

Review of: "Hybrid Approach - A 21st Century Skill in Science Education"

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Potential competing interests: No potential competing interests to declare.

I appreciate the authors for providing a clear and rich description of what actions were taken and the resulting observations of the study. Such studies are important for educators to undertake in their classroom practice to identify the suitable approach for their classrooms.

Having said the above the study has a few issues

1. What is the "hybrid approach" referring to - is it the use of a combination of flipped classroom (for preparing presentation of own topic) and in-class activity (for preparing presentation on the sub-topic of "Matter")
2. The research objective as stated is "to improve their self-confidence" and "to eliminate the fear" - there is no clarity on how these were measured to subsequently claim improvement. To be able to claim "improvement in self-confidence" and "elimination of fear" authors need to use either standard survey scales to measure change quantitatively or provide quotes from students before and after the activity as qualitative evidence.
3. The presumption of equivalence among the sub-topics of "Matter" module. The sub-topics "Matter and states of matter", "Physical properties of states of matter", "Interconversion of states of matter", & "Separation of different types of solid-solid mixtures" require varying levels of comprehension - thus evaluating the students on these different topics is incorrect.
4. The conclusion "findings suggest that a rigorous and more robust similar approach must be done with a higher sample size, which will be part of future research" is not supported from this study's findings. A larger study can be justified for novel theoretical or empirical findings. Flipped classrooms are a form of learner centered pedagogy - which many studies show improve both cognitive and affective domain . Authors need to look into prior studies on learner centered approaches to justify a larger study

Overall the article is good and is definitely a useful resource for any educator. I hope that my concerns listed above, help the authors in improving their article or future study.