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Bournemouth  
University

**School of Design, Engineering  
& Computing**

## Report on Multimedia in Higher Education

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Keith Amoah

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## **3 Multimedia in Higher Education**

### **3.1 Tomorrow's Workforce**

As Trybus [301] says, the composition of today's workforce is increasingly made up of people who have never known a world without the plethora of multimedia systems - videogames, iPods, mobile phones and the internet. Therefore, it is only to be expected that in preparing a competent workforce for tomorrow's world, these same technologies that are used daily on a social basis, should also be applied to their education experience.

### **3.2 Disenchanted Learners**

Herrington [302] agrees with other educators and points out that "many learners are failing to engage with didactic and outmoded instructional methods, and are unwilling to use technology that simply replicates the one-way transfer of information from teacher to student". In the 21st century, it is a widely held view that the use of multimedia has a legitimate place in education and can be an effective teaching tool in motivating and engaging the jaded learner in a novel way.

### **3.3 H.E. Embraces Change**

Institutions of Higher Education are facing this new challenge and are increasingly embracing education-technology initiatives and innovations in order to cater for the diverse needs of their students. Llorenç Valverde [303] Vice-Rector of Technology at The Open University of Catalonia (UOC) Spain, passionately declares "Our aim and the aim of all of those involved in education, distance or not, should be to use technology in a more proactive and interactive way, to help students in their learning process... the greatest challenge is aligning educational content and interaction with the right channels."

### **3.4 The New Learning Ecology**

Professor Henry Jenkins [304] on Games-based Learning at SxSWi 2009, talks about the new learning ecology. Today, most forms of learning in the classroom continue to be autonomous and almost all forms of collaboration are classed as "cheating". In the real world, collaboration and the trading of ideas and thoughts take place all the time and students need to be prepared for this environment. Jenkins describes why games are great learning tools, and how new multimedia paradigms can change the educational system so

that it embraces the resources of the digital age. In his vision, the convergence of the ever increasing array of technologies - still images, text, animation, audio and varying levels of interactivity- will shape the curricula and promote what he calls “blended learning”. Is this an unrealistic expectation of multimedia’s revolutionary advantage and applicability?

### **3.5 Good Multimedia /Bad Multimedia**

Research findings on the true value of using multimedia in terms of measurable learning outcome are unclear. Educators have to select from a wide array of multimedia options and it is important that real improvements are obtained in learning outcomes. So how is their effectiveness evaluated? What characterizes an effective and successful e-learning experience? Based largely on the work of Brown et al [305,306], it is defined as: ‘the notion of learning, knowledge and skills in contexts that reflect the way the knowledge will be useful in real life.’ The learning tasks need to be authentic, matching as closely as possible, the real world tasks that have to be carried out in practice.

A successful example of e-learning is from the world of Mechanical Engineering in Northern Illinois University. M.J Mayo [307] argues that the complex principles of Science and Engineering can be taught not only by playing games but also by designing games as well. Students who used Brianno Collier’s [308,309] Race Car game/Numerical Methods course were observed to be able to describe a significant number of defining features to the main topic more than the control group who did not participate in the game design and playing. Collier demonstrates that in this instance, multimedia can be an effective learning vehicle by both stimulating interest and increasing the time students voluntarily spend on the task. Even the exam in this learning experience is innovative and styled differently. Students have to drive a car around a track that they have not seen before by writing a programme to do the driving.

From the Howard Hughes Medical Institute and Harvard University comes another resounding multimedia success story. BioVisions, under the directorship of Dr Robert Lue, is a group of Harvard scientists, lecturers, students and multimedia professionals working in the area of biology. The aim of the collaboration is to teach “how biological processes occur by combining the highest quality multimedia development with rigorous scientific models. In addition, this new generation of science visualizations are not meant to simply be simulations or mirrors held up to reality, rather they are designed with a specific pedagogical goals in mind. This means that each decision made on how to

represent a given biological process also includes consideration of how best to visually communicate particular aspects of the process”. [310]

In short, Mayer R. [311] says according to the cognitive theory of multimedia learning, that students are likely to learn more deeply and understand difficult concepts more readily because they are engaging in processing information simultaneously on many different levels.

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