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Inquiry based learning in Optics : Study of students' understanding of image formed by a converging lens and concave mirror.

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Both the lens and mirror formulae have the same mathematical representation, thus student assume same physical principles to explain image formation in lens and mirrors. Although students tend to correctly apply the formulae in solving problems on mirrors and lenses, they usually experience significant difficulties and misconceptions regarding the formation of an image by a converging lens or a concave mirror because of their inability to transfer information from one domain to a new different situation. Traditional lecture methods have shown to have limited effectiveness in improving student conceptual understanding in basic Physics courses. The purpose of this study was to investigate students' understanding of image formed by a converging mirror and converging lens using an inquiry based method, a approach which is credited as a highly effective method of instruction and is gaining worldwide recognition because it encourages students become co-creators of knowledge as active participants in the learning process. In order to achieve the objective of this investigation, a pilot study was undertaken with registered students studying Physics at a university of technology in SA. The students were divided into two groups (experimental and control) and null hypotheses hypothesis were tested. Inquiry-based instructed students performed significantly better than those the instructed by the traditional lecture method thus the inquiry based learning proved to be a more effective method than the later.

Key words : converging lens, image, inquiry based learning, lecture method

Apply to be considered for a student award (Yes / No)?

no

Level for award (Hons, MSc, PhD, N/A)?

n/a

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