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

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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

Background

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

Rationale

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 environment[1]

Stages of Haptico-Visual Observation and Drawing (HVOD)

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.

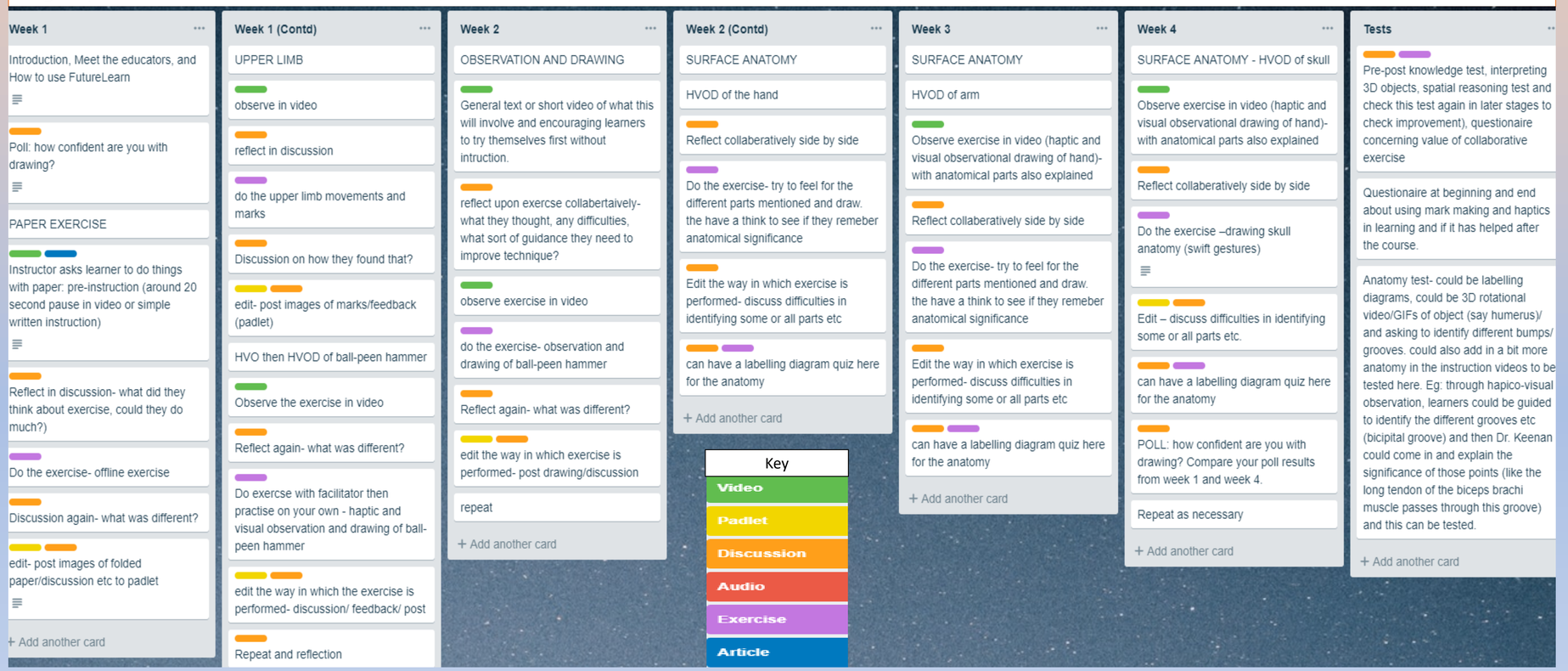

Figure1: 4 week structure of the course on Trello

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.