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Epistemologies for a Situated Chemistry: Dialogue Between Ethnoscience And Formal Science from a Transdisciplinary Perspective

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ABSTRACT

This study proposes a situated chemistry that articulates ethnoscience, formal science, and transdisciplinarity to transform university chemistry teaching, making it more relevant to sociocultural and territorial contexts. The overall objective was to construct a conceptual mapping of the epistemologies that underpin this proposal, offering principles for curriculum design and a research agenda on epistemic quality and cognitive justice. The methodology employed a bibliographic documentary review with an integrative and narrative-critical design, framed within an interpretive-constructivist paradigm. Articles, books, and program documents (1988–2025) from databases such as Scopus, SciELO, and Dialnet were analyzed, using content and thematic analysis to identify categories and tensions (Whittemore and Knafl 2005; Braun and Clarke 2006). The results highlight: (i) responsible objectivity (Haraway 1988; Santos 2009); (ii) transdisciplinary frameworks for integrating knowledge (Nicolescu 2002; Morin 2001); (iii) learning as epistemic navigation (Aikenhead 1996; Bang and Medin 2010); (iv) ethnoscience as practical models (Toledo and Barrera-Bassols 2008); and (v) knowledge production with social relevance and rigor (Gibbons et al. 1994). The discussion emphasizes that situated chemistry reshapes scientific rigor from a perspective of equity and relationality, proposing didactic designs that connect science and community. In conclusion, situated chemistry enriches university education by integrating diverse knowledge, promoting professionals who address complex problems with rigor and ethical responsibility. Principles for contextualized curricula and an agenda for assessing situated learning are offered, strengthening the links between universities and regions.

Keywords: Situated chemistry, ethnoscience, transdisciplinarity, situated learning, cognitive justice.

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