

Developing a MOOC for anatomy education using the ORDER-Touch method

Aims

- To design a clear visual communication aid to teach students the practical steps on how to observe using the ORDER Touch
- We aim to use the MOOC to enhance gross anatomy learning and implement such approaches into medical curriculum at Newcastle University.

Platforms used

- Course on FutureLearn using a mixture of audio, video, discussions, articles and exercise task components
- Trello used to plan the course
- Padlet will be used for participant discussions and for sharing and evaluating each others work.

Duration: 4 week course with around 4 hours spent per week

Possible Limitations of ORDER-Touch

- Time on Task- hence could be that other methods involving same time spent learning could have same gains
- Feasibility of using haptic methods in an online course and time-effectiveness

Summary and future work

3 stages of HVOD is integrated with the ORDER process to develop an online course for anatomy education.

This MOOC is intended to promote future research evaluating the extent to which ORDER Touch improves the understanding of 3D anatomy and enhances student and educator experience

More studies needed to show the outcomes of ORDER-Touch MOOC compared to pro-section, models or computer assisted learning

Observe-Reflect-Draw-Edit-Repeat (ORDER) is a novel cyclical artistic process which can be integrated into techniques for drawing 3D objects onto 2D surfaces using multi-sensory observation including touch, giving rise to the combined ORDER Touch process

The new curriculum at Newcastle University, starting 2017/18, has reduced contact time in the dissecting room for anatomy teaching in MBBS year one, from 26 hours to 10 hours per year. This calls for the need of more self-directed resources for improving conceptual anatomy learning

Stage 1 (Week 1): This preparatory stage focusses on preparing the hand to make marks on paper which reflect the 3D form being observed by the other "observing" hand Stage 2 (Week 1: hammer, : HVO of 3D object (200g ball-peen hammer) or anatomical part (surface anatomy of participant) with eyes open and closed Stage 3 (Week 2: hammer & hand, Week 3: arm, Week 4: skull): HVOD of the anatomical part on paper using conscious upper-limb movements.

Week 1 Introduction, Meet the educators, and How to use FutureLearn Poll: how confident are you with drawing? PAPER EXERCISE Instructor asks learner to do things with paper: pre-instruction (around 20 second pause in video or simple written instruction) Reflect in discussion- what did they think about exercise, could they do much?) Do the exercise- offline exercise Discussion again- what was different? edit- post images of folded paper/discussion etc to padlet ≡ + Add another card

Figure1: 4 week structure of the course on Trello

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Background

Integrating innovative strategies for anatomy learning into medical curricula can enhance student satisfaction, while optimising factors like cost and resources

This method of observation results in increased awareness of the 3D form of anatomical parts and improved spatial awareness, resulting in better long-term memorisation of anatomical parts as a mental, visual image. Such observation is also crucial in the reading of MRI and CT slices to determine where each slice is located within the 3D volume of the part under investigation.

ORDER is shown to be more effective when delivered as an online tutorial, by eliminating the limitations of its delivery in a practical-based learning environment¹

Stages of Haptico-Visual Observation and Drawing (HVOD)

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Week 1 (Contd) ····	Week 2 ····	Week 2 (Contd) ····	Week 3
UPPER LIMB	OBSERVATION AND DRAWING	SURFACE ANATOMY	SURFACE ANATOMY
observe in video	General text or short video of what this	HVOD of the hand	HVOD of arm
reflect in discussion	will involve and encouraging learners to try themselves first without intruction.	Reflect collaberatively side by side	Observe exercise in video (hap visual observational drawing of
do the upper limb movements and marks	reflect upon exercse collabertaively- what they thought, any difficulties,	Do the exercise- try to feel for the different parts mentioned and draw. the have a think to see if they remeber	with anatomical parts also explain the second secon
Discussion on how they found that?	what sort of guidance they need to improve technique?	anatomical significance	Do the exercise- try to feel for the
edit- post images of marks/feedback (padlet)	observe exercise in video	Edit the way in which exercise is performed- discuss difficulties in identifying some or all parts etc	different parts mentioned and d the have a think to see if they re anatomical significance
HVO then HVOD of ball-peen hammer	do the exercise- observation and drawing of ball-peen hammer	can have a labelling diagram quiz here	Edit the way in which exercise
Observe the exercise in video	Reflect again- what was different?	for the anatomy	performed- discuss difficulties i identifying some or all parts etc
Reflect again- what was different?	edit the way in which exercise is	+ Add another card Key	can have a labelling diagram que
Do exercse with facilitator then	performed- post drawing/discussion	Video	+ Add another card
practise on your own - haptic and visual observation and drawing of ball- peen hammer	+ Add another card	Padlet	
edit the way in which the exercise is		Audio	
performed- discussion/ feedback/ post		Exercise	
Repeat and reflection		Article	

References:

1. Backhouse M, et al., Improvements in Anatomy Knowledge when utilising a novel cyclical "Observe-Reflect-Draw-Edit-Repeat" learning process, Anatomical Sciences Education, 2017.

Rationale

