# Article information:

Models and modelling for authentic STEM education: reinforcing the argument | International Journal of STEM Education | Full Text
<https://stemeducationjournal.springeropen.com/articles/10.1186/s40594-019-0178-z>

# Article summary:

1. Models and modelling can be used to foster an integrated and authentic STEM education and STEM literacy.

2. Authenticity should be viewed as a cornerstone of STEM literacy, and models and modelling processes can bridge the gap between STEM disciplines through authentic practices.

3. Modelling activities can serve as a meaningful route toward authentic STEM education, but it is important to implement evidence-based frameworks and recommendations for teaching practice.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

The article titled "Models and modelling for authentic STEM education: reinforcing the argument" discusses the use of models and modeling as a means to foster an integrated and authentic STEM education. While the article provides some valuable insights, there are several areas where it falls short.

One potential bias in the article is its focus on promoting models and modeling as a solution for authentic STEM education. The authors argue that models and modeling can bridge the gap between STEM disciplines and promote STEM literacy. However, they do not adequately address potential limitations or drawbacks of this approach. For example, they do not discuss how models may oversimplify complex phenomena or how reliance on models may limit students' ability to engage with real-world problems.

Additionally, the article lacks sufficient evidence to support its claims. While the authors mention key publications that document relationships between authenticity, models, and STEM education, they do not provide specific examples or data from these publications to back up their arguments. This lack of evidence weakens the overall credibility of their claims.

Furthermore, the article does not explore counterarguments or alternative perspectives. It presents a one-sided view that models and modeling are essential for authentic STEM education without considering other approaches or strategies that may also be effective. This narrow focus limits the depth of analysis and fails to acknowledge potential trade-offs or challenges associated with using models in the classroom.

Another issue with the article is its promotional tone. The authors repeatedly emphasize the importance of implementing model-based pedagogies in STEM classrooms but do not sufficiently address potential risks or limitations. They present an overly optimistic view of models and modeling without acknowledging potential pitfalls or challenges that educators may face when implementing these approaches.

Overall, while the article raises some interesting points about using models and modeling in STEM education, it lacks critical analysis, supporting evidence, consideration of alternative perspectives, and acknowledgement of potential risks. A more balanced approach would have provided a more comprehensive understanding of the topic at hand.

# Topics for further research:

* Limitations of using models in STEM education
* Critiques of model-based pedagogies in STEM classrooms
* Challenges of relying on models for authentic STEM education
* Alternatives to models and modeling in STEM education
* Risks and drawbacks of using models to teach STEM concepts
* Evidence-based approaches to promoting authenticity in STEM education

# Report location:

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