CRITICAL THINKING. UNDEVELOPED COMPETENCE IN TEACHERS? A REVIEW

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ABSTRACT

**Purpose:** In a framework of the notoriety of the lack of critical thinking competence in teachers, it was intended to give approximations that allow visualizing the formative failures that lead to the precariousness of developing this thinking in young students.

**Method:** An exhaustive systematic review of 27 scientific articles was made using the PRISMA methodology and the Atlas ti® tool to identify and code subcategories.

**Results and conclusion:** The results showed that this competence was not developed in many teachers and, therefore, the promotion of this competence in the students of these teachers is not applied either, having as a good example to follow the action-research interventions that some authors carried out.

**Research implications:** Likewise, the educational systems where the studies were registered were described as a barrier instead of an incentive. University educational management should give greater consideration to the systematization and transmission of critical thinking promotion strategies in teachers, designing a mechanism for recurrent support to achieve greater effectiveness in implementation with students.

**Originality/value:** That situation led to the reflection that the curricular plans of university students must be reviewed to improve the development and strengthening of this thought, starting with teachers. However, it should be noted that very few contributed practical strategies that could be implemented for this purpose.

**Keywords:** Critical Thinking, Teachers, Teaching, Competence, Educational.

PENSAMENTO CRÍTICO. COMPETÊNCIA NÃO DESENVOLVIDA NOS PROFESSORES? UMA REVISÃO

**Objetivo:** Num quadro de notoriedade da falta de competência de pensamento crítico nos professores, pretendeu-se dar aproximações que permitam visualizar as falhas formativas que levam à precariedade do desenvolvimento deste pensamento nos jovens estudantes.

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Método: Foi feita uma revisão sistemática exaustiva de 27 artigos científicos utilizando a metodologia PRISMA e a ferramenta Atlas ti® para identificar e codificar subcategorias.

Resultados e conclusão: Os resultados mostraram que esta competência não foi desenvolvida em muitos professores e, portanto, a promoção desta competência nos alunos destes professores também não é aplicada, tendo como bom exemplo seguir as intervenções de investigação-acção que alguns autores realizaram.

Implicações da pesquisa: Da mesma forma, os sistemas educacionais onde os estudos foram registrados foram descritos como uma barreira em vez de um incentivo. A gestão educacional universitária deve dar maior atenção à sistematização e transmissão de estratégias de promoção do pensamento crítico nos professores, desenhando um mecanismo de apoio recorrente para alcançar maior eficácia na implementação junto aos alunos.

Originalidade/valor: Essa situação levou à reflexão de que os planos curriculares dos estudantes universitários devem ser revistos para melhorar o desenvolvimento e fortalecimento deste pensamento, a começar pelos professores. Contudo, deve notar-se que muito poucos contribuíram com estratégias práticas que pudessem ser implementadas para este fim.


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1 INTRODUCTION

In the global educational context, critical thinking is not a novelty. Since the last decade of the twentieth century, UNESCO proclaimed the four pillars of education as the foundation for optimal development of capabilities in favor of strengthening the common good as the main axis upon which collective practices would be woven, leading to comprehensive human development (Delors, 1996). It is precisely from this report that the role of the teacher becomes active in promoting this type of thinking in educational interaction processes, focusing on the imperative need to raise the level beyond mere 'knowing,' arousing in the learner the curiosity for discovery and increasing their creativity, culminating in the realm of "knowing how to be and do" (Sánchez, 2005).

This new approach to education aimed to overcome the encyclopedic educational model that distorted reality and focused on teaching processes of systematization and accumulation of theoretical knowledge rather than the development of processes that combine theory with procedures and attitudes that emphasize the generation of students' own learning systems (Díaz-Barriga, 2001). However, on this journey, many external factors acted concomitantly in such a way that, in some cases, the essence of the critical thinking approach was distorted, or in others, approaches were merged that did not yield the expected results, resulting in the fading of this educational model over time.

Precisely, this research aims to intervene in this academic space, starting from the evidence of the lack of this competence in students, widely reported in the literature, and moving towards teachers who are the facilitators of the teaching-learning process. It is assumed that it is the teachers who lack this type of thinking, deducing that, for this reason, they do not apply it within classroom contexts. Through this study, we aim to approach the surrounding problem, shedding light on flaws in the imposed educational model and system within the national territory. Additionally, we focus on a broader Latin American perspective where positive experiences that could be replicated and improved in the local context can be identified.
Although the definitions of critical thinking provided by the literature vary depending on the context, it is in the fields of education and psychology where it has been studied the most (Philley, 2005; Yanchar et al., 2008). One of the best definitions states that it is a logical mode of thinking characterized by complexity and higher-level reasoning (Brady, 2008). Breaking this down, critical thinking involves the capacity to integrate ideas, provide explanations with meaning, reflect on divergent arguments seeking evidence to support the legitimacy of assertions, make conjectures or hypotheses, justify specific beliefs, make decisions to solve problems, evaluate knowledge, and attitudes based on analysis (Facione, 2020; Halpern, 2006).

In other words, critical thinking encompasses competencies such as breaking down, synthesizing, and articulating arguments or ideas, making it a multifaceted construct with cognitive and creative characteristics that combine induction-deduction and serve as a driving force for action (Bailin et al., 1999; Halpern, 1999).

In this way, critical thinking involves the adoption of reflective and flexible attitudes that contain intrinsic components of evaluation, analysis, and correction of ongoing activities, ultimately leading to the achievement of the proposed objective (Da Silva & Rodrigues, 2011). Therefore, in academic contexts, it is inherently a powerful resource for students, allowing them to enhance their learning, providing better quality of what is learned, and improving the overall learning process (Phan, 2010). However, the resource itself is not the key to acquiring this skill. It also involves an attitudinal phase of motivation that enables the student to have a proactive approach to mastering the stages of critical thinking. The absence of this attitude will result in inefficacy in academic performance, leading to frustration and failure for the individual. This condition is explained in documented cases of academic failure among students with high cognitive potential and the success of those with lower potential but high motivation (Saiz & Rivas, 2010).

On the other hand, critical thinking requires a level of creativity, which translates into a desire to anticipate likely outcomes and implement improvement alternatives throughout the execution stages of tasks (Bailin et al., 1999). In this regard, another characteristic of critical thinking is the ability to accept novel ideas and an interest in seeking knowledge to provide improved solutions to problems or situations individuals face (Bailin et al., 1999; Paul, 2005). It is essential to consider that, based on Piaget's theory of cognitive development, the phases of intelligence development have been visualized from birth to adulthood, with the role of knowledge in the structuring of intelligence closely related to the level and epistemic capacity of the human being (Feldman, 2004; Marchand, 2002).

This condition gives knowledge a certain degree of contextuality with strong traits of relativity, distancing it from the factual and static, depending on the context in which it operates (De Bruin et al., 2007). This means that experiences and the ability to think divergently and flexibly are linked to the capacity to tolerate contradictions and ambiguity that arise as part of the surrounding context and the individual's adopted idiosyncrasies, without adhering to the laws of logic or established knowledge as "truths" (Da Silva & Rodrigues, 2011). Therefore, critical thinking is highly contextual, including the recognition of individual abilities that involve evaluating and weighing options and alternatives, self-regulatory processes, the ability to infer and apply connections and relationships through induction and deduction, and metacognition (Halpern, 1999; Pithers & Soden, 2010).

2 METHODOLOGY

A qualitative approach was employed for this study. Narrative document review techniques (Aguilera, 2014) were used to systematize the literature, following predetermined selection criteria. Boolean search queries (AND, OR) were designed using the following keywords: ["critical thinking"/"development of thinking skills"/"critical
thinking"/"development of critical thinking"/teachers/professors]. Filters were applied to select literature, with a focus on publications from Latin American contexts, given the intention to highlight the progress of critical thinking development in settings close to Peru (Anas et al., 2023). The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) method was used to select publications most closely related to the study's topic. Data were processed using the Atlas Ti® tool.

3 RESULTS AND DISCUSSION

After an initial review of 182 sources related to the entered keywords and subsequent application of selection filters, 27 sources were found to be relevant and included in the results. Accordingly, in line with the proposed objective, the classification of the sources found was divided into three categories: Critical Thinking Education (10 references = 37.04%); Critical Thinking as Culture (8 = 29.63%); and Educational System Issues (9 = 33.33%) (Table 1. Sup. 1).

3.1 Formation of Critical Thinking

For this category (Details in Figure 1), the reported literature primarily pointed out that teachers emphasize cognitive thinking as a starting point for the generation of critical thinking. However, this strategy is especially employed in the natural sciences area (Becerril et al., 2020; Castiblanco, 2019; Cobo et al., 2019; Garcia-Ruiz et al., 2020; Salica, 2018). It is likely that, as part of the development of activities inherent to this subject, there is a greater need to generate this type of thinking in students. Consequently, teachers have a better-structured pedagogical strategy to apply, even though, in many cases, the scaffolding used by teachers attempts to generate new solutions to practical problems, especially when fostering creativity in fairs or academic-scientific events.

On the other hand, teachers in the social sciences area develop reflective critical thinking in students, using strategies involving role-playing or adopting different perspectives (Diaz-Larenas et al., 2019; Garcia-Ruiz et al., 2020; Hierrezuelo et al., 2022; Zelaieta & Camino-Ortiz, 2018). These strategies help students improve their understanding of human behavior and empathize with the positions of others ("putting themselves in their shoes"). Additionally, in research activities that teachers implement with their students, the literature suggests that critical thinking is developed much better because it encourages the capacity for reading comprehension and the generation of ideas to solve problems that they themselves need to deconstruct based on objective reality (Cobo et al., 2019; Diaz-Larenas et al., 2019; Hierrezuelo et al., 2022; Zelaieta & Camino-Ortiz, 2018).

Table 1. Detail of the formulated categories

<table>
<thead>
<tr>
<th>Formulated categories</th>
<th># information sources</th>
<th>Sources</th>
<th>Generated codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development of critical thinking</td>
<td>10</td>
<td>(Basile, 2020; Becerril et al., 2020; Castiblanco, 2019; Cobo et al., 2019; Díaz-Larenas et al., 2019; García-Ruiz et al., 2020; Godoy Vera, 2017; Hierrezuelo et al., 2022; Salica, 2018; Zelaieta &amp; Camino-Ortiz, 2018)</td>
<td>12</td>
</tr>
</tbody>
</table>
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3.2 Critical Thinking as Culture

Considering that teachers should have critical thinking as a formative component for their daily professional performance, it could be assumed that this type of thinking is part of their cultural background. However, observable reality suggests that this assumption may not hold true, and additionally, many teachers may not show interest in developing it (Facione, 2020).

The search for components in this category (See details in Figure 2) was oriented towards the opinions expressed by teachers regarding the need to have critical thinking as part of their cultural background. It was found that they coincided in pointing out that this type of thinking provided freedom, although they foresaw artificial intelligence (AI) as an emerging factor that would never replace teachers in fostering this type of thinking in their students (Dekker, 2020; Fikriyatii et al., 2022; Rivas et al., 2022; Sari et al., 2021; Zandvakili et al., 2019). However, in futuristic positions, this could be a highly debatable issue, which might be addressed later.

An important aspect highlighted in the literature is that teachers also made statements indicating that the educational system, understood as the model of educational delivery in a nation, is the main obstacle to promoting critical thinking in educational settings. In response, they recommend the dissemination and implementation of strategies to generate this type of thinking among teachers as a first step, followed by verifying its application in teaching practice (Becerril et al., 2020; Castiblanco, 2019; Dekker, 2020; Fikriyatii et al., 2022; Seibert, 2021).

However, it should be noted that very few contributed practical strategies that could be implemented for this purpose. The strategies that were highlighted emphasized the development of soft skills, starting with cognitive thinking as the foundation for other types of thinking, applying critical thinking in situations for solving real problems through research, and systematically structuring institutional support strategies and activities to help teachers.
facilitate knowledge construction in their students (Castiblanco, 2019; Dekker, 2020; Rivas et al., 2022; Sari et al., 2021; Seibert, 2021).

In this perspective, the recommendation remains the same: if critical thinking is to be a prior competence in teachers, then cultural patterns of thinking should be modulated in such a way that, as a social collective, it aims at the freedom of respecting different thoughts rather than imposing a particular one. However, this condition could contradict the current societal status quo, as it would produce generations of people with the freedom to think and believe, moving away from simply following orders and prescribed solutions that are transmitted in various forms within the cultural system of today's society. This topic could also be interesting to explore in-depth in a new research proposal.

Figure 1. Network of the "Development of Critical Thinking" category.
Source: Prepared by the author (2023)

Figure 2. Network of the "Critical Thinking as Culture" category.
Source: Prepared by the author (2023)
3.3 Problems in the Educational System

For this final category (see details in Figure 3), there were interesting aspects that distinguished it from the previous two categories. The limitation of the development of critical thinking related to the education system is embodied in the manifest disinterest of school administrators, as evidenced by the complete absence of critical thinking in higher-level education curricula for teaching professionals. This leads to the realization of the severe difficulties that many teachers face in their limited published writings, which deters a significant number of them from engaging in scholarly activities (Bezanilla et al., 2019; Cáceres et al., 2020; Erikson & Erikson, 2019; Fandiño Parra et al., 2021; Warsah et al., 2021).

![Figure 3. Network of the category “Problems in the Education System for Promoting Critical Thinking in Teachers.”](source)

As explained earlier, the development of soft skills is an important step in fostering critical thinking because educational institutions and governing bodies are led by people who, if they do not have a predisposition and conviction that critical thinking is a solution to student learning problems, will not pay attention to recommendations or changes proposed by researchers. Therefore, it is essential to change the paradigm of educational authorities, initially, so that, in a second phase, actions can be implemented and operationalized, and results can be observed (Cáceres et al., 2020; Dede, 2019; Ennis, 2018; Fandiño Parra et al., 2021; Ossa Cornejo et al., 2018).

These changes must begin with an understanding of the relevance of generating critical thinking in future teachers, allowing them to develop it from their formative stage and strengthen it with qualified training, such as postgraduate programs, research, and participation in scientific-academic events. But, as mentioned earlier, the understanding of this need must start with the sensitization and awareness of current academic and educational managers, and this condition is favored by the quality systems that are being required as mandatory in many Latin American universities (Rico, 2016), albeit in a heterogeneous manner. Nevertheless, the progress shown is important and serves as a guide for others still in the process.

Another important aspect is that, although the proposed requirement for the development of critical thinking focuses on future teachers and those currently practicing the profession, many other professionals who do not have teaching training teach their professional peers in university faculties. Therefore, the extension of critical thinking development and strengthening should also involve these professionals to ensure, in some way, this type of thinking in future non-teaching professionals. Some of the authors consulted in this work...
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demonstrate such experiences, where they showed the development of critical thinking even during periods of health restrictions due to the Covid-19 pandemic (Basile, 2020; Rico, 2016; Rivas et al., 2022; Zandvakili et al., 2019).

4 CONCLUSION

In conclusion, while the analyzed literature demonstrates the importance of critical thinking and even the positive assessment given by many authors to this type of thinking, it is evident that it is still not a prior competence in teacher education or among practicing teachers. Therefore, it is even more challenging to apply it in students for the purpose of developing it, and consequently, critical thinking is still far from being an intrinsic constituent in teachers and students. In several consulted authors, it was reported that the application of action research strategies is an effective way to elucidate singularities in student groups, although these types of methodologies are more commonly applied in the field of natural sciences and related disciplines. Finally, the reports indicated that the major limitation in the development of critical thinking is linked to the educational system, which represents the main obstacle to the promotion of this type of thinking, as the indicators presented and measurement strategies do not align with what happens in reality. This is why there is also no genuine interest among educational leaders in promoting cross-cutting actions converging with the development and strengthening of critical thinking in teachers.

As recommendations, it is crucial to review the curriculum plans of professional careers, starting with education programs and extending to other professions. University educational management should give greater consideration to the systematization and transmission of critical thinking promotion strategies in teachers, designing a mechanism for recurrent support to achieve greater effectiveness in implementation with students. However, an important detail is that precise distinctions should be made for the socio-cultural contexts in which students’ competencies are developed, as critical thinking is closely linked to the context in which individuals develop.

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REFERENCES


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APPENDIX

Supplementary 1.

Associations between the categories and the sources from which they have been extracted using Atlas Ti®.