

Surveying Students' Conceptual Knowledge of Fluid Mechanics

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Over the last 30 years, physics education research revealed that students already have a number of ideas about how physical systems behave, even before they start to study physics. In many cases, these ideas differ from accepted scientific ideas. Other research showed that it is difficult for students to change their initial ideas and found that traditional instruction is relatively ineffective in correcting these misconceptions or in helping students develop a more appropriate way of thinking. Users of the peer instruction technique discovered learning gains above the level of traditional pedagogies and consistent with interactive engagement. Thus, a low-cost experimental set incorporated with peer instruction about fluid mechanics was developed. Before implementation of this tool, students' conceptual knowledge was assessed by a 15 item two-tier test. The test was classified into four sub-topics, density, buoyant force, Archimedes' principle, and Bernoulli's principle. The mean scores before the implementation were 10.34, 39.41, 16.09 and 28.74 respectively.

Summary

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