Teaching Anatomy to Engineering Students Using State-of-the-Art Anatomical Software

What did/do you do?

Newcastle University's School of Mechanical and Systems Engineering used a combination of Primal Pictures anatomical software, bespoke teaching materials and peer to peer learning within the Bioengineering module.

This allowed Bioengineering students to quickly construct an understanding of anatomical principles which they used in individual, assessed projects on total joint replacement.

Who is involved?

T.J.Joyce and P.McCormack are the academic staff. 4th year MEng undergraduate students and postgraduate MSc students are involved.

How do you do it?

Dedicated teaching materials were provided to the students in the form of bespoke training notes, written by the academic (T.J.Joyce), for the Primal Pictures software. Students worked through these notes with the software, in pairs, at their own pace, during dedicated sessions. The academic led these sessions and was available to answer any questions which arose around anatomical principles or medical terminology. Supervision was deliberately small group or one-to-one and non-hierarchical. Students were paired up to tackle questions related to the software.

Why do you do it?

Functional anatomy is a strongly three-dimension-al subject where spatial visualisation is key (Van Sint Jan et al., 2003). Commentators have noted that medical students frequently encounter problems in understanding certain dynamic aspects of functional anatomy (Van Sint Jan et al., 2003) and this is likely to be the case with engineering students too.

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It has also been shown that the application of multimedia has helped students to increase their 3D anatomical understanding by giving them spatial direction about the underlying anatomy and its dynamic behaviour (Van Sint Jan et al., 2003). Additionally it has been noted that if students can interact with lecture content, then their assimilation of that material should be increased compared to situations where there is no opportunity to interrelate (Benbunan-Fich, 2002).

Does it work?

Student feedback on use of the Primal Pictures software was overwhelmingly positive. Students said that using the software was 'fun' and 'easy'. 90% of students thought that the software helped them to understand human anatomy a 'great deal' or a 'very great deal'. In addition, the majority of students thought that it was 'very useful' to be able to access the Primal Pictures software outside of the taught sessions.