



REVISTA

# CÁTEDRA

## Las dimensiones sustantivas y dialógicas del pensamiento crítico en estudiantes de bachillerato y universitarios

*The substantive and dialogical dimensions of critical thinking in high school and university students*

Manuel Gonzalo Remache-Bunci

Universidad Central del Ecuador, Quito, Ecuador

[mgremache@uce.edu.ec](mailto:mgremache@uce.edu.ec)

<https://orcid.org/0000-0002-2975-3079>

(Received on: 09/10/2018; Accepted on: 17/10/2018; Final version received on: 17/11/2018)

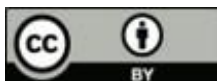
Suggested citation: Remache-Bunci, M. (2018). The substantive and dialogical dimensions of critical thinking in high school and university students. *Revista Cátedra*, 2(1), 57-71.

### Resumen

El pensamiento crítico es sin duda uno de los pilares fundamentales en el desarrollo personal, social y académico del individuo porque ayuda a procesar y construir conocimientos consientes del mundo real; en este estudio se requiere analizar y evaluar a los alumnos, así como también determinar la evolución y diferencias en las dimensiones sustantivas y dialógicas en educandos de bachillerato, segundo y séptimo nivel de los estudiantes universitarios. Sobre esta base, se investigó a 375 alumnos, con el enfoque cuantitativo, enfatizados en el análisis de carácter descriptivo y comparativo en un inicio con los datos grupales al test de normalidad de Shapiro Wilk (al tratarse de puntuaciones discretas). La dimensión de escritura sustantiva presentó una significancia  $p = 0,05$  por lo que fue necesario utilizar la prueba de Kolmogorov Smirnov con corrección de Lilliefors, para contrastar si el conjunto de datos se ajusta o no a una distribución normal en este caso se obtuvo una significancia  $p = 0,11$ , con lo que puede decirse que todas cumplieron con el criterio de normalidad ( $p > 0,05$ ). En la investigación se consideró el valor medio para cada una de las dimensiones y categorías. De los resultados obtenidos se determinó que existen falencias en los estudiantes de bachillerato y disminuyen a medida que superan el nivel de instrucción.

### Palabras clave

Aprendizaje, dimensión dialógica, dimensión sustantiva, educación, pensamiento crítico.



[Licencia Creative Commons Atribución 4.0 Internacional \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/)

Revista Cátedra, 2(1), pp. 57-71, January-April 2019. e-ISSN: 2631-2875

<https://doi.org/10.29166/catedra.v2i1.1215>

## Abstract

Critical thinking is undoubtedly essential in the personal, social and academic development of the individual because it helps to process and build knowledge of the real world. In this study it is necessary to analyze and evaluate the students, as well as to determine the evolution and differences in the substantive and dialogical dimensions in high school students, second and seventh level of university students. On this basis, 375 students were investigated using the quantitative approach, which emphasized in the analysis of descriptive and comparative character in the beginning with the group data with Shapiro Wilk normality test (when dealing with discrete scores). The substantive writing dimension had a significance  $p = 0.05$ , so it was necessary to use Smirnov Kolmogorov test with Lilliefors correction in order to test whether or not the data set were adjusted to a normal distribution, in this case a significance  $p = 0.11$  was obtained, and it can be said it met the criterion of normality ( $p > 0.05$ ). In the investigation, the average value for each of the dimensions and categories was considered. From the results obtained it was determined that there are shortcomings in high school students and these shortcomings reduce once they get increase their level of instruction.

## Keywords

Learning - dialogical dimension - substantive dimension - education - critical thinking.

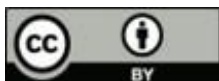
## 1. Introduction

This research originates by the difficulties observed in students aspiring to enter the university. In Ecuador, new models of educational management are implemented with the aim of improving the quality of education. Unfortunately, this set of policies has failed to articulate high school with higher education. At present, the difficulty of entering the university becomes more and more dramatic, it is common to find frustrated students, full of anger and disappointment because they did not achieve the necessary score in the tests of mathematical, linguistic, scientific and social domain as expressed by El Comercio (2018) "... being a bachelor 2018 required 698 points. Among the graduates the average was 685; while the qualification for the non-educated was 716 points. In whole, 291 703 people presented the exam ..." (p.5). Uncertainty continues even more when situations deal with contradictory feelings and thoughts simultaneously by overcoming skills not acquired at the previous levels of study. In this regard, Laiton (2010) states:

[...] it is a need that in this encompassed modern world, the student acquires skills of critical thought from the education like a whole; critical thinking that would allow him/her the access to any knowledge with autonomy, quality, criterion and necessary argumentation so that such knowledge not only becomes an information heap, but more a knowing what to do with the information, where to find it out, how to solve the daily problems with certainty and conceptual clarity (p. 1).

The above statements show the evolutionary level of critical thinking. In Ecuador this variant of thought can be seen among the high school student with respect to the university student. According to Vivas (2003) "... in terms of increasing critical thinking. [...]" (p. 259) what is relevant for this study is the establishment of differences between those who study the second level of the degree, compared to those who are on the seventh level.

The difficulties expressed earlier in this research are aimed at formulating the following questions: Are there differences in critical thinking in high school and university students?



[Licencia Creative Commons Atribución 4.0 Internacional \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/)

Revista Cátedra, 2(1), pp. 57-71, January-April 2019. e-ISSN: 2631-2875

<https://doi.org/10.29166/catedra.v2i1.1215>

Are there differences in relation to the level of studies?, Is there dependency on critical thinking in university students of different scientific fields? Are there divergences of critical thinking in university students from different universities? In this approach it is suggested that the questions will determine the changes at the level of critical thinking throughout the formative process. However, such changes have been documented in terms of increments (Vivas , 2003, p. 259).

With the results of the research it is necessary to raise awareness on the importance of critical thinking, to improve the social reality and the results related to the learning process to be a student and to be a bachelor (tests that are applied to students in order to obtain the degree and to enter the university, where a high percentage of young people have difficulties in the linguistic dimension; critical thinking must be systematically exercised. The academy aims to raise theoretical and practical strategies to develop in self-disciplined and self-regulated way this type of thinking in participants and students. The development of critical thinking in the classroom requires thinking and planning the class with routines and strategies that involve students in thinking. The purpose is to keep students active and motivated in the learning process.

The article is structured in four parts. The first part deepens the conceptual bases concerning the generalities of the critical thought, the peculiarities of the substantive and dialogical dimensions. The second part describes the methodology with the characteristics of the population and the trends of the groups involved in the research. The third part explains the approach, type of research, level of research and the instrument to be used in the collection of information, it performs a descriptive analysis of each of the items concerning the substantive and dialogical dimensions, i.e.,: substantive reading, substantive writing, listening-expressing orally, dialogic reading, dialogic writing, listening-expressing orally dialogic. In each one the analysis and interpretation is carried out with the option of greater and lesser repetition. The fourth part contains the conclusions in which the opinions are explained to be validated with the conceptual part of each of the items of the research instrument.

## 2. Theoretical frame

### 2.1 General aspects of the critical thinking

Dewey (2007) understood thought as an “active, persistent and careful consideration of a belief or way of knowledge of the bases that support it and its conclusions” (p. 24). Critical thinking is reasonable since it looks for the truth, thus, its aim is to recognize what is fair and true; i.e., the thinking of a rational human. Ennis (1985) also insists in the fact that critical thinking is reflexive, and states “it is a thinking that analyzes the results of its own analysis and those of different analyses” (p. 45). Based on this idea, it can be said that in Ecuador critical thinking is limited in universities, considering the own experiences before having more awareness and objectivity, since by being neutral and using the reason, it allows reaching a deep knowledge that motivates the research, allowing that people can talk with knowledge.

Alejos (2005) indicates that Michael Scriven (1996) conceived critical thinking as an intellectual, disciplined and active process that develops cognitive skills such as: "conceptualize, apply, analyze, synthesize, evaluate and validate information, through the experience, reflection, reasoning and communication as a guide to belief and put into action"(p. 5). At the university level, in order to meet social and professional expectations, the idea is to develop critical thinking. The purpose is that students and teachers question



[Licencia Creative Commons Atribución 4.0 Internacional \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/)

Revista Cátedra, 2(1), pp. 57-71, January-April 2019. e-ISSN: 2631-2875

<https://doi.org/10.29166/catedra.v2i1.1215>

themselves, ask questions, investigate, generate ideas and propose solutions to problems based on epistemological knowledge.

This kind of thinking will depend on the educational philosophy of the university. In this sense this tendency allows the subject to carry out an analysis of the experiences and information he/she possesses and be able to reach the conclusions of the reality. In addition, this requires the implementation of cognitive skills understanding these as the active process of thinking that consists of taking alternatives, so the emotional competencies that the human being has are related to the personal attitudes necessary to think.

Lipman (1996) quoted by Serrano (2011) considers that "critical thinking is a capable and responsible thinking as it leads to judgment because it is based on criteria, it is self-correcting and context-sensitive" (p. 4). People with critical thinking rely on coherent criteria and sustainable judgments, and are able to regulate their ideas, reorient their decisions and opinions, and take responsibility for their reasoning, based on the scientific theory and the surrounding context. In the daily life of a young university, critical thinking is developed and evidenced in various situations, from the elaboration of a complex task, the analysis of others' ideas, issuance of criteria, rectification of judgments, the construction of a project, preparation of an exhibition, writing of essays, among others.

All these activities coupled with the implications of group work and interactions with the educational phenomenon agree with the fact that the student demonstrates skill in his/her critical thinking. According to the author, this ideology has to be sensitive to the context, and the executive functions that allow to regulate behavior and to plan ideas with this kind of thinking; therefore, critical thinking not only generates beings able to investigate and explore, but it allows them to evaluate all their knowledge and question if necessary. The development of critical thinking of educational spaces is of great importance because we not only assimilate information in our human nature, but enter into a thorough analysis of the information received to use it later, not to destroy, but to build a better society. In this regard, Elder and Paul, (2005) indicate:

The reality is that teachers will be able to encourage critical thinking only to the extent that they think critically. This could be the most important barrier for the student to achieve the competencies of critical thinking. Teachers should think thoroughly so they can help their students to think thoroughly. For teachers to promote a sensible, rational and multilogical global vision, they will have to develop it. In short, teaching critical thinking presupposes a clear conception of critical thinking in the mind of the teacher (p. 7).

Critical thinking is a capacity that the human being possesses, the same that implies reason, truthfulness, judgement, precision, coherence and a high knowledge of the subject. Critical thinking allows the analysis and evaluation of certain information through intelligence, knowledge and reasoning. The university student will be able to organize his/her ideas, concepts and knowledge which allow him/her to reach more objective information.

The position of the authors is very clear with regard to critical thinking because it is a process that organizes the ideas and knowledge of the human being in relation to a subject. It considers its cognitive aspect to establish objective ideas and reflects leaving aside the emotional aspect. Ribadeneira (2012) proposes a broad stance in this regard, and indicates:



[Licencia Creative Commons Atribución 4.0 Internacional \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/)

Revista Cátedra, 2(1), pp. 57-71, January-April 2019. e-ISSN: 2631-2875

<https://doi.org/10.29166/catedra.v2i1.1215>

... it is a proposal with a high reference of the individual's reality that is based on the most advanced knowledge of science, but without giving up the cultural identity and the popular wisdom that integrates it, with the purpose of serving as a transformer instrument, so that the human being does not remain in the past or in postmodern times without criterion or argument (p.27).

Thus, it can be determined that critical thinking considers the own experiences and experience of the human being. The personal overcoming is not only in the scientific bases, but in its customs, its worldview and its know-how: to know, to know to be, to know how, as a contribution to its professional preparation.

## 2.2 Sustantive dimension

The substantive dimension is the ability to value thought expressed through sustained information, articulated concepts, algorithmic methods with respect to a discipline of knowledge. In this regard, Montoya(2007) states:

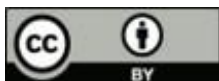
The substantive dimension evaluates the truth or falsehood; in this way, thought becomes more objective and effective in its processing and production of information, since it is based on data and information compared rather than mere opinions (p. 7).

The substantive dimension is consistent with the content of the thought, through which can be connoted the quality of thought when expressing solid knowledge, sustained and adjusted to the context and the reality. The results of this dimension triggers in: coherent statements when one thought becomes another from the semantic level, i.e. the meanings of the main ideas; and from the lexical level when using synonyms. Therefore, the substantive dimension refers to the quality of information that is provided to society based on the different fields of knowledge.

## 2.3 Dialogic dimension

According to Montoya (2007), "The dialogic dimension is the ability to examine the thought in relation to the others in order to assume different points of view and mediate other thoughts" (p. 78). This dimension makes it easier for people to probe, explore, examine our thoughts in relation to the thought manifested and expressed by others, with the aim of discerning and appropriating other points of view.

In this dimension some strategies that allow to examine one thought from the solution of another can be identified; in other cases, the argumentation in relation to the other one can be evaluated while it is discussed. Moreover, the arguments different to ours can be evaluated to make a decision; therefore, the argumentation is considered as a strategy of persuasion to the other through the dialogue. In the Academy, the dialogic dimension allows to establish the relationship with other speakers who enunciate their position with respect to those evidenced in reality. It contributes to learning to live together and to cooperate with other people regardless their ideological, cultural, academic and scientific heritage.



[Licencia Creative Commons Atribución 4.0 Internacional \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/)

Revista Cátedra, 2(1), pp. 57-71, January-April 2019. e-ISSN: 2631-2875

<https://doi.org/10.29166/catedra.v2i1.1215>

### 3. Methodology

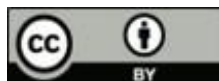
375 participants were considered among the students of the BGU (General Unified Baccalaureate,) of a public institution of Quito, and university students of Escuela Politécnica Nacional (category A) and UTE University (category B), of different careers and who were coursing the second or seventh level by that moment. 193 out of the 375 participants were women (51.5%) and 182 were men (48.5%), noting gender balance.

Group	Frequency	Femenine	Masculine	Total
Technical Baccalaureate	F	1	38	39
	%	2.6%	97.4%	100 %
Environmental Engineering (2) EPN	F	14	16	30
	%	46,7%	53.3%	100 %
Environmental Engineering (7) EPN	F	16	16	32
	%	50.0%	50.0%	100 %
Business Engineering (2) EPN	F	18	11	29
	%	62.1%	37.9%	100 %
Business Engineering (7) EPN	F	26	16	42
	%	61.9%	38.1%	100 %
Business Engineering (2) UTE	F	15	13	28
	%	53.6%	46.4%	100 %
Business Engineering (7) UTE	F	12	16	28
	%	42.9%	57.1%	100 %
Environmental Engineering (2) UTE	F	14	12	26
	%	53.8%	46.2%	100 %
Environmental Engineering (7) UTE	F	16	21	37
	%	43.2%	56.8%	100 %
Basic Education (2) UTE	F	41	17	58
	%	70.7%	29.3%	100 %
Basic Education (7) UTE	F	20	6	26
	%	76.9%	23.1%	100 %
Total	F	193	182	375
	%	51.5%	48.5%	100 %

Table 1. Gender distribution

It can be seen that there is equilibrium in the proportions with respect to the gender. However, in the case of the baccalaureate there was evidence of more presence of men than women, and in the career of basic education there were more women than men.

The age of the research group ranged between 16 and 47 years, with a mean of 22.5 and deviation of 4.6 years. Table 1 and 2 shows the distribution by gender and the average age of each research sub-group.



[Licencia Creative Commons Atribución 4.0 Internacional \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/)

GROUP	Mean	Standard deviation
TECHNICAL BACCALAURATE	16.6	0.6
ENVIRONMENTAL ENGINEERING (2) EPN	20.4	1.3
ENVIRONMENTAL ENGINEERING (7) EPN	22.9	1.5
BUSINESS ENGINEERING (2) EPN	20.6	1.3
BUSINESS ENGINEERING (7) EPN	22.9	1.1
BUSINESS ENGINEERING (2) UTE	21.0	3.9
BUSINESS ENGINEERING (7) UTE	22.6	1.8
ENVIRONMENTAL ENGINEERING (2) UTE	20.0	1.2
ENVIRONMENTAL ENGINEERING (7) UTE	22.8	1.4
BASIC EDUCATION (2) UTE	26.4	6.3
BASIC EDUCATION (7) UTE	29.2	6.2
Total	22.5	4.6

Table 1. Average age per subgroup

The groups are homogeneous (low dispersion), especially the high school group which presented an average of 16.6 years. Online education (specialization: basic education) of UTE University with the average age of 26, 4 years for the second level and 29.2 years for the seventh level presented more dispersion, situation that was into account since, in this group many of the students fulfilled functions as teachers of educational institutions.

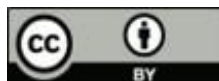
Other variables of interest were the place of origin and residence, determining that 69.9% were from Pichincha and the rest was distributed in other provinces with proportions below 4%. As for the place of residence, 80.3% did so in Quito, the rest was distributed minimally in the other provinces, a situation that is explained from the fact that a fraction of the group was studying online.

#### 4. Design

The design belongs to a descriptive exploratory study. Exploratory research is useful in topics such as critical thinking in university students, making differences between disciplines (Barratt, 1996, p. 78). The descriptive study allows to outline the structural or functional conditions of the problem selected, using in this case the variables identified as relevant based on the bibliographic analysis. The descriptive design "seeks to specify properties and important characteristics of any phenomenon that is analyzed, and it describes trends of a group or population" (Hernández et al., 2014, p. 92).

The instrument used was the critical thinking questionnaire designed by Santiuste (2001), composed of 30 questions aimed at exploring the dialogic and substantive dimensions. The instrument has a summative or ordinal type scale called Likert, intended to evaluate opinions and attitudes by assigning numerical scores to obtain the mean value for each specific dimension.

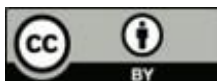
It is important to note that the instrument's reliability test was developed through a pilot study to 74 students: 14 High school students and 60 second-level students from two universities. It determines the internal consistency with Cronbach Alpha method whose result is 0.918, which is considered as very good, and without the need to rethink or delete any item, as confirmed by the following table.



[Licencia Creative Commons Atribución 4.0 Internacional \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/)

Item	Mean if the element has been eliminated	Variance if the element has been eliminated	Total correlation of corrected elements	Cronbach Alpha if the element has been eliminated
LS.- question 1	108,770	228,006	.479	.916
LD.- question 2	109,770	241,486	.038	.923
OS.- question 3	109,000	226,595	.469	.917
ES.- question 4	108,963	231,521	.294	.920
ED.- question 5	108,912	226,333	.518	.916
ED.- question 6	109,000	230,531	.469	.916
LD.- question 7	108,898	229,523	.471	.916
OS.- question 8	108,850	229,575	.469	.916
ES.- question 9	108,912	227,233	.547	.915
ES.- question 10	108,762	227,721	.543	.915
LS.- question 11	108,914	227,934	.538	.915
LD.- question 12	109,019	228,313	.510	.916
LS.- question 13	108,963	228,696	.483	.916
OS.- question 14	108,853	226,641	.566	.915
OD.- question 15	108,840	228,162	.553	.915
LS.- question 16	109,021	225,946	.623	.914
LS.- question 17	108,901	229,060	.431	.917
LS.- question 18	109,029	227,525	.534	.915
LS.- question 19	108,936	226,071	.612	.914
OD.- question 20	108,912	228,242	.518	.916
LS.- question 21	108,853	227,783	.555	.915
LD.- question 22	109,021	230,777	.382	.918
ES.- question 23	108,861	228,946	.529	.916
LS.- question 24	108,842	228,755	.529	.916
LS.- question 25	108,837	226,024	.556	.915
ES.- question 26	108,992	228,710	.533	.915
OS.- question 27	108,797	226,409	.578	.915
LS.- question 28	108,914	225,826	.633	.914
ES.- question 29	108,789	223,111	.614	.914
LS.- question 30	108,642	226,542	.601	.914

Cuadro 2. Resultado de la prueba de confiabilidad



[Licencia Creative Commons Atribución 4.0 Internacional \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/)



## 5. Results

The results come from 375 students of the different interest groups in this study. The application of the Critical Thinking Questionnaire (CPC) (Santiuste et al., 2001), the database was designed in the statistical program SPSS in its version 23 in Spanish IBM®, which made it possible to operate the statistical processing at both descriptive level as inferential. Due to the magnitude of the results, only the answers are presented for each of the questions grouped by dimension.

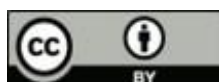
## 6. Descriptive analysis

Item	Value income (1)		Value conditions (11)		Identify relevant information (13)		Identify arguments (16)		Looks for reasons (17)		Verify logic (18)	
	F	%	F	%	F	%	F	%	F	%	F	%
Totally disagree	12	3.2	4	1.1	5	1.3	7	1.9	12	3.2	6	1.6
Disagree	19	5.1	21	5.6	33	8.8	25	6.7	26	6.9	31	8.3
Sometimes	78	20.8	122	32.5	109	29.1	119	31.7	99	26.4	124	33.1
Agree	147	39.2	139	37.1	143	38.1	161	42.9	132	35.2	140	37.3
Totally agree	119	31.7	89	23.7	85	22.7	63	16.8	106	28.3	74	19.7
Total	375	100	375	100	375	100	375	100	375	100	375	100

Table 4. Substantive reading (I)

In this block it was determined that most of the people indicated the options of agreement or totally agree, which would reveal an acceptable level of compliance with these indicators. As shown in table 4, the lowest-weighted item was the internal logical verification of the texts read. Overall, the results seem acceptable, item 18, *I verified the internal logic of the texts I read*, shows that there is not a thorough knowledge of something as basic as textual properties, since the text has a structure. It contains an internal logic that provides explicit and implicit information that helps decrypt it. This result should be analyzed cautiously since the ignorance of the textual properties and the internal logic have an impact on the reading comprehension.

Item	Value possible solutions (19)		Get conclusions (21)		Differentiate opinions (24)		Pose validity (25)		Discriminate type of information (28)		Identify relevant information (30)	
	F	%	F	%	F	%	F	%	F	%	F	%
Totally disagree	6	1.6	6	1.6	4	1.1	7	1.9	4	1.1	4	1.1
Disagree	23	6.1	18	4.8	17	4.5	25	6.7	21	5.6	13	3.5



[Licencia Creative Commons Atribución 4.0 Internacional \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/)

Revista Cátedra, 2(1), pp. 57-71, January-April 2019. e-ISSN: 2631-2875

<https://doi.org/10.29166/catedra.v2i1.1215>

Sometimes	108	28.8	97	25.9	104	27.7	100	26.7	115	30.7	80	21.3
Agree	161	42.9	167	44.5	160	42.7	130	34.7	153	40.8	145	38.7
Totally agree	77	20.5	87	23.2	90	24.0	113	30.1	82	21.9	133	35.5
Total	375	1000	375	100	375	100	375	1000	375	100	375	100

Table 5. Substantive reading (II)

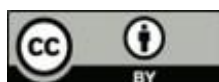
In table 5 is observed that the acceptance of the fulfillment of most of the items relates the category of "agreement"; however, the one of lesser weight corresponded to the item 25, *I consider if the texts that I read say something that is in effect today*. The data show that sometimes students are not critical on what they read, and they get everything that is presented as information from the media, but do not discriminate its relevance, its validity or its reliability.

Item	Reliable sources (4)		Present advantages (9)		Justify conclusions (10)		Differentiate facts (23)		Present reasons (26)		Mention sources (29)	
	F	%	F	%	F	%	F	%	F	%	F	%
Totally disagree	22	5.9	7	1.9	7	1.9	3	.8	1	.3	12	3.2
Disagree	36	9.6	25	6.7	20	5.3	20	5.3	25	6.7	24	6.4
Sometimes	92	24.5	100	26.7	71	18.9	102	27.2	138	36.8	86	22.9
Agree	100	26.4	158	42.1	174	46.4	165	44.0	136	36.3	122	32.5
Totally agree	125	33.3	85	22.7	103	27.5	85	22.7	75	20.0	131	34.9
Total	375	100	375	100.0	375	100.0	375	100.0	375	100.0	375	100.0

Table 6. Substantive writing

For the substantive writing dimension, an acceptable level of compliance with the indicators is evident given that the majority of answers are concentrated in the categories: "Agree" and "Totally agree", however, the least-weighted indicator referred to Item 4, when *I look for information to write a job, I judge whether the sources I manage are reliable*. However, there is not an adequate process by the students to determine the reliability of the source, making the students more feasible to incorrect sources.

Item	Mention the source (3)		Present solutions (8)		Justify opinions (14)		Clear (27)	
	F	%	F	%	F	%	F	%
Totally disagree	14	3.7	5	1.3	7	1.9	7	1.9



[Licencia Creative Commons Atribución 4.0 Internacional \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/)

Disagree	32	8.5	24	6.4	23	6.1	18	4.8
Sometimes	131	34.9	95	25.3	92	24.5	92	24.5
Agree	79	21.1	156	41.6	157	41.9	151	40.3
Totally agree	119	31.7	95	25.3	96	25.6	107	28.5
Total	375	100	375	100	375	100	375	100

Table 7. Listen-oral substantive expression

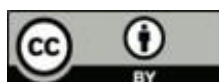
With regard to oral listening-expression in a substantive way, it is observed in table 7, that the answers concentrated in the categories: "sometimes" and "agree", being item 3, *when I expose orally an idea that is not mine, I mention its source* the least weighted. These results, especially the one referring to the sources, show the little importance that the students give to the recognition of the others' ideas during the oral discourse, a situation quite common in the academic communicative exchanges that effects the level of academic honesty.

Item	Point of view (2)		Alternative interpretation (7)		Provide evidence (12)		Consider mistake (22)	
	F	%	F	%	F	%	F	%
Totally disagree	36	9.6	8	2.1	8	2.1	11	2.9
Disagree	72	19.2	16	4.3	29	7.7	34	9.1
Sometimes	171	45.6	113	30.1	112	29.9	109	29.1
Agree	81	21.6	149	39.7	157	41.9	138	36.8
Totally agree	15	4.0	89	23.7	69	18.4	83	22.1
Total	375	100	375	100	375	100	375	100

Table 8. Dialogic reading

In relation to the dialogic reading, most people concentrated their response in "sometimes", as shown in table 8, considering that item 2, *when I read the opinion or a thesis that agrees with my point of view, I take sides without considering other possible reasons contrary to it*. This is the only one of the group with inverse scale, in item 22, the one with the least weight *when I read something I disagree with, I think I may be wrong and it is the author who is right*. The results are different compared to those of substantive reading, inferring that there is no real dialogue of the reader with the author, i.e., it is a mechanic processing of the information obtained through the reading but a critical processing is not achieved.

Item	Alternative opinions (5)		Present interpretations (6)	
	F	%	F	%
Totally disagree	11	2.9	4	1.1



[Licencia Creative Commons Atribución 4.0 Internacional \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/)

Disagree	33	8.8	29	7.7
Sometimes	89	23.7	107	28.5
Agree	139	37.1	176	46.9
Totally agree	103	27.5	59	15.7
Total	375	100	375	100

Table 9. Dialogic writing

The answers referred to the dialogic writing are observed in table 9; the rank that excels is "agree" or "Totally agree", and the weights do not allow to define which of the reactants was more deficit of information. However, the results indicate more difficulties than in the substantive writing if considering a global weighted mean.

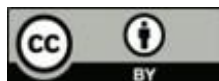
Item	Alternative interpretation (15)		New ideas (20)	
	F	%	F	%
Totally disagree	4	1.1	7	1.9
Disagree	20	5.3	22	5.9
Sometimes	94	25.1	105	28.0
Agree	169	45.1	156	41.6
Totally agree	88	23.5	85	22.7
Total	375	100	375	100

Table 10. Listening- oral dialogic expression

With regard to the answers referred by listening- oral dialogic expression there are two items in table 10. In this case it was determined that the most frequent response was "agree", without an item that could be considered a problem in this dimension, since more than 90% valued these indicators with acceptable scales.

## 7. Conclusions

It is verified that the substantive dimension record higher scores than the dialogical, although these differences do not become statistically significant. With regard to the "substantive reading" dimension, 90% of the participants reach scores equal to or greater than 3. The skills where greater dominance is evident are related to the valuation of the usefulness of the information presented, the validity of the exposed arguments and the identification of the most relevant information. Instead, the skills that present more weaknesses are linked to identifying arguments and verifying logic.



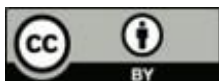
[Licencia Creative Commons Atribución 4.0 Internacional \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/)

In the analysis of the dimension "dialogic reading" it is concluded that the scores of the participants are slightly lower than those reached in their "substantive" version, having more answers the scales "sometimes" and "agree". The greater difficulty of the students is in the use of viewpoints contrary or different to theirs, and the least difficulty is the consideration of alternative interpretations.

In the "substantive writing" dimension is reflected as the main conclusion that the use and relevance of the sources from which students extract information are the skills that present the greatest strengths in this category. On the other hand, it is concluded that weaknesses could rely in the presentation of arguments, advantages and disadvantages of the issues or problems raised.

The "dialogic writing" dimension shows that the learners find it easier to present alternative opinions from other authors than to expose alternative interpretations of the same fact. As for the dimension "oral substantive", although the scores recorded in the different are very similar, a greater dominance perception can be seen. Finally, the "oral dialogic" dimension concludes that the questioning by the existence of alternative interpretations that explain the same fact seems to be the skill that the students practice with more dominance.

Throughout the research process, limitations were found in the updated conceptualizations with respect to the substantive and dialogical dimensions. The strategies related to the substantive and dialogical dimensions are very limited for their dissemination despite the use and application in the learning processes. Future investigators of this topic require to complement with proposals for the substantive and dialogical dimensions.



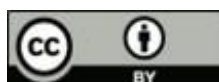
[Licencia Creative Commons Atribución 4.0 Internacional \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/)

Revista Cátedra, 2(1), pp. 57-71, January-April 2019. e-ISSN: 2631-2875

<https://doi.org/10.29166/catedra.v2i1.1215>

## References

- Alejos, A. (22 de Septiembre de 2005). *DESAROLLO DEL PENSAMIENTO CRÍTICO*. Recuperado el 10 de 01 de 2017, de <http://avita1706.blogspot.com/2005/09/qu-es-el-pensamiento-crtico.html>
- Boisvert, J. (2004). *La formación del pensamiento crítico: Teoría y práctica*. México: IEPSA.
- Dewey, J. (2007). *Cómo pensamos*. Barcelona: Paidós.
- El Comercio. (07 de 03 de 2018). 698 puntos fue la nota promedio de la Ser Bachiller. Sociedad. Recuperado el 23 de 10 de 2018, de <https://www.elcomercio.com/actualidad/promedio-serbachiller-universidades-carrera-estudiantes.html>
- Elder, L., & Paul, R. (2005). <https://www.criticalthinking.org/>. Recuperado el 19 de 11 de 2018, de Estándares de Competencia para el Pensamiento Crítico: [https://www.criticalthinking.org/resources/PDF/SP-Comp\\_Standards.pdf](https://www.criticalthinking.org/resources/PDF/SP-Comp_Standards.pdf)
- Ennis, R. (1985). Obtenido de [http://www.econ.uba.ar/www/institutos/contable/ceconta/Foro\\_practica\\_profesional/Principal/PDF\\_Simposio\\_2010/T\\_2010\\_06\\_Diaz\\_Montenegro.pdf](http://www.econ.uba.ar/www/institutos/contable/ceconta/Foro_practica_profesional/Principal/PDF_Simposio_2010/T_2010_06_Diaz_Montenegro.pdf)
- Hernández, R., Fernández, C., & Baptista, M. (2014). *Metodología de la investigación* (Sexta ed.). Mexico: McGRAW-HILL/INTERAMERICANA EDITORES. S.A. DE C.V. Recuperado el 23 de 10 de 2018
- Laiton, I. (2012). <https://books.google.com.ec>. Recuperado el 19 de 11 de 2018, de Enseñanza Del Pensamiento Crítico, Sustento Teórico Y Hallazgos: [https://books.google.com.ec/books/about/Ense%C3%B1anza\\_Del\\_Pensamiento\\_Cr%C3%ADtico\\_Sust.html?id=q\\_zhuQAACAAJ&redir\\_esc=y](https://books.google.com.ec/books/about/Ense%C3%B1anza_Del_Pensamiento_Cr%C3%ADtico_Sust.html?id=q_zhuQAACAAJ&redir_esc=y)
- Marciales Vivas, G. P. (2003). <https://biblioteca.ucm.es>. Recuperado el 25 de 10 de 2018, de PENSAMIENTO CRÍTICO: DIFERENCIAS EN ESTUDIANTES UNIVERSITARIOS EN EL TIPO DE CREENCIAS, ESTRATEGIAS E INFERENCIAS EN LA LECTURA CRÍTICA DE TEXTOS: <https://biblioteca.ucm.es/tesis/edu/ucm-t26704.pdf>
- Montoya, J. I. (11 de 04 de 2007). <http://revistavirtual.ucn.edu.co/>. Recuperado el 16 de 11 de 2018, de Acercamiento al desarrollo del pensamiento crítico, un reto para la educación actual: <http://revistavirtual.ucn.edu.co/index.php/RevistaUCN/article/view/165/318>
- Ribadeneira, M. (2012). *Estrategias docentes y su influencia en el desarrollo del pensamiento crítico en los /as estudiantes del primer semestre de la Carrera de Ciencias Sociales Facultad de Filosofía y propuesta de guía pedagógica*. Quito: UCE.
- Saiz, C. (2002). *Pensamiento Crítico*.
- Santiuste, B., Ayala, B., García, E., González, J., Rossignoli, J., & Toledo, E. (2001). *El pensamiento crítico en la práctica educativa*. Madrid: Fugaz Ediciones.
- Scriven, P. (1996). *educacion.gob.ec*. Obtenido de Manual del pensamiento crítico, conferencia Atlanta: <https://educacion.gob.ec/wp-content/uploads/downloads/2013/03/SiProfe-Didactica-del-pensamiento-critico.pdf>



[Licencia Creative Commons Atribución 4.0 Internacional \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/)

Revista Cátedra, 2(1), pp. 57-71, January-April 2019. e-ISSN: 2631-2875

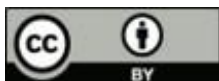
<https://doi.org/10.29166/catedra.v2i1.1215>

Serrano, R. d. (2011). El pensamiento crítico del estudiante como opción para la calidad de la educación superior. Cuadernos COLAM, 4.

### Author

**MANUEL GONZALO REMACHE-BUNCI** obtained his PhD degree in the Official Doctoral Program in Psychology at Universidad de Extremadura in Spain on July 2017 ("cum laude"). He holds a PhD in Educational Psychology and Vocational Guidance from Universidad Nacional de Loja (Ecuador) in 2000. He has a Master in Management of Educational and Social Projects by the Faculty of Philosophy, Literature and Education Sciences of Universidad Central del Ecuador (Ecuador) in 2009. He obtained a Bachelor degree of Science in Education, in the specialization of Educational Psychology and Orientation by the Faculty of Philosophy, Letters and Education Sciences of Universidad Central del Ecuador (Ecuador) in 2002. He has a title of Elementary School professor by the Institution Belisario Quevedo of Ecuador (Ecuador) in 1993.

He worked as a psychologist in the Department of Student Orientation and Welfare (DOBE), Vice-rector and Rector (2010-2014) of the Technological Institute «Sucre» in Quito, he worked as a professor at UTE University (2009-2018), currently he is a professor of the career of Educational Psychology, Faculty of Philosophy, Letters and Education Sciences of Universidad Central Ecuador.



[Licencia Creative Commons Atribución 4.0 Internacional \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/)

Revista Cátedra, 2(1), pp. 57-71, January-April 2019. e-ISSN: 2631-2875

<https://doi.org/10.29166/catedra.v2i1.1215>