Review of: "Implementing Simulation Software to Develop Virtual Experiments in Undergraduate Chemical Engineering Education"

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Potential competing interests: No potential competing interests to declare.

The research undertaken is highly significant due to its modern relevance and the essential role it plays in today's educational landscape. The study delves into an area crucial for advancing educational methodologies. While the research has been meticulously conducted, its presentation within the research paper requires refinement to effectively communicate its findings.

Improving the structure of the paper is paramount. A structured layout, including a table of contents, introduction, aims, methodology, experiments, results and discussions, and conclusion, would greatly enhance the paper's readability. Subheadings can be strategically utilised to maintain a coherent and organised flow. Clear articulation of the study's hypothesis or hypotheses is essential. Is the research evaluating the quality of a new virtual lab or the efficacy of virtual labs for students? This clarity will help streamline the information presented and eliminate irrelevant details, which could be relegated to appendices.

The introduction section, while generally well-written, could benefit from a more focused approach. Unnecessary information can be streamlined, and repetitions, including those found in the abstract, should be avoided. Precision and relevance should guide the inclusion of literature and supporting information.

The methodology section requires refinement, particularly in distinguishing between wet lab and virtual lab procedures. Clear paragraph structures and transition words will enhance readability and comprehension for the reader. Addressing grammatical errors, such as punctuation issues and word repetitions, is crucial for improving the overall coherence of the paper.

Furthermore, the use of colloquial terms should be avoided, and technical terms such as "Process Flow Diagram (PFD)" should adhere to proper capitalisation and formatting conventions consistently throughout the paper. The presentation of chemical compounds within one sentence should follow the same standard formats, either all written as formulas or written out, for clarity and consistency.

Attention to detail is crucial, such as ensuring accurate referencing and refraining from making sweeping statements like "Traditional laboratory practices do not prepare students to be future practicing scientists," which overlooks the contributions of graduates from traditional lab settings.

Lastly, ethical considerations, especially concerning human participants and their data, should be revisited to ensure compliance and integrity in the research process.

By addressing these areas for improvement, the research paper can achieve a higher standard of clarity, coherence, and academic rigour, making it suitable for publication and effectively conveying its valuable insights to the intended audience.