A MODERN SYSTEMATIC REVIEW OF THE USE OF PRELABORATORY TASKS IN SCIENCE EDUCATION

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In the field of science education, the laboratory is considered a crucial element that plays a unique role in improving learning outcomes (Hofstein & Lunetta, 2004). Even though laboratory learning has an obvious strength in its ability to train students' practical abilities, research indicates that students commonly encounter cognitive overload during modern laboratory classes, leading to a decreased possibility of successfully reaching the desired learning results (Jones & Edwards, 2010). Prioritising preparation for laboratory lessons is crucial in order to facilitate meaningful learning and decrease students' anxiety (Gungor et al., 2022; O'Brien & Cameron, 2008). Interestingly, several studies confirm that when a range of multimedia is included to prelab instruction, students understand the content more thoroughly than they would if it were taught only through textbooks and lectures (Aronne et al., 2019; Patterson, 2011).

This literature review focuses on the use of multimedia technology by scholars throughout the last ten years (2015–2024), considering updated trends and applying a thematic analysis protocol to the available literature. This goal was achieved by classifying and dividing the literature into several categories based on their research objectives, theories, content, assessment, and related analytical approaches. Following that, a comparison of the findings and some recommendations for more research on prelaboratory activities will be established.

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