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How Does Student Skill on Interpreting Circular Motion Situation Change in an Online Physics Classroom?

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"How to teach effectively"has become challenging to many teachers after their classrooms were moved to an online platform. For high-school physics, we found that students struggled to grasp the concept when learning in the online classroom. Circular motion is the topic that is difficult to focus on details. They could not understand the content well while concentrating on the screen. Some of them lost the attention during the class. The aim of this work is to investigate the achievement of using collaborative learning to teach the first three steps of circular motion problem solving. The three steps are (i) identifying the path of motion and its radius, (ii) drawing a free-body diagram, and (iii) finding the components of forces acting on the object. The method was applied to an online physics classroom with 12 high-school students of science and mathematics program. Finding of the research was interpreted by pre- and post-tests, and video recording during the teaching. The result showed that there were more students who could interpret the circular motion situation correctly than the beginning of the class. Their understanding has been improved. They could interpret the path of motion and the forces acting on the object and some of them could find the centripetal force correctly. Moreover, there was an interaction between the students that related to their understanding of the topic. Details on how collaborative learning was conducted for an online teaching will be given, along with the limitation and future improvement.

Keywords: High school physics, Circular motion, Collaborative learning, and Centripetal force

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