Title   Anatomy in motion
Author(s)   Swarup Mukherjee

This is the published version of the following article:

ANATOMY IN MOTION

Gateway to a new world of teaching and learning through 3D apps

by **ASST PROF SWARUP MUKHERJEE**
Physical Education and Sports Science

Educational technologies have evolved remarkably over the years. It started from the very basic e-learning artefacts like videos and podcasts, to social software platforms, blogs, wikis and thereafter to computer-based software programmes. With the astronomical growth in the usage of smartphones and tablets globally, the availability of technology is now literally in the pocket. With applications (apps) of both general and specific nature in terms of the content that are available on various technological platforms, the user can easily access these sources for teaching, learning, interactivity, self-reflections, as well as assessments and evaluations.

One of the most remarkable developments in educational technology has been the emergence of three-dimensional (3D) apps/softwares. These apps have opened a new world of content presentation and visualisation and are particularly effective in fields of anatomy, physiology and sports injuries. In Physical Education and Sports Science (PESS), courses like 'Applied Anatomy' and 'Sports Injuries I & II" require students to visualise the structure or a body part and to understand how it can be affected during sports trauma. The 3D apps effectively help in students' visualisation by providing a detailed and accurate graphic rendering of the content, complemented by the touchscreen feature in phones, tablets and smartboards that provides the option of navigation and interactivity of the content. The 3D viewing of the human body and its structures leads to greater engagement; enhances understanding of the anatomical details; gives better perceptions in terms of relating the learning content with reality; and hence, translates learning into application effectively. This becomes especially useful during skilled-based learning tasks.

The use of these apps allows students to view the visuals and information details at their own convenience and hence, learn at their own pace. Their interactive features provide the options of content customisation, labelling and annotations, saving scene configurations, making notes and preparing interactive quizzes for evaluation of learning.

3D apps have the potential to incite teaching innovations and content delivery competencies, provide better learning experiences, stimulate knowledge construction and enable lifelong learning.

> " With the 3D apps, we can rotate the model as we wish to understand the origins and insertions of certain muscles which may span across different viewing planes. Being able to view from any angle allows us to fully appreciate the extent of the muscle which may be difficult to do with 2D images. Lastly, we are also able to add layers at a time which enables us to see how the muscular system is arranged with skeletal, nervous and vascular systems. "
>
> **Muhammad Saufy Bin Abdul Karim**

> " The apps allow us to better imagine the kind of movements, and what tension joints and muscles go through when moving through a range of motion. They can be used to teach taping and wrapping as they allow us to understand the purpose of the taping or wrapping and why it is done in a certain way. "
>
> **Jericho Wee**