1	3
df <sup>2</sup>	605520,000
Sig.	,137

Regarding the main effect of the variable "time", the value of the significance for this variable, which was  $,081$  greater than  $,05$ , revealed that there was no significant improvement in students' ability to identify media bias referred to the variable "time". On the other hand, the interaction effect of the variables "time" and "group" showed a significance value of  $,883$  which is greater than  $,05$  and means there is no significance in the interaction of these variables. This also means that it does not matter which group one belongs because there will be no difference in the outcomes.

Regarding the main effect of the variable "group", the value of the significance for this variable was  $,784$  which is greater than  $,05$  and means that

there is no difference between the control group and experimental group. Additionally, the result of the observed power was lower than  $,8$ . This means that there was not enough sample to find the effect and there is no solution. On the other hand, information related to a comparison of both groups in the pretest as well as in the posttest revealed a minimal difference in the groups. The results from the significance values were  $,919$  and  $,766$  in the pretest and posttest respectively.

Regarding the simple effect of the variable time, the significance values  $,179$  and  $,254$  in the control and experimental groups respectively, revealed an insignificant difference in the two times the test was taken by both groups. Therefore, the null hypothesis was accepted by stating that training in critical thinking skills do not influence the ability to identify media bias in the written press.

**Qualitative Data Results**

The treatment sessions and the questionnaire by Browne and Keeley provided qualitative information. Some patterns in the questionnaire revealed they were not conscious of some terminology related to presenting valid arguments. It was clear they had problem expressing ideas even using dictionaries. On the one hand, the control group showed the same pattern of answers in the pretest and the posttest, and in other cases there was no improvement. On the



other hand, the experimental group showed lack of understanding in more words and phrases than in the pretest.

From the treatment sessions, the experimental group was exposed to activities that required to find consistency and logical flow in a passage, capture the author's position, identify simple arguments, reasons, conclusions and disagreements, decide whether an argument was based on sound or false premises, identify analogies and false analogies, and decide if an interpretation is accurate or misinterpret the writer's position. The results revealed poor skills to accomplish the activities.

## CONCLUSIONS

The results of this study revealed from the beginning no significant differences between the groups in their awareness for using critical thinking skills. In the first research question about to what extent critical thinking skills affect learners' reading comprehension, the outcomes showed there was no significant relation between these variables. In the second research question about if training in critical thinking skills favors the ability to identify media bias in written press, the results evidenced insignificant changes and improvement in the mean of both groups.

The results also showed that at the end, the control group had a better performance than the experimental group. This could be explained to the small sample of the population and to the patterns observed during the treatment sessions such as many mistakes in grammar, syntactic and semantics, as well as the continuous use of dictionaries that revealed low attention in students, scarce critical thinking skills and poor background that affected their comprehension. Also, their awareness in using reading strategies seemed to affect their performance in this study.

From these outcomes, it is evident a call to educational institutions to work on critical thinking

skills. Teachers should work with their students in the use of less complex critical thinking skills to more complex ones in reading activities. Moreover, reading activities should be practiced in and out of school. The more students are exposed to reading activities, the more they will progress on reading comprehension. Activities to test reading comprehension should include the practice of a variety of reading strategies to activate background and cultural knowledge. Also, there should be a commitment on behalf of students to participate actively in this process.

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