Author's response to reviews

Title: Pharmacology as a foreign language: A preliminary evaluation of podcasting as a supplementary learning tool for non-medical prescribing students

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Author's response to reviews: see over
Dear Sir/Madam,

Thank you very much for forwarding the useful and constructive comments of the reviewers. The manuscript has been modified taking these comments into account and is much improved as a result. Please find below our response to each reviewer on a point-by-point basis.

I look forward to hearing from you in the near future.

Yours faithfully

Dr Joanne S. Lymn
Associate Professor
Response to Reviewers
Ed Peile

Discretionary revisions

- A sentence has been added regarding the differing needs of nurses and pharmacists in relation to prescribing education and an appropriate reference added in relation to pharmacists prescribing education

  P4, paragraph 3, lines 2-5

  Reference 11 added.

- WebCT tracking data has been utilised to determine the number of students who accessed each podcast, how many times they accessed the podcasts and the average time each podcast was accessed for. A sentence regarding this data has been added to the results section ‘Tracking student podcast use’ and the data is now included in the manuscript as Table 2.

  P11, paragraph 1, lines 5-8.

  Table 2 included on p26
Response to Reviewers
Sabine Graf

Major compulsory revisions
• WebCT tracking data has been utilised to determine the number of students who accessed each podcast, how many times they accessed the podcasts and the average time each podcast was accessed for. A sentence regarding this data has been added to the results section 'Tracking student podcast use' and the data is now included in the manuscript as Table 2.
P11, paragraph 1, lines 5-8.
Table 2 included on p26

• Mean values (± SEM) of the exam scores of the two investigated groups and the p values obtained have been included in what is now table 4 and the legend has been amended accordingly.
Table 4 included on p27

• The p value for pharmacokinetics was 0.059 which is close to significance and coupled with the change in the range of marks may suggest that there is a modest increase in student knowledge in this area. Similarly the change in range of marks and the mode mark obtained with the 'autonomic nervous system' does support the small change in mean exam score and suggests that podcasts may have contributed to an improvement in knowledge levels for some students. The discussion section on p17 has been modified to make this clearer.
P17, paragraph 3, lines 9-14.

Minor essential revisions
• While 69 students started the non-medical prescribing course and attended the taught sessions 5 of these students suspended prior to the exams and hence were not included in the exam data for the cohorts who had access to podcasts. A sentence to this effect has been added into the methods section 'Exam performance'
P10, paragraph 5, lines 4-7

• The non-medical prescribing course is a six month course which has two intakes of students per year, September and January. This study therefore involved students attending both the September 2007 course (n=30) and the January 2008 course. (n=39) A sentence clarifying this point has been added to the 'Methodology'
P8, lines 3-5.
In order to try and encourage honest answers to questions the questionnaires were anonymous and hence it is not possible to differentiate which of the students who expressed an opinion regarding the 'usefulness of podcasts if they missed a lecture' actually missed a lecture. Details from the registers of the two separate cohorts of students however indicate that 10 students actually missed pharmacology lectures which were part of this study. WebCT tracking data indicates that 8 of these 10 students accessed the podcast related to the lecture(s) that they missed. A sentence to this effect has been added to the results section 'Tracking student podcast use'.

P11, paragraph 1, lines 8-11.

The preparation of the podcasts initially required IT assistance from a member of the School of Nursing Educational Technology group and took around four hours to produce one podcast. As experience with the technology increased however assistance was no longer required and a podcast could be produced in two hours. A statement to this effect has been added to the methods section 'Production of podcasts'.

P8, paragraph 3.

A sentence about what the paper deals with has been added to the conclusion.

P19, lines 1-2.
Response to Reviewers
Gig Searle

1. The ‘Background’ section of the abstract has been amended to clarify the subjective and objective usefulness measures.
   P2, paragraph 1, lines 8-10.

   **Minor Essential Revision**
   A sentence relating the cognitive benefits of narration in relation to multimedia learning has been added to the ‘Introduction’ and an additional reference [36] has been added.
   P6, paragraph 2, lines 9-12
   Reference 36

   The role of orientation sessions in promoting the use of multimedia technology has been highlighted in the ‘Discussion’ with additional references [37, 38] including the reference suggested by the reviewer.
   P15, paragraph 1, lines 18-21
   References 37 & 38

   **Minor Essential Revision**
   The number of participants in the study has been included in the abstract ‘background’.
   P2, paragraph 1, line 11

   The abstract ‘methods’ has been rewritten to give greater clarity to the numbers of students involved.
   P2, paragraph 2.

2. **Minor Essential Revision**
   Further clarification of the information provided to students prior to the start of the course has been added to the methodology section.
   P8, paragraph 1, lines 8-12.

   A sentence relating the cognitive benefits of narration in relation to multimedia learning has been added to the ‘Introduction’ and an additional reference has been added.
   P6, paragraph 2, lines 9-12

   **Discretionary revision**
A number of modifications have been added to the manuscript to clarify the issues in relation to the number of participants and these are detailed in point 3. These clarifications should make an additional diagram unnecessary.

3. **Minor Essential Revision**

A number of modifications have been added to the manuscript to clarify the issues in relation to the number of participants and these are detailed below.

- While 69 students started the non-medical prescribing course and attended the taught sessions 5 of these students suspended prior to the exams and hence were not included in the exam data for the cohorts who had access to podcasts. A sentence to this effect has been added into the methods section 'Exam performance'
  P10, paragraph 5, lines 4-7

- The non-medical prescribing course is a six month course which has two intakes of students per year, September and January. This study therefore involved students attending both the September 2007 course (n=30) and the January 2008 course (n=39) A sentence clarifying this point has been added to the 'Methodology'
  P8, lines 3-7.

5. **Discretionary revisions**

The identified sentence in the 'Conclusions'; 'Exam results appear to back up students perceptions of improved knowledge.' has been reworded as follows; 'A comparison of exam results between students who had access to podcasts and historical cohorts of students who did not, support students' positive perceptions of the usefulness of podcasts in promoting pharmacology understanding.'
  P19, paragraph 1, lines 5-8.

8. **Minor Essential Revision**

The background section of the abstract has been amended to include a sentence relating to the hypothesis/motivation for conducting this study.
  P2, paragraph 1, lines 5-11

  **Discretionary revisions**

The identified section
The results of this study suggest that non-medical prescribers utilized podcasts of pharmacology lectures, and have found the availability of these podcasts helpful for their learning. There was some evidence that the availability of podcasts was associated with improved exam performance.

9. **Minor Essential Revision**

The identified sentence

'While reusable learning objects (RLOs) have been used to promote pharmacological understanding, in nurse prescribing students, with some success [16],........'

has been reworded as follows:

'While reusable learning objects (RLOs) have been used to promote pharmacological understanding, in nurses undertaking prescribing education, with some success [17], these tools are time-consuming and expensive to produce.'

P5, paragraph 2, lines 3-5
Response to Reviewers

Martin Ebner

- While we accept that our use of the term 'podcast' does not meet the definition according to 'wikipedia' it is consistent with that from both the Oxford English Dictionary online 'a digital recording of a broadcast, made available on the Internet for downloading to a computer or personal audio player' and a number of medical education, and other, articles

Guertin et al. 2007. Questioning the student use of and desire for lecture podcasts. Journal of Online Learning and Teaching. 3: 133-141.

A number of these references have been added to the appropriate section of the introduction.
Page 5, paragraph 2, line 11.
References 18-20

Similarly the definition of a podcast being downloaded through web syndication has been added to in the introduction
Page 5, paragraph 2, line 12.
References 21 & 22

It was necessary to house these recordings in the designated online course management system used by the University in order to track student use of these recordings. This tracking data was critical for our study giving an entirely objective measure of how many times students hit these links, and for how long, rather than just the self-reported measure obtained from the questionnaire data which may be subject to a 'report what they would like to hear' effect. It was an unfortunate side effect of WebCT that students struggled to download the MP3 files however, anecdotal reports from
subsequent cohorts suggest that with the upgraded form of WebCT now being used, this no longer a significant problem.

The housing of the audio recordings in the Universities VLE is the strategy taken by a number of studies;


Evans. 2008. The effectiveness of m-learning in the form of podcast revision lectures in higher education. Computers & Education. 50: 491-498

A sentence recognising this has been added to the introduction.

Page 5, paragraph 2, lines 12-18.

References 23-25.

The purpose of this study was to investigate the effectiveness, or not, of audio recordings of lectures as a supplementary learning tool for a specific topic area with a specific group of students. In this respect the research is both novel and exciting. There are no literature reports of audio learning, let alone mobile learning, being used to support pharmacology education for medical or non-medical prescribing students, and the importance of pharmacology education in safe prescribing is increasingly being recognised.

- The examination consisted of a series of stem and branch true-false questions which test knowledge application. In this sense students need to understand the concepts which have been taught rather than rely on recall of exact phrases and definitions.

A sentence has been added to the discussion to clarify this point

P17, paragraph 3, lines 10-11.