Reviewer's report

Title: Electronic Voting to Encourage Interactive Lectures: A Randomised Trial

Version: 1 Date: 23 January 2007

Reviewer: Geoff Wong

Reviewer's report:

General
In this paper the authors try to ascertain whether or not electronic voting when used in a lecture is better than a ‘traditional’ lecture in improving student knowledge on two women’s health topics (breast cancer and cervical cancer).

From reading this paper, I thought there were 2 lectures (breast and cervical cancer) delivered by 2 different lecturers. Each lecturer was not familiar with the electronic voting system (EVS) and devised 2 lectures – one with EVS and one without EVS. The 5th year medical students were divided into 2 groups. One group only got the 2 lectures with EVS, the other with no EVS.

Knowledge was tested pre and post lecture and 8-12 weeks later by 15 multiple choice questions (MCQs).

Students were also observed looking for the type of interaction found in the different lectures.

I am not surprised that this study was not able to show that the use of an EVS in lectures was improved students' knowledge above and beyond 'normal' lectures. There were too few lectures to start off with (2 per group) and each lecture was not 'standardised' in anyway. One of them even had built in 'interactivity' as standard. Furthermore, the authors deliberately chose lecturers that were unfamiliar with EVS and gave them minimal training. Whilst this allows for greater generalisability, such a design and decisions are likely to greatly dilute the additional learning value of EVS.

Along with the question over the validity and reliability of the instruments used (see below), the number of lectures and the variation in lecture styles (both ‘normal’ and ‘with EVS’) are likely to have introduced so much variability into this study that it is unclear which changes observed are due to the EVS, the instruments used, or the lecturers.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

These revisions are ordered by when they occur in the paper and not in order of importance.

I am concerned about the validity and reliability of the results presented. It is true that the effect sizes shown for knowledge gains are large, but to have greater confidence of the results, it would be important to now something about the construct validity and reliability of the 15 question MCQ test and SELT questionnaire. (Please note I tried to look up this questionnaire from the reference provided, but the link was dead). The authors should provide such data.

Would the authors please state why they did not feel it appropriate to provide a power calculation of the number of students needed in this study?

In the section ‘Observation protocol’, please would the authors clarify of the observers were trained?

In the results section, I think the 49% should be 46%?

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Please try to label the tables as they appear in the text. For example, Table 3 and 4 are referred to in the text before Table 2.
In Table 2, please would the authors label the lectures in a consistent manner (e.g. rather than using L1 and L2, could you use Breast or Cervical)?

In Table 2, I am confused as to what ‘% Different Students writing’ means.

Discretionary Revisions (which the author can choose to ignore)

It would be clearer for the reader if:

a) a flow chart of the study was provided (see CONSORT statement)
b) a table comparing the students at baseline was presented.

**What next?:** Reject because scientifically unsound

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

'I declare that I have no competing interests.'