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## Conceptual learning in primary school students: from cultural-historical theory to pedagogical innovations of the 21st century

### *Aprendizaje conceptual en escolares primarios: de la teoría histórico-cultural a las innovaciones pedagógicas del siglo XXI*

Received: January 5, 2025

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Accepted: April 25, 2025

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Published: May 16, 2025

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**How to cite:** Matos Machado, Z. E., & Hernández Pérez, C. (2025). Conceptual learning in primary school students: From cultural-historical theory to pedagogical innovations of the 21st century. *Revista Humanidades, Tecnología y Educación*, 1(1), 1–9.

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### Resumen

El artículo analiza el aprendizaje conceptual en escolares primarios desde una perspectiva teórica, pedagógica y didáctica, con énfasis en la teoría histórico-cultural y en las principales tendencias que han orientado la enseñanza de los conceptos. Se parte de la comprensión del proceso de enseñanza-aprendizaje como una actividad social, mediada y desarrolladora, en la que intervienen la experiencia previa, la comunicación, la actividad, la memoria, la reflexión y la orientación del docente. El texto reconoce aportes clásicos de la pedagogía y la psicología, así como contribuciones cubanas relacionadas con la didáctica desarrolladora, la formación de conceptos y la atención a escolares con necesidades educativas especiales. Desde esta mirada, se sostiene que el aprendizaje conceptual no debe reducirse a la memorización de definiciones, sino que debe favorecer la construcción gradual de relaciones semánticas, interconceptuales e intraconceptuales. Se concluye que la enseñanza de los conceptos requiere diagnóstico, mediación pedagógica, tareas de aprendizaje, recursos metodológicos y seguimiento sistemático que permitan fortalecer el desarrollo integral del escolar primario.

**Palabras clave:** aprendizaje conceptual; enseñanza-aprendizaje; educación primaria; enfoque histórico-cultural; didáctica desarrolladora; relaciones semánticas; mediación pedagógica.

### **Abstract**

This article analyzes conceptual learning in primary school students from a theoretical, pedagogical, and didactic perspective, with emphasis on cultural-historical theory and the main trends that have guided the teaching of concepts. The teaching-learning process is understood as a social, mediated, and developmental activity involving prior experience, communication, activity, memory, reflection, and teacher guidance. The paper recognizes classical contributions from pedagogy and psychology, as well as Cuban contributions related to developmental didactics, concept formation, and the educational attention of students with special educational needs. From this perspective, conceptual learning should not be reduced to the memorization of definitions; instead, it should promote the gradual construction of semantic, interconceptual, and intraconceptual relations. The article concludes that teaching concepts requires diagnosis, pedagogical mediation, learning tasks, methodological resources, and systematic follow-up to strengthen the comprehensive development of primary school students.

**Keywords:** conceptual learning; teaching-learning; primary education; cultural-historical approach; developmental didactics; semantic relations; pedagogical mediation.

### **1. Introduction**

The teaching-learning process constitutes a central dimension of school education because it establishes the theoretical and methodological foundations needed to guide students' comprehensive development. In the specific case of concept learning, its study is essential, as it promotes the understanding of the natural and social world, as well as the gradual appropriation of knowledge, procedures, forms of interaction, and modes of thinking.

Reflection on teaching has its roots in the classical pedagogical tradition. Comenius, in *Didactica Magna*, proposed an organized view

of teaching as a process; Rousseau emphasized the importance of children's interests; Pestalozzi valued child psychology as a foundation for teaching; and Herbart formulated steps to guide teachers' actions. These contributions made it possible to understand that teaching cannot be reduced to the transmission of content; rather, it requires systematic guidance consistent with the characteristics of the schoolchild.

In the Cuban context, the pedagogical ideas of Varela, Luz y Caballero, and José Martí contributed a humanistic, investigative, and independent perspective on learning. Varela

stressed the need to teach children to think from their earliest years; Luz y Caballero recognized the value of research and cognitive independence; and Martí defended teaching adapted to the child's characteristics. These foundations are complemented by the contributions of socialist didactics, especially the positions of Klingberg, Danilov, and Skatkin, who emphasized the formative function of teaching.

The most relevant theoretical core of the study is found in Vigotsky's cultural-historical theory, which conceives teaching as a driving force of development. From this perspective, learning must be organized not only on the basis of what the schoolchild has already acquired, but also on what he or she can acquire through social mediation, activity, communication, and adult guidance.

The teaching of concepts in primary education faces the challenge of overcoming practices centered on the repetition of definitions, mechanical memorization, and the fragmentation of content. When conceptual learning is approached in a formalistic way, schoolchildren may reproduce terms without understanding their relations, functions, and meanings within real learning situations.

This problem becomes more significant when working with students with special educational needs or learning difficulties,

because concept formation requires diagnosis, guidance, differentiated methodological resources, and mediations that allow teachers to recognize prior experiences, lived experiences, semantic relations, and the logical thought processes involved in understanding.

Therefore, there is a need to provide a theoretical and methodological foundation for the teaching-learning process of concepts in primary school students, based on pedagogical, psychological, and didactic trends that can guide teacher preparation, diagnosis, and psychopedagogical intervention from a developmental perspective.

## **2. Theoretical Framework**

The teaching and learning of concepts have been studied by psychology, pedagogy, and didactics. These disciplines have analyzed how schoolchildren construct meanings, establish relations among objects and phenomena, and develop conceptual structures that allow them to interpret reality. A concept is understood as a cognitive construction that reflects essential features of objects, phenomena, or classes of objects.

Among the trends that have addressed conceptual learning are behaviorism, constructivism, cognitivism, and cultural-historical theory. Behaviorism explained concept formation through associations, stimuli, and verbal mediations; however, it limited the

understanding of cognitive and affective processes. Constructivism, especially from Piaget's perspective, understood the concept as a construction of the subject, but tended to separate child learning from the role of systematic instruction.

Cultural-historical theory offers a more comprehensive understanding by conceiving concept formation as a social, active, mediated, and communicative process. Vigotsky states that the concept is not an isolated or fixed formation, but an active part of the intellectual process, involved in communication, comprehension, and problem solving. From this view, the zone of proximal development, social mediation, activity, and communication are key to understanding conceptual learning.

Vigotsky describes phases in concept formation: preconcepts, thinking in complexes, and potential and scientific concepts. These phases make it possible to recognize that the schoolchild gradually moves from initial groupings toward higher forms of conceptual thinking. For this reason, the school must create conditions so that learning is not a finished transmission, but a guided construction through intellectual search, reflection, comparison, analysis, and discussion.

Conceptual learning is also related to memory, semantic relations, and knowledge structures. Authors such as Klix, Hoffman,

Rodríguez, and Hernández emphasize that memory is not a passive storehouse, but a functional system that organizes and reactivates knowledge. Semantic relations of place, purpose, object, instrument, cause-effect, quality, belonging, coordination, superordination, and subordination make it possible to identify how the schoolchild organizes knowledge and what level of understanding has been reached.

From the Cuban developmental perspective, emphasis is placed on the need to diagnose prior knowledge, identify interconceptual and intraconceptual relations, verify learning through logical thought processes, and promote awareness of results through diagrams, concept maps, word lists, and conceptual recognition tasks. These methodological requirements constitute a guide for the pedagogical direction of concept learning.

### **3. Methodology**

The study is organized as theoretical and documentary research aimed at systematizing pedagogical, psychological, and didactic trends related to the teaching-learning process of concepts in primary school students. Its approach is qualitative, interpretive, and analytical, because it seeks to understand foundations, categories, and methodological requirements for the pedagogical direction of conceptual learning.

The methodological procedure is developed in five stages: review of classical pedagogical antecedents; identification of trends in conceptual learning; analysis of the contributions of Vigotsky and his followers; systematization of Cuban studies on learning, memory, semantic relations, and conceptual structures; and derivation of methodological requirements to guide diagnosis, teaching, evaluation, and psychopedagogical intervention.

The techniques used correspond to documentary analysis, theoretical systematization, comparison of pedagogical trends, and critical interpretation of conceptual categories. The object of analysis is the teaching-learning process of concepts and its relation to the comprehensive development of primary school students.

#### **4. Results**

The results of the analysis show that concept learning has been explained from different trends; however, the cultural-historical approach offers a more complete understanding by linking cognition, affectivity, activity, communication, social mediation, and development. This perspective makes it possible to understand teaching as a driving force of development and to place the zone of proximal development as a reference for organizing teacher intervention.

Another relevant result is the dynamic understanding of the concept. The concept should not be assumed as a memorized definition, but as an active construction that is transformed through communication, social experience, and problem solving. In this sense, concept formation requires tasks that mobilize analysis, synthesis, comparison, inclusion, exclusion, and abstraction.

The study also highlights the importance of semantic, interconceptual, and intraconceptual relations as indicators of conceptual learning. These relations allow the teacher to diagnose how the schoolchild organizes knowledge, what links are established among objects and phenomena, and what resources are needed to advance toward higher levels of understanding.

Finally, methodological requirements for teaching concepts are systematized: determining the level of ordering of the concept; characterizing prior knowledge; identifying intraconceptual relations; integrating concepts into complex situations; verifying learning through logical processes; and promoting awareness of results through visual, verbal, and reflective resources.

#### **5. Conclusions**

The teaching-learning process of concepts requires recognizing the main trends in pedagogy and didactics, because each one offers criteria for understanding how learning occurs

and how teacher intervention should be organized. Nevertheless, the cultural-historical approach appears as the most integrative framework, since it considers the relation among teaching, development, mediation, activity, communication, and social context.

Concept formation in primary school students cannot be understood as the simple memorization of definitions. It is a gradual process involving prior experience, adult guidance, interaction with the environment, cognitive activity, affectivity, and communication. Therefore, the teacher must design tasks that promote analysis, synthesis, comparison, inclusion, exclusion, abstraction, and reflection.

The systematized methodological requirements constitute a relevant guide for teacher preparation, learning diagnosis, and psychopedagogical intervention. These requirements make it possible to understand the state of conceptual learning, identify the semantic relations constructed by the schoolchild, and generate strategies that favor higher levels of development.

### **Recommendations**

Strengthen teachers' methodological preparation regarding concept formation from the cultural-historical approach, so that they can guide learning based on the real and potential capabilities of schoolchildren.

Design learning tasks that integrate prior experiences, practical activity, communication, reflection, discussion, comparison, and the gradual construction of semantic relations.

Apply diagnostic instruments that make it possible to identify prior knowledge, interconceptual and intraconceptual relations, comprehension difficulties, and needs for pedagogical support.

Incorporate methodological resources such as concept maps, diagrams, word lists, images, problem situations, and inclusion and exclusion tasks in order to promote awareness of learning.

Promote pedagogical research that deepens the teaching of concepts in schoolchildren with special educational needs from a developmental, inclusive, and contextualized perspective.

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#### **Author(s)' Declaration on the Use of LLM**

The organized version of this manuscript received support from an LLM tool for formal

adaptation, section structuring, title translation, and style correction. The theoretical content comes from the manuscript provided and must be reviewed and validated by the authors before editorial submission.

### **Funding**

This work has not received any specific grant from funding agencies in the public, commercial, or non-profit sectors.