



We discuss the pedagogical elements used in the design of the task and the support given to students to achieve quality outcomes. We describe the benefits from student learning and hear from the students themselves as they describe how their learning has deepened - and also the fun and delight of their creative output.

Teaching coloured perception to Thai students by inquiry

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Coloured light and colour perception are the scientific phenomena close to every one. However, results from the preliminary work using conceptual test showed that the students taught with traditional teaching have a lot of misconceptions about coloured light and colour perception. This conceptual test are composed of six open-ended questions used to probe the students' understanding of primary coloured lights and their combination, colour perception under the white light or others coloured light conditions and the phenomenon named "after image". This result implies that traditional teaching can not make the students to understand in these topics, clearly. Therefore we construct the coloured light mixing box with removable light emitted diode (LED) sockets and use the white, orange, purple, red, green and blue LEDs as the light sources. Then we introduced this instrument into an interactive classroom with hands-on activities. As a result, students can learn and gain correct understanding of the phenomena of coloured light by themselves.

On the Notion of Conceptual Learning in Undergraduate Physics

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Methods for improving the quality of student learning continues to be central to research and practice in teaching and learning in tertiary education. Extensive studies have shown that student learning approaches influence their learning conception and outcomes. In particular, it has been shown that learning as simple reproduction of knowledge leads to surface learning approaches, while learning as transformation of knowledge leads to deep learning approaches [1,2]. An important factor in the way students learn appears to be the way knowledge is structured when presented.

In this paper we illustrate how concept maps of the hierarchical organisation of cognitive structure may benefit the preparation, presentation and assessment of course material. The results of a comparison between the concepts presented with those actually assessed in a one semester first year university, introductory physics course show a large imbalance. Concept maps may be effectively used to improve the planning and structure of all components of course presentation in order to more realistically match assessment tasks. Concept maps also help develop relationships and perspectives related to the physics ideas by the students. We illustrate how the maps were used to organize the discussed concepts, and how the new concepts could be incorporated into the map so that the new knowledge becomes an integral part of the existing structure.

References

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