



Rolfe V (2011). Are multimedia resources effective in Bioscience education? Proceedings of the Effective Learning in the Biosciences Conference. June 30 – July 1 2011, Edinburgh UK.

Multimedia resources including animation, video and audio are widely used in higher education, but are they worth the time and financial investment they take to prepare? A systematic review was conducted to answer the question “are multimedia resources effective in bioscience education”?

The systematic review followed the Cochrane guidelines and included stringent criteria for identifying and selecting studies; in short, participants were studying undergraduate-level biosciences, and performance outcomes included test and examination results. Data underwent meta-analysis using “RevMan 5” software.

The searches identified 233 studies overall, and 216 were excluded leaving 17 articles for data-extraction. Table 1 greatly summarises the study outcomes with a “+” favouring a multimedia solution and a “-“ favouring a conventional / control approach.

Comparison	Outcome	p
eLearning vs Practical – short term retention	-	p=0.07
eLearning vs Practical – long term retention	+	p<0.001
eLearning vs Lecture – short term retention	+	p<0.05
eLearning vs Lecture – long term retention	-	p>0.05
eLearning vs Blended Learning – long term retention	-	p>0.05
eLearning vs Text Book – short term retention	+	p<0.001
eLearning vs Text Book – long term retention	-	p>0.05
Static vs Interactive Webpages – short term retention	+	p<0.05
Graphic vs animation – short view – short term retention	-	p<0.05
Graphic vs animation – repeat viewing – short term retention	+	p>0.01

In conclusion, multimedia resources were beneficial as a substitute for laboratory practicals, and also improved short-term knowledge retention compared to a lecture or text book. Levels of interactivity and access to the resources were also important factors. Further research is needed to continue evaluating the effect of multimedia resources in the biosciences, and this review also highlighted the need for improved study quality and design, and accurate reporting of methodologies and numerical data.