



xA Literature Review on Conceptual Change: How Does it Contribute to Science Education?

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ABSTRACT

Objective: Conceptual change is a research trend that continues to develop with various innovations being carried out. The research aims to conduct a literature study on conceptual change and how it contributes to science education. **Method:** The data was collected by searching for literature sources for articles using specific criteria. Ten articles were synthesized in more depth to answer questions from the research conducted. **Result:** The results of this research state that methodology and assessment tools influence the form and objectives of research data to be achieved both qualitatively and quantitatively. Apart from that, the concepts in science education are more focused on the physics concepts contained in it. In addition, the findings from these ten articles have a positive impact on science education, especially on material rich in concepts. **Novelty:** In this way, in making changes to students' conceptions, it is necessary to carry out preliminary studies related to the profile of students and the sample group that you want to research so that it can become a reference for the direction of the research you want to complete.

INTRODUCTION

Understanding is a mental process of adaptation and transformation of knowledge. Based on Gagne's taxonomy, understanding is at the level of verbal information (Drigas & Mitsea, 2021). According to Bloom's taxonomy at the comprehension level, Anderson's (1982) taxonomy at the level of declarative knowledge, Merrill's taxonomy at the remember paraphrased level, and Reigeluth's taxonomy at the level of understanding relationships-relationship. This explanation indicates that understanding requires prerequisite knowledge at a lower level and is a prerequisite for achieving knowledge at a higher level, such as application, analysis, synthesis, evaluation, insight, and one's wisdom (Agathangelou & Charalambous, 2021; Akoka et al., 2023; Cegarra-Navarro et al., 2023; Ghafar, 2020; Metsäpelto et al., 2022; van Dijk et al., 2020).

Gardner et al. (2004); Masgoret and Gardner (2003), stated that there are at least three factors as the main obstacles for students in achieving understanding, namely: (1) the selection of learning methods that tend to tolerate unitary ways of knowing, (2) the

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