Reviewer's report

Title: Student engagement with gamified audience response system interactions in large group lectures

Version: 1 Date: 17 February 2015

Reviewer: Fiona Curtis

Reviewer's report:

- Major Compulsory Revisions

1. Introduction: The background focuses mainly on ARS; more detail about the features of gamification and the normally passive use of lecture capture would be of benefit to the reader. In particular, a more complete background on the features of gamification would allow readers to better understand the methods.

2. Methods - Section 'Construction of the TP games': For those not familiar with ARS, it may not be entirely clear from the method and Figure 1 what all of the interactive elements consist of. The authors should explain these in more detail.

- Minor Essential Revisions

1. Methods - Section 'Construction of the TP games': The authors state "The majority of the questions were board-style, multiple choice with clinical vignettes". I am unsure to what board-style refers. If this is a term which may not be understood by all readers, the authors should consider alternative phrasing or an explanation in brackets.

2. Results: Figure 3 is discussed in the section 'Game design and variety', before Figure 2, which is discussed in the section on Engagement within the results. The authors should renumber Figures 2 and 3 and where they are mentioned in the text, in order for them to appear consecutively.

3. Results - Section: 'Engagement': Figure 1. The details of this image are unlikely to be readable, in particular E. The authors should consider how best to display these images.

4. Results - Figure 2, 3 and 4: There is no vertical axis label. It seems likely that this axis indicates the percentage of survey respondents. The authors should add axis labels.

5. Discussion - Section: 'Learning': Paragraph 2: The authors acknowledge the significant difference in responses between males and females to the phrase "I prioritized the concepts I needed to review", and relate it to previous studies, but do not propose any reasons for such differences. The authors may wish to explore this further.

6. Discussion - Section: 'Limitations': The authors discuss some limitations of the study. However, the paper would benefit from the acknowledgement that factors
other than those studied may also influence engagement. For example, use of a custom correct answer indicator seems unlikely, by itself, to engage students to the extent it did. The context surrounding the use of this feature, including the design of these slides and the factors relating to the lecturer, may influence outcomes.

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

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests