

INCREASING STUDENT ENGAGEMENT AND ATTAINMENT THROUGH THE IMPLEMENTATION OF TECHNOLOGY ENHANCED LEARNING



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Technology Enhanced Learning (TEL) has emerged to be one of the latest 'buzz' words, but within design and technology does 'TEL' really have any significant impact upon improving students learning and subsequently their attainment?

This article seeks to share aspects of some of the work recently undertaken by undergraduate trainee teachers from Edge Hill University during their professional teaching placements. The work originates from the utilisation of new learning technologies in an undergraduate module, which sought to improve their student learning experience and improve academic attainment.

The module, which used the notion of 'design fiction' as a catalyst for work, was designed to encourage trainees, on the Design and Technology BSc undergraduate course to use TEL in the production of a futuristic concept design product. The module delivery was developed to 'echo' the content, and through the introduction of innovative and creative approaches trainees were encouraged to capture their progress using TEL.

Previously this module promoted the use and production of a traditional paper based design portfolio and three-dimensional concept solid block model. The TEL strategies and approaches were introduced in addition to the traditional modes of study already in existence and at no time were trainees under any obligation to engage in TEL and were able to select learning and teaching strategies wholly dependent upon their own personal preference.



For those trainees who expressed a desire to engage with the TEL initiative the new approaches included the enhanced use of the virtual learning environment, the use of blogs as an alternative to the production of a traditional paper based design folio, with supplemental work engaging trainees in the generation and utilisation of QR Codes to communicate their visual communication design decisions and concepts to others.

Following completion of the module a number of the trainees then proceeded to adopt aspects of their work and integrated some of the TEL approaches whilst on their teaching placements, to enhance the delivery of lessons, increase the engagement of students and improve levels of attainment. Teaching placements were undertaken predominantly within mainstream secondary school learning environments across the North West of England.



Developments have witnessed trainee's engagement in the delivery of TEL classroom based teaching which has included the use of Prezi to enhance lesson delivery, as opposed to the employment of PowerPoint style presentations, and the use of blogging with older students in order to develop electronic design portfolios. The enhanced use of QR codes has been used to support learning in numerous ways, including for example, via enabling students to access video demonstrations of tools, equipment and skills outside of taught lessons. The use of QR codes has also been employed to deliver audio files for use with groups of students with specific special educational learning needs.

The following short case studies illustrate just a few of the innovative ideas and activities undertaken by trainees, a number of whom recently presented their work at the 2012 SOLSTICE e-learning conference.

Whilst on his final teaching placement Craig Lilley developed the use of QR Codes beyond that of the original module context in which he first encountered them, specifically he used them to replace paper-based handouts. Linking the code to subject specific resources, as Craig explains "students in my Year 8 textiles class have been able to access video demonstrations, including how to thread the sewing



machine throughout the lesson, but because of the use of the QR Code I have been able to attach them to homework sheets which has meant that students have been able to access a number of interactive resources outside of the classroom, to support them in the production of homework based tasks for example”.

Whilst fellow trainee Ciaran Brady explored the development of three-dimensional QR Codes, which were designed to support visually impaired students. As Ciaran explains “through touch, students are able to recognise it is a QR Code, using their mobile devices to scan the image, they are linked automatically to an audio file which can be set to explain, remind or describe a specific task”.

Other final year trainees Pat Link and Phil Johnson have been working to develop the use of blogs and Prezi presentations to enhance the delivery of lessons they teach, replicating the work undertaken during the module.

Pat, who won the inaugural SOLSTICE e-learning student award for his work, developed the use of the blog as a means of producing a ‘living’ design portfolio, whereas Phil engaged students through the use of Prezi to create dynamic teaching resources, which also helped students to create interactive design folios.

A number of year two trainees also began to explore the potential, notably with ex-chef Aiden Boal using his unique talents to create a series of ‘edible’ QR Codes, casting chocolate and also laser cutting handmade biscuits.

Based upon the success of this pilot project development of this module will continue to embrace the use of TEL next year, with further planned intervention aiming specifically to explore the use of virtual learning spaces, and also the potential benefits of integrating mixed and augmented realities to support the creation of three dimensional artefacts, which no doubt trainees will be keen to adapt and develop for use in the classroom whilst engaged on their respective teaching placements.

Full details on SOLSTICE & CLTR 2012 – Enhancing Learning, Teaching and Student Success along with downloadable resources can be found at: www.edgehill.ac.uk/solstice/2012-2/





Ensuring Internet Safety:

All TEL software used during the module and by trainees in the classroom, cited in this article is available for download free from the Internet.

Below are some of the sites utilised by trainees during the modules completion and subsequently during their teaching placements:

Blogs

www.tumblr.com
www.blogger.com

Prezi

www.prezi.com/

QR Codes:

<http://qrcode.kaywa.com>
<http://goqr.me>
www.qrstuff.com

Useful web resources and links:

www.edgehill.ac.uk/solstice/2012-2
www.edgehill.ac.uk/solstice/files/2012/06/Day-1-Session-15.pdf

The following are two live portfolios of trainees Liam Howard and Richard Woods:

<http://thecountsdt3101.blogspot.co.uk/>
<http://woodyssdt3101blog.blogspot.co.uk/>

