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Student understanding of vectors

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Abstract content
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This study probes the first year university students' understanding of vectors in one dimension and two dimensions. The aim of the study is to develop a research based curriculum to first year non-major physics students. The probe used in the study was independent of context. A pair of vectors of different magnitude and direction were given in each question and students asked to find the resultant vector in each case. The vectors were graphically represented in the question, changing only the angle between them in each case. The answers were given as options from which they had to choose one of them. In addition, students were requested to explain the reason for choosing a particular option. The given options were in comparison with the previous questions and answers. The result showed a high level of consistency with the method each student used, irrespective of the suitability of the situation or the correctness of the answer. The results also showed that the instruction and the instructional materials has a high degree of influence on students' responses.

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