The design of animations and multimedia for teaching

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There have been very few studies on the effectiveness of multimedia as a learning tool (Rolfe & Gray 2011). Our hypothesis was that students would prefer animated presentations and that learning would be enhanced. However, it has previously been reported that static images worked just as well as animation (Paik & Schraw, 2013). These authors examined the ‘Illusion of Understanding’ in which students invest less cognitive effort when viewing an animation that appears to be easier to understand. Therefore we have investigated the use of animations versus static images in an instructional multimedia presentation.

We created two versions of a 3D animation describing vascular function. Version 1 had a full 3D moving animation whilst Version 2 had 17 static images from the animation. 54 Students (two groups of 27) viewed version 1 or 2 and then answered a short 8 minute question. The marking criteria assigned ‘core’ marks (essential material) and ‘bonus’ marks (correct use of terminology) for each answer. Although results showed a trend in favour of animation this was not statistically significant. Students were also asked for feedback on the process.

Student feedback was 88% positive showing a clear desire for more animation type content for revision. Our results illustrate the ‘Illusion of Understanding’ as appetite for animation did not translate into better grades in this form of ‘single view’ assessment. Although we observed a trend in favour of animations over stills, this did not reach significance. Future animations of this type will need to have lower extraneous (unnecessary) cognitive loading (i.e. background music) and any assessment should feature multiple views with user playback control. The results of this study further confirm that 3D instructional animations per se will only be of value if appropriate multimedia and cognitive load theories are taken into account (Reed 2006).

References:
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