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

Poernomo Gunawan[1]

1 Nanyang Technological University

Potential competing interests: No potential competing interests to declare.

The paper is well written and reported the positive effects of virtual experiments. However, I have some questions:

1. How was the virtual experiment conducted in relation to the physical experiments? Is it before or after the physical lab experiment? Did students do any pre-tests or post-tests to evaluate their understanding with and without the use of virtual experiments?
2. Which specific areas of students' learning are mostly affected by the use of virtual experiments? The survey results are not very clear.
3. The reactor and separator simulations with HYSYS/UNISYM are based on ideal reactor and equilibrium-based principles, whereas in the real experiment, non-ideality occurs due to inefficient mass and heat transfer, as well as the fluid dynamics in the unit. How are these accounted for in the study?