'Lurker' to learner: Encouraging collaborative learning using a scaffolding and peer assisted learning approach

C4ME SUPPLEMENT

AUTHOR INFORMATION

Eleanor Cochrane
Cardiff University School of Medicine

Professor Philip Smith
Cardiff University School of Medicine

Address for Correspondence:

Eleanor Cochrane
Cardiff University School of Medicine
The Cochrane Building
Heath Park, Cardiff
CF14 4YU
United Kingdom

Email: cochraneej@cardiff.ac.uk

Background

Cardiff University School of Medicine is faced with a problem familiar to medical schools worldwide: motivating students to become deep learners rather than strategic or superficial learners.(1) Competition, commonly present in medical schools, (2) is also seen in the online collaborative learning platform, PeerWise. (3) PeerWise, a free online collaborative learning platform that allows a cohort of students to generate their own multiple-choice question (MCQ) bank, has been used at Cardiff Medical School since 2013. While the pedagogical underpinning of the platform is sound, there is concern that students are not using PeerWise to optimise deep learning. The gamification features may instead incite a competitive environment encouraging undesirable behaviours, namely 'trolling', (4) anonymous verbal abuse and 'lurking', (5) gaining from the 'community of practice' without contributing. This report uses an educational action research strategy to reflect on the delivery of PeerWise as a learning tool in the Cardiff medical curriculum and seek to improve engagement in order to promote deeper learning. Cardiff Medical School follows a case-based learning (CBL) curriculum, delivering 6 cases in Year 1. This is well-suited to consolidation of learning through use of PeerWise as students can write questions specific to their current case learning objectives.

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Methods

We aimed to improve student engagement with question writing and commenting, using peer-led scaffolding to help students transition from 'lurkers' to learners and foster deeper learning. We hoped to achieve this through three objectives:
1. To conduct a literature search to evaluate learning with PeerWise.
2. To evaluate how Cardiff 1st year medical students use PeerWise at Cardiff.
3. To design and evaluate a pilot workshop with the aim to increase question writing and commenting on PeerWise.

This report describes two cycles of educational action research with a focus on quality improvement. Initially, we addressed the question: Does peer review help students write better quality questions on PeerWise?

In the second cycle, we extracted participation data from PeerWise for students enrolled in four of the Cardiff Year 1 courses during academic years commencing 2013 until 2018 (n= 1,272).

Finally, we designed an interactive workshop applying a scaffolding and peer assisted learning approach. Scaffolding describes the instructional technique of gradually guiding students towards greater understanding and independence. We used thematic analysis to analyse students' pre and post session questionnaires and reviewed questions which they authored in their workbooks.

Ethical approval was granted by the Centre for Medical Education, School of Medicine, Cardiff University.

Results

Preliminary Study

Although 40 Cardiff students consented to participate, only 13 enrolled in the PeerWise course. Eight students wrote 38 questions and 5 students wrote 25 peer review comments.

Those who submitted constructive and specific comments typically submitted their comments on distinct days, contrasting with those who submitted generic, brief comments. Students valued a good explanation, clarity and reference to resources but used a limited vocabulary to describe components of questions including: 'question', 'scenario', 'options' and 'explanation'. Most comments were only positive, without feedback for improvement. Positive questions were also shorter (64.3 characters) than the mean (129.6 characters).

Descriptive Data

The four Cardiff, Year 1 cohorts wrote 7,540 questions, answered questions 846,275 times, posted 1,276 comments and rated questions 432,997 times. Students wrote a median of 1 question but answered 485.5 questions. The 10 most prolific student authors represent 0.7% of the study population and collectively wrote 33.3% (2,803) of all questions.

Of all 6 cohorts (n=2081), collectively the 10 most prolific authors wrote 2803 questions and answered 16964 questions, the 10 most prolific question answerers wrote only 88 questions and answered 31315 questions. Only 16% of students (330) wrote six or more questions.

Workshop Feedback

Student perception of the peer-led scaffolding pilot workshop was overwhelmingly positive, and students expressed increased motivation to write more questions.

Discussion

Studies evaluating PeerWise commonly focus on the impact on summative performance, quality of questions produced and student perception. Summative assessment and scaffolding were the most common methods used to motivate engagement. (7, 8) Following the literature search it appears that our study presents the first evaluation of a scaffolding and peer assisted learning approach.

Approximately half of Cardiff medical students engage in question writing, while most engage in question answering. Writing questions may only benefit learning specific to the topic that their question examines. To be of benefit, our students may then need to write a minimum of one question per case yet few Cardiff students wrote the equivalent of one question per case in their CBL curriculum. Students typically write questions of low taxonomic grade, (8) indicating most Cardiff students may not be engaging in higher order thinking by only answering questions. (9)

The workshop was well received but would benefit from more examples of good questions and better description of the evidence behind writing questions. Students expressed they were likely to write more questions and felt more confident, equipped with a framework. They also have an improved perception of giving feedback to their peers. Our peer-led scaffolding workshop should be improved in line with student feedback and integrated (with continuing evaluation) into the current curriculum in order to promote deeper, more collaborative learning.

Lessons Learnt

Undertaking the research project has been an invaluable experience punctuated by challenges, which surprisingly strengthened the project. Upon receiving my project question, I was excited to begin since PeerWise is a platform that had benefitted me greatly in my medical studies. However, I quickly started to notice problems that would arise in the project proposal. For instance, I was aware that students would not fully engage with PeerWise until immediately prior to their summer exam meaning that vital data would not become available until after submission.

Learning from speedbumps and incorporating our findings into subsequent project stages meant that the research became very reflective. This led us to adopt the educational action research strategy, employing a holistic approach to identifying and addressing problems. It felt more valuable to address the problems that had arisen, rather than just work around them. Consequently, I learned the importance of students and faculty working collaboratively to find solutions as participant-researchers. This will support me to think critically about problems that arise in my studies and in clinical practice and ultimately becoming a more reflective practitioner.

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