https://doi.org/10.17163/soph.n27.2019.09

The concept of critical thinking according to Chilean preservice teachers

El concepto de pensamiento crítico según estudiantes chilenos de pedagogía

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Abstract

This paper analyzes the concept of critical thinking according to the perspective of a group of preservice teachers from a Chilean university; they are currently in the fourth year of their program. Twenty future teachers participated in a focus group discussion in which they expressed their perspectives on the subject. The answers collected were analyzed using the content analysis technique, which allowed the creation of different categories. Among the most recurrent concepts about critical thinking, we could find: analyzing, reflecting, reasoning, change generation and problem solving. The students defined a critical thinker in their different dimensions: as someone competent, both cognitively and socially, and, at the same time, as someone who takes personal and collective aspects into account. The interviewees also mentioned their role of educating critical thinkers, and explained some of the key elements for making that possible. Some of them were: teaching the importance of feeding on reliable information sources, and accepting feedback from their peers. After a comparison between the interviewees' conceptualizations and the existing literature, it is found that the students' perspectives are closely related to those of theory.

Keywords

Thinking, pedagogy, conceptualization, content analysis, student, teacher.

Resumen

El presente trabajo analiza el concepto de pensamiento crítico según la perspectiva de un grupo de estudiantes de pedagogía provenientes de una universidad chilena, quienes se encuentran cursando el cuarto año de su carrera. Veinte futuros profesores de diferentes programas de formación docente participaron de la muestra, con un método de recolección de datos centrado en la técnica del grupo focalizado, en el cual los participantes expresaron sus perspectivas respecto al tema. Las respuestas recogidas fueron analizadas utilizando la estrategia del análisis de contenido, la cual permitió generar diferentes categorías. En cuanto a los conceptos más recurrentes con respecto al pensamiento crítico fueron: analizar, reflexionar, razonar, generar cambios y resolver problemas. Los estudiantes definieron al pensador critico en distintas dimensiones como alguien competente cognitiva y socialmente, y a la vez, como alguien que considera los ámbitos tanto personal como colectivo. Los entrevistados también hacen mención a su papel como formadores de pensadores críticos y explican algunos de los elementos clave para ejecutar esta tarea; algunos de los cuales son: educar en la importancia de valerse de fuentes de información confiables y aceptar retroalimentación de parte de los pares. Se realiza, además, una comparación entre las conceptualizaciones de los entrevistados y la literatura existente, y se descubre que las perspectivas de los participantes coinciden estrechamente con los planteamientos de la teoría.

Palabras clave

Pensamiento, pedagogía, conceptualización, análisis de contenido, estudiante, docente.

Suggested form of citing: Díaz, Claudio, Ossa, Carlos, Palma, Maritza, Lagos, Nelly & Boudon, Javiera (2019). El concepto de pensamiento crítico según estudiantes chilenos de pedagogía. *Sophia, colección de Filosofía de la Educación*, *26*(1), pp. 261-281.

Introduction

The improvement of educational quality is currently facing challenges such as developing competencies of scientific skills, encouraging participation, improving the level of knowledge, adapting to diversity, not

Print ISSN: 1390-3861 / Electronic ISSN: 1390-8626, pp. 261-281.

allowing oneself to be influenced by ideological pressures or groups of power and moving towards autonomy of the thought (Marsillac and Gastalho, 2012, Morales et al., 2018).

Critical thinking is seen as a fundamental part of the skills that a cultured human being should have. It is required in academic and work contexts of different kinds and the subject has been studied for decades. Following this logic, it is expected that students of pedagogy, who are just steps away from being educators, know, at least roughly, what it is to be a critical thinker and how we can get to train one, in order to continue the knowledge network and apply what they have learned in their formative years, thus obtaining competent students in the application of critical thinking in various fields.

Unfortunately, it is not easy to find a brief or exact definition of this concept, on the contrary, it is very complex and includes several axes, therefore it is essential to learn about it through much reading and analysis. On the other hand, since this concept is not easy to explain, many educated people - despite understanding its meaning and being able to judge their presence or absence - are unable to provide a satisfactory definition.

For the above, it has been pointed out that the formation of critical thinking is a complex reality, since there is no general agreement about its definition (Davies, 2011), nor about what are the skills that make up critical thinking. It has been historically defined as a type of elaborated thinking, that is, as a cognitive process that involves evaluation and reflection (Butler, 2012, Saiz and Rivas, 2008a), which allows the construction of new knowledge and the strategic use of it in the solution of problems present in daily life (Black, 2012; Marin and Halpern, 2011).

The study that gives context to this publication aims to know if this is the case of the Chilean pedagogy students, who in the future will assume an important role in the understanding and application of this concept in many children and young people. In addition, it is inserted in the context of the research project DIUBB 152023 3/IDU: "Evaluation of a training program in critical thinking based on collaborative learning in students of pedagogy in mathematics and pedagogy in natural sciences of the Universidad del Bío-Bío" (Directorate of Research of the Universidad del Bío-Bío).

The objective of the research is to analyze the conceptualization of critical thinking presented by students of pedagogical majors at a Chilean university. This paper presents an analysis made with the participants of the research, then, it is an interpretive and descriptive case study, which seeks to deepen the concept of critical thinking from the perspective of the pedagogy students, who will become teachers of the Chilean school system.

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The importance of critical thinking

Critical thinking is a recurring theme in different fields of knowledge. It is not only a desirable behavior, but also one that occupies a large part of the objectives that educators establish in their respective areas. López (2012) states that we should focus on "the formation of critical students, who become aware or question their social and historical reality and participate in their role as social actors as main goals" (p. 43). The development of critical thinking has taken more and more ground in the classroom, from an early age, and seems to be the key to success not only academic and labor fields, but also personal. For Saiz and Rivas (2008), this capacity is key for any active member of a society. Citizens with responsibilities in the future of a society should have sufficient development of their argumentation or decision-making skills. In short, they should manifest good performance in the skills that define critical thinking. Critical thinking, according to Saiz and Rivas (2008a) involves "a process of searching for knowledge, through reasoning skills, problem solving and decision making, which allows us to achieve, with the greatest effectiveness, the desired results" (p.28)

Critical thinking is, then, a complex and elementary process in equal proportions. Acosta (2018) states that "it intervenes in all human facets because of what is associated with the totality of the human being" (p. 213); likewise, Díaz-Barriga (2001) postulates that critical thinking is much more complex than a simple set of specific skills without a specific context or content, since it supposes a set of different skills and brings together different characteristics. Likewise, López (2012) mentions that "it is located as a complex, high-level thinking skill that involves other skills (comprehension, deduction, categorization, judgments, among others)" (p. 43). In spite of being studied constantly, for several decades, this sum of abilities that conform it already was being talked about.

The taxonomy of educative objectives of Bloom (1956) classified the skills hierarchically, dividing them in steps. The first, being the least complex (memory), followed by the steps of understanding and analysis, and ascending to synthesis and evaluation, achieving critical thinking. In other words, it is impossible to achieve critical thinking without climbing all the steps. Piette (1998) organizes skills in three groups. The first, includes the ability to clarify the received information, for example, formulate and understand questions and definitions, differentiate different elements of a problem or an argument, among others. The second, includes the ability to make judgments about the accuracy of the received information, here are skills such as judging and questioning the cred-

Print ISSN: 1390-3861 / Electronic ISSN: 1390-8626, pp. 261-281.

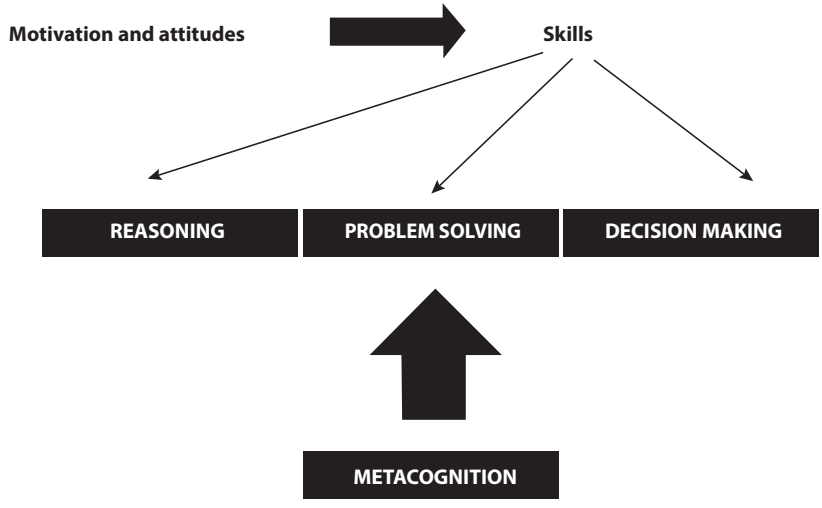
ibility of the information. The third group, finally, is where the received information is evaluated, here conclusions are reached, hypotheses and arguments are formulated, generalized and inferred.

Whatever the classification, each skill, from the simplest to the most complex, must be developed to reach the goal of critical thinking. But what is critical thinking in itself? We know that it is appreciated and considered crucial, but, as Saiz states (in Saiz and Nieto, 2008) "the way of assessing intellectual skills depends very much on how we understand them" (p. 25). These authors speak of the systematic, analytical, impartial, curiosity, the search for truth and trust in reason as elements that perhaps do not define, but they do characterize this type of thinking.

Based on some theoretical reviews on measurement instruments and experiences in the promotion of critical thinking (Ossa et al., 2017, Ossa and Díaz, 2017), it has been found that many cognitive processes are integrated into this construct and are not always explicit in the reasons for the differences between the theoretical models that develop or evaluate critical thinking. Therefore, it is important to also question what defines this type of thinking.

According to Halpern (2003), critical thinking is composed of several elements, both cognitive and non-cognitive (figure 1).

Figure 1
Components of critical thinking



Source: Halpern, 2003

Print ISSN: 1390-3861 / Electronic ISSN: 1390-8626, pp. 261-281.

In the classification of Halpern (2003) it can be seen that critical thinking goes much further than the domain of certain mental abilities. This is rather a set of social and practical skills, such as collecting and using tools that allow a good decision making in a specific context, that is, it is not only about developing a logical reasoning, but also requires being able to solve problems satisfactorily in real time and in a real environment. According to Acosta (2018), it is relevant to consider that this type of thinking must be flexible, reasonable, reflective and evaluative in such a way that it allows an adequate evaluation of the actions and decisions.

Saiz (2002) and Saiz and Rivas (2008a and b) -inspired by the Halpern model (2003) - argue that critical thinking focuses on reasoning to establish the process of refining thought. In this model, the first step is linked to the process of analyzing information, allowing proposing and reviewing hypotheses to understand the relationships between the elements that make up information, as well as the relationship between that information and its consequences. In this way, the argumentative skill is valued as a basic element, considered as the ability to investigate and organize valid and pertinent information around a logical argument that allows the communication of information (Torres da Silva, 2016).

The evaluation of the argumentation is fundamental in both models, because it is understood that critical thinking is nourished by a logical-formal process in its underlying structure, which incorporates different levels of reasoning for the analysis, be it deductive or inductive (Saiz, 2002). However, and like Halpern, accompanying the argument, it includes the ability to make decisions using arguments evaluated and validated through reasoning, as an effective way to find solutions to problems that occur in everyday life (Saiz and Rivas, 2008b).

It should also be noted that, in the contemporary perspective on critical thinking, space is given for emotional characteristics, beyond the cognitive, such as motivation and attitudes. Critical thinking, according to López (2012):

> It is also distinguished by the dispositions that each person contributes to a task of thought, such as mental openness, the attempt to be well and sensitivity to beliefs, feelings and knowledge of others and the way they face the challenges of life (p. 41).

Ennis (2011), on the other hand, classifies these emotional and cognitive skills into separate categories within critical thinking. These are: dispositions (being empathetic and open-minded) and capabilities

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(analyzing, making criticisms). The emotional factor is a great actor in learning and it is also for any process that requires complex reasoning. As can be seen, with the passage of time, more factors have been added to this concept that is so difficult to explain, for example, in certain cases it is spoken not only of dispositions and skills, but of certain characteristics of critical thinking. However, the consideration of emotional factors is still poorly integrated to the models that evaluate or promote this ability, sometimes generating different instruments to measure the cognitive components and the dispositional components that are related to the emotional and motivational (Valenzuela and Nieto, 2008). This primacy of the cognitive over the emotional in the explanation of thought processes may be due to the philosophical and scientific tradition presented by psychology, especially from the cognitivist perspective, which has permeated historically the study of thought (Subía and Gordón, 2014).

Interpretations of the concept of critical thinking

Despite the varied definitions of the concept of critical thinking, there is a kind of common framework that is tied to the general interpretation of the concept. In general terms, it can be defined according to Lipman (1998) as "a conceptually rich, coherently organized and persistently exploratory thought" (p.62). With this definition it can be pointed out that there are, at least, four requirements that are key in this type of thinking: complexity, depth, coherence and curiosity; the critical thinker reasons in a profound way, is consistent with his thinking and acting, and thirsts for greater knowledge or understanding.

It should also be noted that, in addition to achieving this deep reasoning, it is also necessary to reflect on it in order to evaluate it and learn from it, as explained by Valenzuela and Nieto (2008): "Critical thinking involves evaluation or judgment, both the result of thought and the process, with the aim of providing a useful and accurate feedback that serves to improve it" (p.2).

Such a broad concept brings with it multiple interpretations, which do not always come close to reality and can confuse those who believe they understand what critical thinking is. Paul, Binker, Martin, Vetrano and Kreklau (1995) state that, in many cases, students and teachers understand critical thinking as a negative concept, similar to being constantly "carping"; in other words, to misjudge, to comment without

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coherent arguments or to criticize constantly. In other cases, the beliefs are more accurate, but very vague: Paul and Elder (2005) explain it as a list of skills without connection to each other, that is, people can list a list of characteristics, but fail to integrate them in a useful in daily life; they limit themselves to defining critical thinking as a good thought or as a logical thought, without major foundations. Díaz-Barriga (2001) mentions that many teachers include critical thinking as part of their learning objectives, but unfortunately, they do not explain what they understand by critical thinking or how to encourage it in students. On the one hand, teachers and students are not very clear on how to define critical thinking in a satisfactory way, but, on the other hand, they seem to be right in that there are numerous general skills that make it up. Authors such as Quellmalz (1987), Kurfiss (1988), Swartz and Perkins (1990), Justicia (1996), Halpern (1998) and Bruning, Schraw and Ronning (1999) describe these skills in the following way:

Chart 1
Common skills of critical thinking

Knowledge: It is essential for critical thinking. It serves as a basis for logical reasoning. It facilitates the organization of the information that is received.	**Inference:** It is about creating connections between the knowledge that is possessed, related or not to each other. It moves from knowing to understand and relate facts and make judgments. It can be deductive or inductive.
Evaluation: He has sub-skills such as making value judgments, weighing, critiquing, etc. It is influenced by the experience, values, and skills of the previous categories.	**Metacognition:** It is thinking about thinking, as well as capabilities and limitations. Regulates the cognitive system, increasing awareness and thought control.

Source: The authors

However, by moving away from the educational level, critical thinking is part of daily life when making good decisions or analyzing a series of events. It is difficult for ordinary people to reflect on this, however, Facione (1990) shows a brushstroke of day-to-day actions that require critical thinking (figure 2).

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Figure 2
Definitions of critical thinking in everyday life

- Curiosity for a wide range of issues.
- Concern about being and staying well informed.
- Be alert to use critical thinking.
- Confidence in the process of reasoned inquiry.
- Confidence in one's reasoning abilities.
- Open mind to consider points of view diverging from one's own.
- Flexibility to consider alternatives and opinions.
- Understanding the opinions of other people.
- Fairness in the evaluation of reasoning.
- Honesty to face one's own prejudices, stereotypes, egocentric or sociocentric tendencies.

Source: Facione, 1990

Materials and method of the study

Within qualitative studies, the present investigation is circumscribed in the logic of a case study, since it examines the conceptualizations about critical thinking held by students of pedagogical majors at a Chilean university, as an exploratory way to deepen the concept in question from the perspective of the participants involved, for whom critical thinking constitutes a transversal competence that they must develop as professionals in education and a competence that they must promote in their own students during the pedagogical process.

The participants of the study were 20 Chilean students from different majors of pedagogy of a regional public university that trains teachers for the education system. The inclusion criteria for this study were: being in the fourth year of a total of five years and being up to date or at least not having more than a year of delay in the training process.

To carry out this study, the focused group strategy was used, with semi-structured questions, in order to identify the subjective representation, in terms of their perception and judgment, regarding the concept of critical thinking.

To analyze the qualitative data, the inductive content analysis strategy was used, which allowed to generate descriptive categories of the process, as well as constant comparisons about whether differences in the concept of critical thinking were observed. For this, the Atlasti software was used, which allowed the organization, segmentation and coding of the data, in a first stage, to then move on to the processes of categorization and subcategorization. To guarantee the reliability of the results, the

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data was triangulated by three researchers, who analyzed the data, first individually, and later agreed on the existing divergences, to achieve the definitive lifting of the categories.

Analysis and results

Once the semi-structured questions of the focus group were transcribed, a content analysis was carried out processing the data with the QDA Miner Lite v2.0.2 qualitative computer analysis program. For this, a coding procedure was established assigning them categories.

From a total of 49 responses from the interviewees, 26 sentences were selected that were a conceptual contribution to the concept of critical thinking, distributed by title (chart 2).

Chart 2
Significant responses of the interviewees

Significant responses to the concept of critical thinking	
Titles	**Highlighted assertions**
Concept	1. Know the different points of view, favorable and unfavorable. 2. Ability to debate, through which behavior changes can be achieved. 3. Having a defined objective. 4. Analyze what is thought to handle the theoretical foundations and express opinions. 5. Discern what information is used to reach a result. 6. Apply cognitive tools such as texts, opinions, and knowledge to interpret ideas. 7. Ability to reason, measure consequences and effects of events. 8. Identify the individual and collective perspective for decision making. 9. Ability to analyze or reflect on their own experiences or events. It is the realization that is not the same being critical or carper.
Critics or carpers?	10. A critical person perceives opinions or beneficial actions individually or collectively. A carper person has a negative or contrary attitude towards the group. 11. To be carper is to be a negative person, act with malice. 12. Being carper indicates being a non-conformist person, instead a critical person looks for the different positive and negative points of view, through different strategies and chooses the most favorable to face a problem situation. 13. To receive criticism is necessary to have a broad mentality. An acceptance and resilience capacity is required.

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Elements that make up critical thinking	14. Listen to the opinions of other people. Collect information contrary to your position. Reflect on the different perspectives to modify or maintain one own's behavior. 15. Analyze different points of view or perspectives. Interpret the evidence to reach conclusions. 16. Being empathic is a key skill in critical thinking to understand the other. 17. Argue the personal point of view. 18. 18. Be willing to modify ideas, individual behaviors or maintain own opinions according to ideals. Freedom of expression. 19. Put yourself in the place of the other. 20. Modify your position if there are visible errors. 21. Be able to select the information. Have clear and exact principles against the facts.
Learning to be critical thinkers	22. Learn and analyze the information of reliable references. Communicate with the other is necessary for feedback. 23. Be aware and consistent. 24. Be realistic in understanding real events. 25. Be willing to listen to others, and reflect on the different positions.
Purpose of critical thinking	26. To promote change. 27. To solve problems. 28. To break with objectivity, with barriers. 29. To have your own opinion.

Source: the authors

When analyzing chart 2 it is evident that, for the participants, the concept of critical thinking includes cognitive processes related to analysis, reflection, argumentation, interpretation and updating of own knowledge. A critical stance entails the foundation of one's own point of view and the anticipation of the consequences of sustaining a personal point of view. Critical thinking involves key cognitive processes, but also involves attitudinal actions of the subject, both individually and collectively. It also has a purpose related to a change or the resolution of a problem.

During the process of categorizing the data, two keywords were assigned for each category (chart 3).

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Chart 3
Categories and keywords derived from content analysis

Categories and keywords of critical thinking	
Categories	**Keywords**
Analyze	1.1.Reflect
	1.2. Interpret
Opinion	2.1. Personal
	2.2. Collective
Principles	3.1. Clear
	3.2. Reality
Change	4.1. Individual behavior
	4.2. Group behavior
Problem	5.1. Resolution
	5.2. Decision-making

Source: the authors

Next, the obtained results derived from the categorization carried out by means of key words are presented, representing their distribution of frequencies and percentages in chart 4 and in figure 3.

Chart 4
Frequency distribution by categories

Frequency distribution by critical thinking categories				
Nº category	**Category**	**Code**	**Count**	**Code**
1	Analizy	Reflect	14	33,3%
	Analizy	Interpret	7	16,7%
2	Opinion	Personal	3	7,1%
	Opinion	Collective	1	2,4%
3	Principles	Clear	1	2,4%
	Principles	Reality	2	4,8%
4	Change	Individual behavior	8	19%
	Change	Group behavior	1	2,4%
5	Problem	Resolution	3	7,1%
	Problem	Decision-making	2	4,8%

Source: the authors

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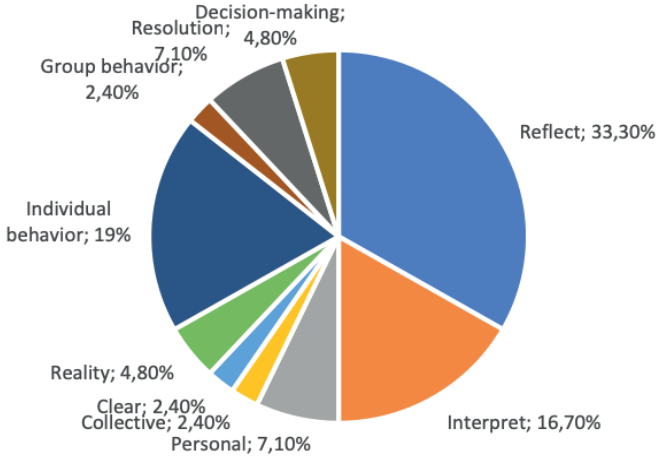
Figure 3
Frequency distribution graph by categories



Source: the authors

According to chart 4 and figure 3, it is observed that category # 1 (analyze) is the most frequent with a total of 21 sentences related to critical thinking, which amount to an important 50%. The repeated use of this term in relation to critical thinking demonstrates a correct vision on the part of students, being -efectively- this idea one of the 15 critical thinking skills described by Ennis (2011), who also presents concepts and related skills with reflection and interpretation, concepts that are also identified by the students during the interviews (see figure 1).

This is followed by category 4 (change) with 21%, corresponding to nine sentences issued by the interviewees and category 5 (problem) with 11.9%, which equals five sentences. This shows that the interviewed pedagogy students are aware that being a critical thinker is not just about thinking - as the name may wrongly indicate - but about an effective thinking. The main component of this formula is the analytical and reflexive capacity, and, in this sense, the participants understand that the important thing of being a critical thinker is to put into practice their knowledge and create something new from what is reflected.

This practical approach to critical thinking is not something new or experimental, but part of the root of the concept. McPeck (1990), Tsui (1999), Facione (1990), Piette (1998), among others, explain the undeniable connection between critical thinking and the two concepts provided by students: the resolution of problems and the introduction of changes and im-

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provements to the known reality. López (2012) explains the close relationship that exists between being a teacher and a critical thinker, given that he/she is an agent of change, who must constantly confront different problems and manage to produce positive changes in the thinking of the students.

More generally, participants defined critical thinking as the ability to analyze, reflect or reason about a topic, content or problem, in order to base their perspective or personal opinion, measure consequences and effects of the facts, achieving a change of individual and collective behavior. To this is added a series of elements such as the ability to listen to the opinions of others, the ability to interpret the evidence to reach conclusions, the empathy to understand the other, the ability to debate and freedom of expression. It is evident, then, that these future teachers know well what it means to be a critical thinker and are able to give a satisfactory conceptualization regarding what is indicated in the literature known so far.

Regarding categories No. 2 (opinion) and No. 3 (principles), a total of 5.5% and 7.2% were obtained, respectively, corresponding to four and three responses from the interviewees. According to them, the participants of this study point out that, in contrast to the collective level indicated above, to be a critical thinker, on the individual level, it is necessary to have a disposition to modify individual ideas and behaviors or maintain an opinion according to own ideals, to act autonomously and consistently according to moral principles and ethical values. Bruning (et al., 1999) and Beltrán and Pérez (1996), in this regard, indicate that the role of the critical teacher-thinker is to promote values such as truth, open mind, empathy, rationality, autonomy and self-criticism.

The use of critical thinking can be related to linguistic competences that account for the level that people have achieved, according to seven universal standards for thought:

Chart 5
Universal standards for thought

Clarity: Mode in which the proposal is expressed.
Accuracy: Degree to which the structure used is consistent with the material to be undertaken.
Precision: The construction or proposal must be adjusted to the knowledge.
Belonging or relevance: Environment in which the subject is treated.
Depth: When the level of analysis, research and explanation is sufficiently careful.
Amplitude: Extension of the approach.
Logic: Argumentation according to the rules.

Source: adapted from Paul and Elder, 2005, p. 23

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Next, the most outstanding answers given by the participants are presented, which include in a sentence the concept of critical thinking. It is worth noting the quality of each of the responses of these students, according to the standards of thought indicated above:

- "Know the different points of view, favorable and unfavorable. Ability to debate, through this, behavior changes can be achieved." This response can be related to the idea of precision delivered by the participants, since it is important to analyze all points of view before acting.
- "Have a defined objective. Analyze what is thought to handle theoretical foundations and express opinions." This response is related to the depth standard, with the quality of the analysis being an essential element.
- "Discern what information serves to reach a result. Apply cognitive tools such as texts, opinions, knowledge to interpret ideas". This point is related to the relevance or relevance of the information, complementing the opinion with various sources of information.
- "Ability to reason, measure consequences and effects of the facts." This response encompasses the ideas of clarity and logic based on how to do things, why they should be so and what are their consequences.
- "Identify individual and collective perspective for decision making." This idea is related to the pertinence and logic, since the sense of community and the norms established by it are taken into account.
- "Ability to analyze or reflect on their own experiences or events. The idea is that it is not the same to be critical or carper." This response is related to the amplitude, being important not only knowledge, but also other aspects such as experience and known empirical evidence.

Among the questions, the one that had the greatest difficulty in being answered by the participants was the following: Is there a difference between a critical or carper person? Obtaining the following assertions:

- A critical person perceives opinions or beneficial actions individually or collectively. A carper person has a negative or contrary attitude towards the group.
- To be carper is to be a negative person, act with malice.

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- Being carper indicates being a non-conformist person, instead a critical person looks for the different positive and negative points of view through different strategies and chooses the most favorable to face a problem situation.
- To receive criticism is necessary to have a broad mentality, capacity for acceptance and resilience.

In this case, the student's descriptions are somewhat vaguer and less accurate than those previously seen, reaffirming how difficult it was for them to answer the question. However, there is much truth in what they proposed, since the fact of being a critical person, according to José (2000) "alludes to a type of person who possesses certain abilities to make intelligent judgments, founded, contextualized, pertinent, creative and act accordingly "(p. 45). Therefore, collecting the statements of the interviewees, together with what the related literature says, what makes the difference between being critical and carper is both the intention or purpose of the criticism as well as the quality of it, always taking care of the elements mentioned by José (2000), which are strictly related to the standards of Paul and Elder (2005),previously presented.

Regarding the role of the teacher, the students participating in the study indicated that the way to learn to be critical thinkers involves information and analysis of reliable reference information, communicate with the other -which is necessary for feedback-, be aware and consequent, be realistic to understand the real events and be willing to listen to others and reflect on the different positions. Finally, the interviewees indicated that the purpose of developing critical thinking is to achieve behavioral changes, solve problems, break down barriers and consolidate one's opinion.

It is important to highlight that the interviewees are very clear about the different dimensions that encompass critical thinking, and can be divided into two main trends:

1. Inclusion of both cognitive and social and emotional skills, standing out, for example:
   - Cognitive skills: inform oneself responsibly, be realistic, reflect, be open-minded.
   - Social skills: communicate and contribute to the whole, be aware and consistent, and listen to others.
2. On the other hand, there is a tendency to include both the personal and collective areas, namely:

- Personnel: consolidate one's opinion, inform oneself and analyze sources, and be realistic.

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- Collective: accept feedback, reflect on different positions and achieve changes in behaviors and interpersonal relationships.

Conclusions

By way of summary, it can be concluded that the interviewees demonstrate to be competent in terms of the necessary knowledge, both to be and to train critical thinkers. Consistency was found between what the participants said and what is stated in the known theoretical plane, from the oldest research to the most recent studies on the subject. Participants understand the importance of developing critical thinking and demonstrate the desire to reflect that in their future students. It is also noted the ability to take critical thinking beyond thought, to action, talking about the critical thinker as an agent of change and a person who makes decisions relevant to the given situation. There is also talk of someone who shares and questions his own thinking.

A logical order is observed between the aspects or characteristics that are mentioned as part of critical thinking. First, we talk about a more reflective level, where the interviewees mention aspects such as "analyze" and "interpret", giving way to aspects related to personal beliefs and those of the human being, such as "opinions" and "principles". Then, it is mentioned the importance of being informed and using other opinions, but at the same time being realistic, discerning and discriminating information. Finally, after this series of processes, more concrete actions are mentioned, such as decision-making and problem solving.

One of the most crucial aspects as educators is, as López (2012) points out: "Try to get the student to acquire intellectual autonomy. This can be achieved by attending to the development of higher order skills such as critical thinking" (p. 41). It should also be noted that participants emphasize that achieving this intellectual autonomy requires attention to the various levels mentioned above, such as the personal and collective plans. Regarding the latter, the interviewees explain how being critical is not synonymous with egoism or misuse of intellectual power, but on the contrary, it is closely related to the teaching profession, whose fundamental objective is to share knowledge and have high expectations, both intellectual and social and ethical, of the learners. It is mentioned that a good critical thinker also takes into account the contributions of others, values opinions and ideas and at the same time is always informed of the events that are making changes in society. It is widely recognized not only

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the theoretical importance that the interviewees give to the subject, but also their deep desire and willingness to train critical thinkers.

One of the limitations of this study was not having relevant information regarding the source of knowledge that the interviewees had on the subject. Given the very satisfactory responses of the students to the concept of critical thinking, as well as the level of knowledge they presented -contributing in a great way to this study-, the question remains as to whether they were formally instructed on the subject, if they were self-taught when researching about it or if simply their outstanding answers are the result of their own thoughts, influenced by what they have learned in their respective trajectories. For future research, it is recommended to inquire more about how the interviewees know what they know, to identify if their statements come from the theory -which in this case would explain the great connection that was revealed when analyzing the interview- or if it was born naturally of their conceptions as future professionals of education -which would have led them to coincide in large part with the well-known literature-.

Taking into account the importance of critical thinking for any human being who calls himself a educated, it would be an interesting proposal to carry out this type of study with other groups of professionals in training, belonging to different areas. Critical thinking is one of the most mentioned skills both in the profiles of graduates in different university careers and in the professional profiles desired for different jobs of various kinds. Having obtained very positive results in this research with future teachers, there remains the great question of whether these results would be repeated with a different group of professionals in training.

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Document receipt date: March 28, 2018
Document review date: May 10, 2018
Document approval date: August 17, 2018
Document publication date: July 15, 2019

Sophia 27: 2019.

Print ISSN: 1390-3861 / Electronic ISSN: 1390-8626, pp. 261-281.