


A systematic literature review on constructivist teacher education

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ABSTRACT

This article conducts a systematic review of the literature on teacher education under the constructivist paradigm, addressing the contributions and challenges associated with the implementation of these practices in Brazil. Grounded in the theories of Jean Piaget and expanded upon by scholars such as Lev Vygotsky, constructivism is a pedagogical approach that emphasizes the active construction of knowledge by students, with the teacher acting as a facilitator. In view of the context, the following question arises: How has constructivism been integrated and applied in teacher training in Brazil? To answer this question, the objective of this study is to carry out a systematic review of the literature on teacher education within the constructivist paradigm, analyzing empirical and theoretical research published between 2004 and 2014. The methodology consists of a qualitative research that defines inclusion and exclusion criteria, selection of data sources in the CAPES and SciELO journals databases and procedures for the analysis of studies based on content analysis. It is concluded that the training of constructivist teachers goes beyond the simple transmission of theoretical knowledge, requiring the training of educators to transform their pedagogical practices in order to promote deeper and more meaningful learning for students. The adoption of constructivist practices in teacher education, when well implemented, can generate a lasting impact on both pedagogical practices and student learning outcomes.

Keywords: Teacher training, Constructivism, Pedagogical practices, Teacher professional development.

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INTRODUCTION

Teacher education is a vital and ever-evolving field, reflecting changes in pedagogical theories and educational needs. Among the various pedagogical approaches, constructivism, based on the theories of Jean Piaget, has stood out as one of the most influential in the redefinition of teaching practices and in the training of educators.

Constructivism suggests that learning is an active process, where students build knowledge based on their experiences, and teachers act as facilitators of this process (PIAGET, 1977).

Constructivism, based on Jean Piaget's theories of learning and expanded by contributions from other scholars such as Lev Vygotsky, proposes that knowledge is actively constructed by the student, with the teacher playing the role of facilitator of this process.

However, the application of these theories in teacher education faces practical and conceptual challenges, which need to be explored and understood.

The central question of this study is: **How has constructivism been integrated and applied in teacher education in Brazil?** This question unfolds into sub-questions that seek to understand the methodological approaches adopted, the challenges faced by educators and the criticisms of the implementation of constructivism in teaching practice.

The objective of this study was to carry out a systematic review of the literature on teacher education within the constructivist paradigm, analyzing empirical and theoretical research published between 2004 and 2014. This analysis seeks to identify the main contributions and gaps of the literature, offering a comprehensive view of constructivist formative practices and their impact on education.

The relevance of this study lies in the need to understand how constructivism, despite being widely defended, is effectively implemented in teacher education. In addition, by critically analyzing the available evidence, the study seeks to contribute to the improvement of training practices, offering insights that can guide future teacher training programs

METHODOLOGY

The study is a qualitative exploratory research. The methodology used in this review includes the definition of inclusion and exclusion criteria, the selection of data sources, and the procedures for the analysis of studies. A clear definition of these criteria is important to ensure that the selected studies are relevant, adequately reflecting the practices and challenges associated with constructivist teacher education.

The Inclusion and Exclusion Criteria adopted were:

C.I: Studies published in the last 20 years (2004-2024), considering that constructivist teacher training is a field in constant evolution.



C.I: Studies that explicitly address teacher training within the constructivist paradigm, focusing on how these concepts are applied in educational practice.

C.I: Studies of a qualitative, quantitative or mixed nature were included to provide a comprehensive perspective on the different methodological approaches used.

C.E: Articles that, despite mentioning constructivism, do not focus on teacher training or that focus on aspects that are distant from the central theme.

C.I: Only studies carried out in Brazil were considered, in order to maintain contextual relevance for teacher training in the Brazilian educational scenario.

C.E: Studies Articles Research that deals with other educational paradigms or that does not mention constructivism in their analyses.

C.E: Articles that are not in Portuguese.

C.E: Articles that discuss constructivism in general, without relating it to teacher education

The databases used in the search for studies were: CAPES and SciELO journals. The keywords used for the search included terms such as:

- "Teacher Training"
- "Constructivism"
- "constructivist pedagogical practices"
- "Teacher Professional Development"
- "Theories of Learning"

These terms were combined using Boolean operators (AND, OR) to refine the results, for example: "teacher training AND constructivism" or "constructivist pedagogical practices OR teacher professional development".

The systematic review analyzed a total of 14 relevant studies, which after selecting the inclusion and exclusion criteria were listed below in Table 1.



Chart 1 – List of selected studies from the CAPES and SciELO Journals databases:

| Title | Authors | Year of Publication | Source |
|---|---|---------------------|----------------|
| Scientific knowledge, its teaching and learning: the actuality of constructivism | Glória Regina Pessôa Campello Queiroz, Maria da Conceição Almeida Barbosa-Lima | 2007 | CAPES Journals |
| A study on the representations and appropriations of a new pedagogical proposal: constructivism in question | Dirce Maria Falcone Garcia | 2003 | CAPES Journals |
| Constructivism in the literacy teacher training program | Géssica Priscila Ramos | 2010 | CAPES Journals |
| Constructivism, methodological pluralism and teacher training for the teaching of natural sciences | Marcelo de Carvalho | 2005 | CAPES Journals |
| Theory and practice in the training of geography teachers in the blended modality | Gláucio José Marafon, Anercilia Martins, Vanilda Teófilo | 2018 | CAPES Journals |
| Bachelardian epistemological obstacles: contributions to the continuing education of teachers | Elisângela Regina Selli Melz, Rodrigo Cardoso Costa, F.M.B. Marques | 2023 | CAPES Journals |
| Active methodologies in the face of remote teaching: history and theoretical considerations for the early years | Adriano Hidalgo Fernandes, Flávio Rodrigues de Oliveira, Maria Luísa Furlan Costa | 2021 | CAPES Journals |
| Policies for the training of literacy teachers: the theoretical frameworks present in the PNAIC | Erika Ramos Januário, Jani Alves da Silva Moreira | 2020 | CAPES Journals |
| A reading about the links between the Literacy Teacher Training Program (PROFA) | Fernanda Zanetti Becalli, Cleonara Maria Schwartz | 2011 | CAPES Journals |
| Historical-critical pedagogy and historical-cultural psychology: inferences for training and work | Cristhyane Ramos Haddad, Maria de Fátima Rodrigues Pereira | 2013 | CAPES Journals |
| Constructivist approaches in the teaching-learning process in the Final Years of Elementary School | Simone de Sousa Moraes, Suzana Maria Loures de Oliveira Marcionilio, Rosenilde Nogueira Paniago | 2021 | CAPES Journals |
| General objectives of a teacher professional development program | Anne Louise Scarinci, Jesuína Lopes de Almeida Pacca | 2016 | SciELO |
| The resignification of classroom activities | Jesuína Lopes de Almeida Pacca, Anne Louise Scarinci | 2011 | SciELO |
| What teachers think about the function of the lecture for meaningful learning | Jesuína Lopes de Almeida Pacca, Anne Louise Scarinci | 2010 | SciELO |

Source: author, 2024

To understand the studies, the content analysis method was used, separating the results into three main categories of emerging themes:

CONSTRUCTIVIST TRAINING STRATEGIES

Constructivism, as a pedagogical approach, has promoted a profound transformation in teacher education in Brazil. In addition to traditional teaching methodologies, the constructivist paradigm emphasizes the importance of critical reflection and collaborative practice, fundamental elements for teacher training.

Ramos (2010) and Queiroz and Barbosa-Lima (2007) highlight that pedagogical workshops and reflective teaching are essential tools to train teachers within the constructivist paradigm. These



strategies not only encourage teachers to adopt a more active stance in the construction of knowledge, but also promote autonomy and creativity in the teaching-learning process.

Pedagogical workshops, as described by Ramos (2010), allow teachers to explore new teaching practices and approaches in a collaborative environment.

In these spaces, educators can experiment with constructivist methodologies, discuss their experiences, and reflect on the effectiveness of the practices adopted. This process of reflection and experimentation is crucial for the evolution of pedagogical practices, as it provides a space for continuous adaptation and innovation. Reflective practice, then, becomes a central pillar in teacher training, as it allows the critical analysis of one's own practices and the implementation of improvements based on real experiences.

In addition, reflective teaching, as indicated by Queiroz and Barbosa-Lima (2007), encourages teachers to question and evaluate their pedagogical approaches, promoting a deeper understanding of students' learning processes. By engaging in reflective activities, teachers are challenged to reconsider their practices and integrate new knowledge more effectively. This process not only enhances pedagogical practice but also contributes to the ongoing professional development of educators.

Collaborative practice, as emphasized by Garcia (2003), plays a vital role in teacher education from a constructivist perspective. By collaborating with colleagues, educators have the opportunity to share experiences, strategies, and challenges faced in the classroom. This exchange of experiences enriches pedagogical practice and promotes a more integrative and innovative approach to teaching. Collaboration also facilitates building a community of practice, where teachers can support each other and work together to address common challenges.

In addition to workshops and reflective teaching, constructivist teacher training should incorporate strategies that value active and student-centered learning. This can include utilizing educational technologies that promote interaction and exploration, as well as implementing projects that engage students in hands-on and investigative activities. By adopting these strategies, teachers can create a more dynamic and engaging learning environment that is aligned with constructivist principles.

CHALLENGES IN IMPLEMENTATION

Despite the advantages of constructivist strategies, implementation faces several challenges. Several studies, such as the one by Carvalho (2005) and Melz et al. (2023), report resistance on the part of teachers, who often feel insecure about adopting new methodologies. This resistance is intensified by a lack of material and human resources, as well as educational policies that are not fully aligned with the principles of constructivism.



Queiroz and Barbosa-Lima (2007) also observe that constructivism, despite being widely defended in theory, often faces difficulties in practice due to the lack of institutional support and the pressure for immediate results.

IMPACT ON PEDAGOGICAL PRACTICES AND STUDENT LEARNING

Despite the advantages of constructivist strategies, implementation faces several challenges. Several studies, such as the one by Carvalho (2005) and Melz et al. (2023), report resistance on the part of teachers, who often feel insecure about adopting new methodologies.

This resistance is intensified by a lack of material and human resources, as well as educational policies that are not fully aligned with the principles of constructivism.

Teachers' resistance can be understood from a psychopedagogical perspective, where the change of paradigms requires not only theoretical understanding, but also the adaptation of daily teaching practices.

According to Carvalho (2005), many educators, especially those with years of experience, find it difficult to abandon traditional methods that they consider effective. This difficulty is exacerbated by the lack of ongoing training and adequate support during the transition to constructivist practices.

Melz et al. (2023) corroborate this view, indicating that teacher insecurity can lead to resistance to change, resulting in a fragmented and ineffective implementation of constructivist strategies.

In addition, the lack of material and human resources is a significant barrier to the effective adoption of constructivism.

Queiroz and Barbosa-Lima (2007) point out that the lack of resources, such as teaching materials and adequate technology, limits the ability of teachers to implement constructivist practices effectively. The absence of robust institutional support to provide these resources can lead to a pedagogical experience that does not meet the expectations of constructivism, resulting in outdated and uncoordinated pedagogical practices.

Another relevant challenge is the disarticulation between educational policies and constructivist principles. Often, educational policies are not fully aligned with constructivist guidelines, creating a mismatch between what is promoted in theory and what is applied in practice.

Queiroz and Barbosa-Lima (2007) point out that, despite the discourse favorable to constructivism, the pressure for immediate results and the emphasis on quantitative evaluations can direct teachers back to traditional teaching methods that promise faster and more measurable results.

The pressure for immediate results also plays a crucial role in the difficulty of implementing constructivism effectively. In an education system that often prioritizes quick results in standardized



assessments, constructivist methods, which require time for development and adaptation, can be seen as impractical.

This is particularly evident in contexts where teachers' workload is high and resources are limited, forcing them to prioritize strategies that offer immediate return, even if these strategies are less effective in terms of deep and lasting student development.

Finally, the lack of ongoing institutional support can seriously compromise the implementation of constructivism. Institutional support is key to ensuring that teachers receive the necessary training and ongoing support to effectively integrate constructivism into their pedagogical practices. Without this support, the shift to constructivist practices can be superficial and unsustainable, leading to a perpetuation of traditional approaches.

EVIDENCE OF THE EFFECTIVENESS OF CONSTRUCTIVISM IN TEACHER EDUCATION

The studies of Ramos (2010) and Carvalho (2005) reveal that constructivist approaches, when properly implemented, have the potential to transform teacher education. The adoption of methodologies that value critical reflection and collaboration allows educators to engage more deeply with their teaching and learning processes.

Reflective practice encourages teachers to question and adjust their pedagogical approaches, promoting a more dynamic learning environment that is responsive to students' needs. In addition, collaborative work between colleagues provides an opportunity for the exchange of experiences and the collective construction of knowledge, which strengthens professional development and pedagogical innovation.

However, Melz et al. (2023) underline that the effectiveness of constructivist approaches is strongly influenced by the level of institutional support received. Successful implementation of these methodologies requires not only teacher buy-in, but also continued support for educational policies that promote and sustain constructivist practice. Without this support, educators may face difficulties in adapting their pedagogical practices, limiting the positive impact of these approaches on teacher education.

The availability of adequate resources is another essential condition for the effective implementation of constructivism. Material resources, such as teaching materials and educational technologies, are essential for teachers to be able to explore and apply constructivist strategies effectively.

The lack of these resources can result in less effective teaching and a compromise in the quality of the training offered. In addition, the scarcity of human resources, such as the absence of continuous training and technical support, can aggravate these challenges, making the adoption of constructivist practices even more complex.



FINAL CONSIDERATIONS

The results of this systematic review provide a comprehensive overview of the most effective approaches in constructivist teacher education, aligning in several respects with the existing literature and offering new perspectives.

It is described that the most effective approaches in constructivist teacher training include practical workshops, reflective teaching, and collaborative practice among teachers.

Hands-on workshops provided educators with the opportunity to experiment and enhance pedagogical practices in controlled settings, while reflective teaching allowed teachers to evaluate and adjust their practices continuously. The collaborative practice stood out for strengthening professional development through the sharing of experiences and the collective construction of pedagogical knowledge.

It was found, however, that the effectiveness of these approaches is influenced by factors such as teachers' resistance to pedagogical changes, scarcity of resources and limited institutional support. In addition, educational policies that are misaligned with the principles of constructivism have emerged as additional barriers to the effective implementation of these practices. It is perceived that, in order to improve the approach to constructivist teacher training, it is essential that these barriers be overcome.

Thus, recommendations were made for training programs to include continuous support in terms of resources and guidance, in addition to suggesting political reforms that align educational guidelines with constructivist principles, creating a more favorable environment for the adoption of these practices.

It is concluded that the training of constructivist teachers goes beyond the simple transmission of theoretical knowledge, requiring the training of educators to transform their pedagogical practices in order to promote deeper and more meaningful learning for students.

Continuing to explore and enhance these formative approaches is essential to improving the quality of education and ensuring that teachers are prepared to meet the challenges of teaching in the twenty-first century.

The adoption of constructivist practices in teacher education, when well implemented, can generate a lasting impact on both pedagogical practices and student learning outcomes.



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