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The impact of phenomenography and variation theory on students' understanding of the concept of acceleration.

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Challenges in the teaching and learning of physics existed as far as education existed worldwide. During the period, various approaches were continuously suggested and implemented but the learning gains were always disappointing, and physics was labelled as a difficult subject for the chosen few and that idea encouraged instructors accept high failure rate in physics as normal. Departing from that belief that physics is for the chosen few, the current study explored how phenomenography and variation theories from social sciences can help students to understand the concept of acceleration. Google form was initially used to collect data that informed the instructor about students' prior understanding of the concept of acceleration. Later data gathered informed how activities should be designed guided by variation theory. The study reports about students' prior understanding of the concept of acceleration, the activities designed and lastly the impact of both phenomenography and variation theory on students' understanding of acceleration.

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