The ORDER of e-learning

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ABSTRACT

TITLE:
The ORDER of E-learning

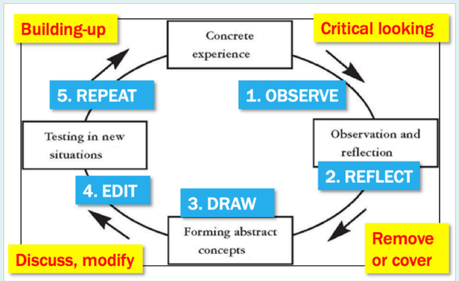
BACKGROUND:
ORDER study found 52% of students prefer studying anatomy visually and 96% would prefer some drawing in anatomy. This is combined with results showing a third of students get better marks when using drawing methods of learning as opposed to the traditional methods.

OBJECTIVE:
- Understand the evidence arround e-learning in anatomy
- Design a project evaluating ORDER in an online environment
- Analyse student response to ORDER tutorials

METHODS:
6 MCQ -> Tutorial -> MCQ -> Questionnaire designed studies have been produced. 15 MCQ questions, the same in the pre- and post tutorial grouping, will show improvement based on the tutorial. This will compate to a control group with textual tutorials. The questionnaire will then enable feedback on the whole process.

RESULTS AND CONCLUSION:
The study is just starting to run so has produced no results so far. However the study has the potential to give evidence for or against the use of artistic e-learning in anatomy. This could lead to multiple online anatomical tutorial resources, adaption into clinical skills teaching, mobile application or use within lectures

Background



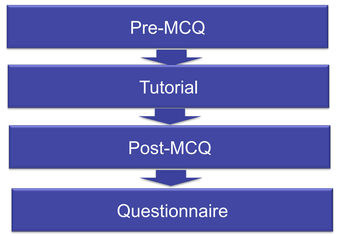
Experiential Learning Cycle: Kolb (1984)

ORDER is a method of learning utilising the most modern neurocognitive knowledge. It leads the learner round a spiral of Observing, Reflecting, Drawing, Editing and Repeating which is inline with Kolb's Experiential Learning Cycle.

The prior study in Newcastle examined the ORDER process teaching surface anatomy in the clinical skills laboratory. Results showed 79% received some improvement in their test scores and 30% faired better than traditional teaching alone. In terms of student perception of the process 96% would prefer some drawing in anatomy as well 86% viewing it as a valuable tool in anatomical study.

This provides the fertile ground for this study which will build on this examining ORDER in a virtual environment.

METHODS

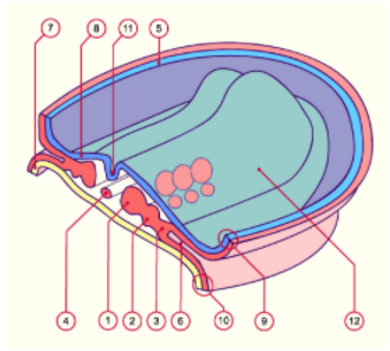


Pre-MCQ and Post-MCQ Questions:

15 Questions, the same in both the pre-MCQ and post-MCQ banks will be used to evaluate the effectiveness of the tutorial.

These questions are pictorial, combining the students visuospatial ability with their knowledge of the topic. This is due to the concordance with both the ORDER process and the process of learning anatomy.

I have used a screenshot of the embryology tutorial to demonstrate the questions. Images were taken from creativecommon.co.uk



These Questions are Use the Image Above

1. What is the developmental fate of 2?
   Urogenital and Reproductive Tissue
2. What is the developmental fate of 11 and 12?
   Urogenital and Reproductive Tissue
3. What is the developmental fate of 7?
   Urogenital and Reproductive Tissue

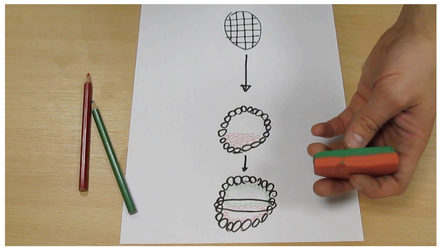
Submit

Tutorial

The video tutorials used the ORDER technique to transform 2D into 3D either through direct modelling using plasticise, or using image based techniques to instigate visualisation within the brain.

Tutorials lasted between10 to 15minutes as this was a length of time students remain engaged. The material was directly in line with that required for the MBBS course at Newcastle University.

A control tutorial was produced with no ORDER or artistic stimulus, purely textual learning.This will enable us to compare ORDER to a normal technique, thus evaluating whether the comparitive increase



Questionnaire

The questionnaire was kept constant throughout all six tutorials. This meant that effectiveness of each tutorial could be compared. The questionnaire was designed to find if the student perceived the tutorial increased their knowledge, whether they perceived questioning as useful and whether they would like more tutorials.

Below is an example of some of the questions in the questionnaire

1. Art is a useful Tool in Learning Anatomy
   Neither Agree nor Disagree
2. The ORDER technique is a useful method for learning anatomy
   Disagree
3. This Tutorial aided my anatomical knowledge
   Strongly Agree
4. Pre and Post Tutorial Questions Helped my learning
   Neither Agree nor Disagree
5. I would recommend this tutorial to other students
   Disagree

RESULTS

Will be published mid-2015

Results of the MCQ will then be given a binary code. This will enable us to apply a power calculation to establish whether the null hypothesis can confidently be rejected. This will be performed on the tutorials as whole, compared to the control, this should give an answer to whether the ORDER is an effective e-learning resource. Each tutorial will then undergo power testing on their own to establish whether certain genres of topic lend to e-learning more effectively.

The questionnaire will enable correlation to evaluate effectiveness and demand.

Limitations

•Engagement with the tutorial was a concern during design. This effected MCQ number, tutorial length and questionnaire length. To increase engagement we reduced all these to gain maximum output of data from minimum time, we feel this should be effective at increasing engagement although should be considered in the analysis.

•It was also identified a limitation within this study is the inability to restrict the students from accessing further internet resources during the tutorial. This is why we mention for them not to do this within the introduction. Students will hopefully comply with our request, however this will limit the interpretation of results.

Discussion and Conclusion

Without results the discussion will focus on the literature review and potential outcomes.

The literature review found that e-learning in anatomy can be effective. There are many different techniques such as forum based, virtual dissectors or tutorial based. Forum based seemed to be the easiest to set up and with encouragement could produce increased knowledge of the topic. Virtual dissectors are expensive but a very effective adjunct which the community has come to consensus upon. Tutorials are more controversial but seemingly increase academic attainment as long as they are not used as a replacement to traditional teaching methods.

The study design should produce valid results which will enable evaluation as to the future of ORDER in e-learning. If positive then this could result in a huge expansion including multiple online anatomical tutorial resources, adaption into clinical skills teaching, mobile application or use within lectures.

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