South Staffordshire College - Transforming teaching and learning with Augmented Reality

Summary
Following the introduction of Augmented Reality in teaching and learning, coupled with more widespread use of mobile devices, South Staffordshire College is reaping the benefits of more engaged and interested learners. Although in the early stages of development, the technology is having a significant impact particularly in practical subjects.

Picture (500pix wide for main images) with caption (9pt Arial italics centred)
About South Staffordshire College

It has four campuses in Lichfield, Cannock, Tamworth and Rodbaston. The college attracts around 12000 learners each year and offers vocational courses, apprenticeships and HE.

South Staffordshire College has state-of-the-art facilities including an animal zone, working farm, equestrian centre, motor vehicle workshop and hair and beauty salons. It has also made significant investment in mobile devices to enrich the student learning experience.

The challenge

The College was looking for innovative ways to deliver more for less whilst still trying to capture the imagination of young people. Teachers informed us there was too much bureaucracy and many said they had less time to prepare for and deliver practical workshops and no time to recap demonstrations for absent learners. Lack of space and PCs in practical areas such as the hair and beauty salon and construction workshops presented a further challenge.

Steve Wileman, E-learning Manager says, “It can also be very difficult for learners at the back of the room to see what the teacher is demonstrating. Concentration levels are sometimes affected.”

Steve and his team wanted to try and promote more independent learning whilst at the same time, addressing some of the challenges that teachers of practical workshops face.
The activity
On a visit to the college in May 2012, Allen Crawford-Thomas, e-learning adviser from the Jisc Regional Support Centre West Midlands, showed Steve and his colleague Ian Holt, E-learning Co-ordinator, the potential of Augmented Reality for teaching and learning.

Steve explains, “Augmented Reality (AR) is a way of superimposing computer/virtual based information over the real world. You can integrate printed material for example with an app available for an Apple or Android device. The printed material is overlaid with content such as video which will appear on the device’s screen.”

Immediately, Steve and Ian saw the huge potential for AR, particularly for practical subjects where learners rely heavily on practical demonstrations.

Steve says, “By having AR enabled posters around the hairdressing salon or in the construction workshop for example, learners could point a smartphone, iPod or tablet device at a poster and instantly see a video demonstration of how to achieve a particular hair style or how to cut a brick. This could help learners who needed a reminder or for those who missed the demonstration.”

![Augmented Reality Poster](image1.png)

**Figure 1: Augmented Reality Poster**

![Using a Mobile Device](image2.png)

**Figure 2: Using a Mobile Device**

He adds, “Allen told us about the Aurasma AR platform. Aurasma is currently free for educational organisations. They helped us to set up a ‘studio’ for our college where we could create AR content. Aurasma studio allows you to link video content, web page links and animations (auras) to a ‘trigger’ image.”

Aurasma have an app that is available to download for an Apple or Android device, however Steve and Ian worked closely with IT Services, Curriculum and Marketing to create a South Staffordshire College branded app. This allowed them to generate content specifically for curriculum areas and also apply some corporate identity. Support from Aurasma has also been amazing.

AR was introduced initially to the college e-drivers who showcased it at faculty meetings. Steve and Ian also delivered various AR awareness staff development sessions. Each curriculum area was designated a nominated person to ensure that the video content meets a certain standard and is appropriate to the subject area.

[www.jiscrsc.ac.uk/casestudies](http://www.jiscrsc.ac.uk/casestudies)
The outcomes
AR has really taken off in the college’s practical subjects where a series of posters have been created and integrated with video and web links accessed via the college’s app. Examples include:

- Art and Design – learners can view a gallery of an artist’s work and find out more about the artist from just one trigger image
- Catering – a demonstration of how to prepare a particular dish
- Motor Vehicle – identifying hazards in the garage
- Brickwork – the correct way to cut a brick
- Health and safety – identifying fire exits and safety signs

Steve says, “The feedback has been really positive and AR has certainly brought a ‘wow’ factor to teaching and learning. The learners particularly appreciate being encouraged to use their smartphones instead of us telling them to put them away!”

For those learners who don’t have a smartphone or tablet device, they are encouraged to ‘buddy up’ with another learner who has one. Additionally a number of iPads are available for learners to borrow during lessons. Content is also uploaded to the VLE so that learners don’t have to rely on the posters. They can simply point their device at the trigger image on screen and access the content outside the college.

The benefits of using AR include:

- It is more accessible and inclusive. SLDD learners who are unable to read don’t have to plough through text-based materials.
- No need to log onto a PC to access materials.
- More efficient for the teacher – avoids delivering the same tutorial repeatedly.
- Content can be updated quickly and easily.
- Learners are able to use their own device - tools with which they are already familiar with
- It’s an easy way for students to recap a practical demonstration or catch up on a missed session – this saves time for the teacher and allows the learner to view the demonstration as many times as they need to.
- Saves space – no need for desk mounted PCs in the classroom.
- The learning environment doesn’t have to be constrained to the classroom
- Content from the VLE and the College’s ‘MooTube’ video channel can be repurposed – it serves as a reminder to staff that the content is available.
- Can subscribe the app to other organisation's channels which facilitates content sharing amongst other learning providers. This is particularly beneficial as creation of video content can be time consuming.

Steve says, “AR has also served as a catalyst for engaging staff that were previously wary about using technology in teaching and learning. It has encouraged some subject areas to engage more with the VLE and discover what other technologies they can use to improve the quality of teaching and learning and engage the learners.

The impact
Although the project has only been in place since May 2012, the Brickwork department has seen significant impact as a direct result of using AR:
- Following the demonstration of how to correctly cut a brick, Brickwork teacher Terry Ramwell reported that 90% of learners got it right first time compared to 60% prior to using AR
- Wastage and material costs of the bricks have decreased due to Terry not having to demonstrate repeatedly

Terry says, “AR has changed the way that I deliver my practical sessions and it has encouraged me to use the VLE and embrace technology for teaching and learning.”

Steve says "AR is revolutionizing teaching and learning at the college making it a much more enriching and rewarding experience for our learners. With wi-fi now available on all our campuses, we are encouraging learners to use their own devices which is a change in culture from where we were previously. In the future, we may also review our PC replacement policy in favour of more tablet devices.”

Work-based training provider Francesco Group, who the college works closely with, is particularly impressed with the conversion of some of their training materials to AR. The organisation is hoping to incorporate AR content into the training manuals in their salons.

Steve says, “The potential for AR is huge and we have already identified other uses. These include:

- Open days – introductions to curriculum area, team and course demonstrations
- College prospectus – more information about courses
- Learner satisfaction surveys
- E-drivers – outline area of e-learning expertise and contact information
- Curriculum areas – multiple choice quizzes, learner led videos, contact your lecturer

The lessons learned
Steve has the following advice for other learning providers who may be considering the implementation of Augmented Reality:

- “Establish a project planner and ensure that key departments work together – curriculum, marketing, IT and e-learning.”
- “If you decide to create your own organisation’s branded app, and want to promote it on the app store, you will need Android and Apple developers’ licenses. Factor in time for getting these as it took us a few weeks to sort out.”
- “The cost is just over £100 for the Apple license and around £35 for an Android license. Alternatively, you can pay an external organisation to create an app for you if you don’t have the resources in-house.”
- “When applying to Apple to create your app, provide a demonstration of what the app will do and as much information as possible.”
- “Build in some quality control measures to ensure the quality of your video content and provide training for your staff – video creation is the hardest part of developing AR content.”
- “Don’t laminate your posters or place under direct light as the app will not pick up the content. Computer screens are fine but AR will not currently work with a projector.”

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“Create poster templates for consistency and add a visual guide so that staff and learners know they are AR enabled – you can do this simply by adding the Aurasma logo and your own branded app logo if applicable.”

Useful links

Jisc RSC West Midlands
South Staffordshire College
Aurasma

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