

## **2-1G Creating effective educational videos: a toolkit for a quick and low cost approach**

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There has been increasing interest in the use of videos for teaching in recent years for many reasons. It has become easier to share video files, and this has been utilised by MOOCs and sites like Khan Academy to share educational videos. In addition, the popularity of flip teaching and other forms of blended learning to enhance traditional education, has increased interest in the use of video to complement or replace conventional lectures. High quality video production is both time consuming and costly, however, the success of Khan Academy has demonstrated that simple low production value videos, combining clear audio with a screen-captured video of text and diagrams being drawn on a virtual blackboard, can be very effective for education (Thompson, 2011). These videos have been shown to engage students better than slide-based tutorial videos (Guo et al. 2014), and are watched multiple times. Video has been shown to be useful for explaining procedural tasks, and for going through worked examples (Kay, 2012), making it particularly appropriate for teaching core mathematical concepts and its applications in other disciplines.

In this presentation we will describe how we have developed efficiently produced videos for teaching mathematical concepts to science students using a combination of commercial screen capture software, custom developed virtual blackboard software and a high quality graphics tablet. The videos are embedded in Moodle lesson, alongside conventional mathematics notes and learning materials, and help the students see the process of doing example calculations more clearly.

We will also describe a portable low production value video toolkit, developed using our custom virtual blackboard software in combination with a mix of open source and custom software and relatively low-cost hardware that can be used to create an effective studio for rapid video production in any reasonably quiet space.

### **References**

Guo, P.J., Kim, J., Rubin, R., 2014. How video production affects student engagement: an empirical study of MOOC videos. ACM Press, pp. 41–50. doi:10.1145/2556325.2566239

Kay, R.H., 2012. Exploring the use of video podcasts in education: A comprehensive review of the literature. *Computers in Human Behavior* 28, 820–831. doi:10.1016/j.chb.2012.01.011

Thompson, C., 2011. How Khan Academy is changing the rules of education. *Wired Magazine* 126, 1–5.