High or low tech approaches to teaching and learning?: The value of pedagogical soundness

Edmond P Byrne[a].

[a]*Dept. of Process & Chemical Engineering, School of Engineering, University College Cork, Republic of Ireland*
Corresponding Author Email: e.byrne@ucc.ie

CONTEXT

The application of increasingly high technological tools and applications to the practice of teaching and learning at higher education is an ongoing and expanding feature. Such is the strength of this drive that there may be a danger that e-learning may become conflated with 'enhanced' learning. The implication of this is that low tech approaches to teaching and learning are therefore by and large less effective. Such an uncritical approach is clearly flawed as the application of technology is largely orthogonal to pedagogical soundness; therefore they do not (necessarily) overlap.

This paper looks at one pedagogically sound approach to teaching and learning; namely that of peer instruction or peer learning around in-class concept questions, an approach which is based on a constructivist conception of learning and facilitates the engagement of learners through active learning opportunities (as opposed to a 'transmissionist' model of learning) (Smith et al, 2009). This approach can be, and has been, adopted using both high tech (clickers) and low tech (flashcards) approaches (Mazur, 1997, 2009), whereby crucially, 'no significant differences were found in conceptual learning gains' between either approach (Lasry, 2008).

PURPOSE

The purpose of this research was to ascertain how an innovation designed to support learning, and which has a sound pedagogical basis, and can be applied independently of (high or low) technological ascendancy, is received among learners relative to other promoted technological innovations aimed at supporting learning. It seeks also to consider broader implications of the research findings.

APPROACH

The current paper considers the use of flashcards to facilitate peer discussion and learning in a fluid mechanics module and elicits learner reflections through an anonymous in-class survey on how this approach better facilitates learning relative to a 'traditional' lecturing approaches, while they also reflect on how this approach compares with other technological innovations aimed at supporting learning.

RESULTS

Learners were highly appreciative of the use of flashcards as a means of better facilitating learning. They also expressed a preference for this approach ahead of a range of proposed high tech innovations which are promoted to support learning.

CONCLUSIONS

Conclusions are drawn around the need to place the pedagogical horse ahead of the technological cart when considering teaching approaches.

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KEYWORDS

Peer learning; technology, pedagogy.