A novel workflow methodology for the creation of an education and training package incorporating a digital reconstruction of the cerebral ventricular system and cerebrospinal fluid circulation

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Background: The use of computer-aided learning in education can be advantageous, especially when interactive 3D models are used to aid learning of complex 3-dimensional structures. The ventricular system of the brain is difficult to fully understand as it is seldom seen in 3D. Knowledge of the shape and relative sizes of the ventricles can be important in diagnosing and assessing some medical conditions.

Summary of work: Using MR images of the cerebral ventricular system and several widely available commercial and free software packages, the techniques of 3D modelling, texturing, sculpting, image editing and animations were combined to create a workflow in the creation of an interactive educational and training tool. This was focussed on cerebral ventricular system anatomy, and the flow of cerebrospinal fluid.

Summary of results: We have successfully created a robust methodology by using key software packages in the creation of an interactive education and training tool. This has resulted in a package being developed which details the anatomy of the ventricular system, and flow of cerebrospinal fluid, using an anatomically accurate 3D model. In addition to this, our established workflow pattern presented here shows how tutorials, animations and self-assessment tools can also be embedded into the training package.

Conclusions: This study showed that an educational and training package could be created for both specialist and non-specialist users, aiding understanding of an otherwise complex area of anatomy.

Take-home message: This study details a workflow methodology which could be applied to other complex areas of anatomy to aid understanding.

The application of user feedback in a student-developed anatomy E-Tutorial

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Background: Recent studies indicate a shift in learning styles towards more self-driven methods. These methods have become increasingly important in medical education, resulting in the necessity for creation of more interactive means of learning. As a result, we have created an E-tutorial, aiming to reinforce the learning outcomes of the curriculum via a multi-platform program incorporating various methods of learning.

Summary of work: Articulate Storyline 2 was used to create an E-learning program, covering anatomy, histology and imaging of the abdominal organs. We designed the program based on feedback regarding preferred learning styles. We then altered the program during its creation based on user responses. We incorporated a balance of information, diagrams and quizzes into an interactive resource to suit various learning styles of students.

Summary of results: This is a pilot study prioritising user feedback in the creation of an educational resource. Peer feedback was collected from 29 students at a crucial early-stage in development and modified based on further feedback. The end product will be subject to an end-user evaluation then qualitative and quantitative analysis will be used for future developments.

Conclusions: Feedback from 6 students in the initial user evaluations provided valuable feedback in the design and development process. Further feedback allowed for improvement of the program, enabling us to achieve the overall aim of creating a tutorial focusing on the needs of students.

Take-home message: Our main focus was to ensure the feedback we received was incorporated fully into the development of our tutorial. This allowed our end-product to be tailored to the needs of users.

1600-1615 hrs
#D3.3 (26804)
Development of Integrated Anatomy E-Tutorial by Medical Students, using Anatomy-TV

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Background: With increasing availability of a huge variety of resources online for anatomy learning, variability in the quantity and reliability of information makes learning complicated for students. Hence, we created a student-made E-tutorial as a one-stop resource, which integrates gross anatomy, surface anatomy, and clinical relevance, with content verified by teaching staff.

Summary of work: Review of the University of Glasgow’s medical curriculum highlighted areas that needed reinforcement. Articulate Storyline software was used to create an Anatomy E-tutorial on ‘Hand-and-Wrist’. High-quality gross anatomical images from Anatomy-TV, and surface anatomy images and videos captured by digital-photography, were our main focus. Interactive features of Articulate Storyline were employed to allow an engaging user-experience.

Summary of results: This is a pilot study and end-user evaluation will be conducted to assess the effectiveness of the E-Tutorial. Target end-users are Years 1 and 2 medical students at the University of Glasgow. Results will be presented at the conference.

Discussion: Information online is not tailored to the curriculum and are not always verified by experts. Also, due to the lack of required resources online, production of our own videos and images
was necessary to address requirements of the curriculum. After end-user evaluation, quantitative and qualitative data will be analysed and presented.

**Conclusion:** This E-Tutorial encompasses various aspects of anatomy teaching, serving as a guide and revision tool. It is a unique attempt at creating an educational resource using Articulate Storyline, which has not been attempted before.

**Take-home messages:** This product will help our colleagues as it is made by students and tailored to the integrated anatomy teaching.

1615-1630 hrs
Discussion