Colchester Institute: laying foundations for the future

Summary

Brickwork Lecturer, Chris Holland has created a resource which allows students to lay bricks on a computer screen. The former bricklayer has used the ActivInspire suite on the Promethean whiteboard to draw various types of bricks, as well as other interactive tools from the building site. Students are now more engaged in the classroom as they can practise cavity walling, block work, and setting walls on foundation before they get out in the workplace. Learners using the resource range from 14-16-year-old school students, full-time 16-19 year-olds completing diplomas in brickwork as well as apprentices completing NVQs.

About Colchester Institute

Colchester Institute is a major provider of further education and training for North Essex and adjoining areas. The College also provides a range of higher education (degree level) courses. Colchester Institute specialises in the provision of vocational education and training opportunities, including courses in music and performing arts, construction and engineering, health and care, hospitality and food as well as business and management. The college operates from campuses in Colchester, Braintree and Clacton.

The challenge

“Before I set up the virtual bricklaying course I had to continually draw diagrams for the students and give them lots of hand-outs. The learners were not stimulated.” Chris Holland, Brickwork Lecturer

With many students lacking technical drawing skills and reliant on hand-outs, Chris found that learners would end up with unacceptable revision material.
Chris decided to set up the virtual bricklaying resource in order to enhance the learning experience for students, and to make the classroom a fun and interactive environment.

“I wanted to make a creative and active classroom. The learners are still getting the diagrams they need, but they actually have the bricks and tools to create the walls themselves on screen. They are laying bricks and doing all the little things to get the right levels, the right height and gauge.” Chris Holland, Brickwork Lecturer

The college can now save time and money by taking demonstrations out of the workshop and onto the Promethean whiteboard

The new resource has been very helpful for practical demonstrations which before could only be done with bricks and mortar.

“With this resource it’s immediate for showing a bonding problem. Now you don’t have to drag a load of bricks into the classroom and show them what to do, you can do it on the computer.” Chris Holland, Brickwork Lecturer
Virtual bricklaying: students can now benefit from demonstrations on the Promethean whiteboard

The activity

“It wasn’t until I started my action research project for my Certificate of Education that I was able to spend lots of time on the resource. It was quite daunting when I first observed other staff using the Promethean whiteboards, but my teacher gave me the confidence to take it on.” Chris Holland, Brickwork Lecturer

Chris booked some time with the IT department and they showed him how to fix, colour and group shapes on ActivInspire. After that session he returned to his desk and drew a brick that afternoon. During the next few weeks Chris drew 60% of what he has now.

Whilst working on his Certificate of Education in 2009, the college encouraged Chris to share the resource with his students. He used it to demonstrate how to design walls. Students were soon able to play around with it to see what their walls would look like before going out to build.

“I first used it as a demonstration tool to teach students, but they weren’t really able to use it to its full potential because of a lack of computers for students in the classroom.” Chris Holland, Brickwork Lecturer
After revealing it to students, Chris then showed the resource to his curriculum manager after he had completed his Certificate of Education in 2010, and his fellow brickwork lecturers started to use it.

The real breakthrough came around five months ago. Technology Enhanced Learning (TEL) Curriculum Manager, Paul Jennings was told about the resource and invited Chris to showcase the virtual bricklaying suite to the rest of the Colchester Institute teaching staff.

The college has a strong focus on technology enhanced learning, and as a result schedules four ‘transformational learning’ days every academic year. On the first day of term in January Chris Holland unveiled the project to his colleagues.

“Tutors from different subject areas were students in his class. We allowed them to build walls, and Chris walked around giving formative feedback as they were building. All curriculum areas showed an interest in using the resource in their classrooms.” Paul Jennings, TEL Curriculum Manager

The aim of the day was to demonstrate how non-IT staff have utilised technology in their teaching and learning. Since then, Paul Jennings has looked at ways of sharing the resource around the college.

“If we share the resource with the electrics and plumbing staff it will certainly develop. We then realised that the resource has no limits.” Paul Jennings, TEL Curriculum Manager

The main obstacle Chris and Paul have faced is the lack of computers and ILT resources which would help the virtual bricklaying resource to reach its full potential.

“We need computers in our base room, then we could have the students sitting there building cavity walls on the screen. At the moment I am using a wireless mouse and passing it around the class, so students can demonstrate on the board. We have computer rooms, but they can only be booked for ICT and functional skills sessions.” Chris Holland, Brickwork Lecturer
The outcomes

“The students have benefitted the most. They love computers, and these days I believe they are more comfortable with a mouse than a pen.” Chris Holland, Brickwork Lecturer

Chris believes that the virtual bricklaying resource is more inclusive and benefits the less able student over other methods of learning.

“The majority of my students learn better from doing. They prefer being active, they hate being lectured, and hate taking notes. Put them in front of a computer and give them a task, and you won’t hear any moaning at all. The quality of handwriting and drawing is not that great, so it’s difficult for them to revise from that.” Chris Holland, Brickwork Lecturer

Both students and lecturers have given positive feedback on the resource.

“Virtual bricklaying makes it easier to work out a brick wall on a computer before we have to build it in the workshop.” Richard Green, Brickwork Diploma Level 3

“In the Diploma Level 2, one of the units is heavily related to brick bonding. The use of virtual bricklaying within the classroom helps to explain in detail and makes it easier to demonstrate each brick bond. Virtual bricklaying is now...
a very valuable resource in the classroom and encourages an active lesson.”
Tristan Morrison, Lecturer in Trowel Occupations

The virtual bricklaying resource also promotes the creative side of brickwork. It helps students to see bricklaying as a craft, rather than just a job, as they have to pay more attention to detail to make the wall look impressive.

Some of the benefits of the resource include:

• **Inclusive learning** – students don’t have to be good at drawing they can use quarter, half and full bricks rather than drawing them out;

• **An interactive, fun classroom** – “Lego with skill”, Paul Jennings, TEL Curriculum Manager;

• **Learning bricklaying crafts** – they can lay bricks from various views, including a birds eye view and three dimensional view, which helps them to do certain bond brickwork;

• **Better revision** - labelling and terminology function - students can drag the word onto the right tool, brick or building method;

• **Practise at home** – The college has purchased licences for the ActivInspire suite which allows students to download and use the resource at home.
Learners can view bricks from a 3D view and use the suite to revise via a labelling function

Chris Holland has also benefitted hugely from the resource as he can now save time and no longer has to sketch certain building scenarios.

“If I want to demonstrate practical aspects of brickwork, such as how to range it in or level with bricks I can do it on the computer rather than demonstrate it physically.” Chris Holland, Brickwork Lecturer

He also believes that if the resource does reach its full potential with a bank of computers, he will be able to devote more time to assisting the students' learning.

“If the students could just get on with using the resource and I could go around monitoring them, it would be an active and happy classroom. Students would be teaching themselves as much as they are being taught.” Chris Holland, Brickwork Lecturer

**The impact**

Although the majority of staff in the college only learnt about the virtual bricklaying resource in January, the impact has already been felt since the transformational learning day.

“During that day, we had a survey asking the tutors whether they would be using this resource in the next semester. More than 50% from non-brickwork
subject areas said they would like to use it.” Paul Jennings, TEL Curriculum Manager

Paul Jennings believes there will certainly be an impact on retention and recruitment, but thinks it will depend on whether the college can invest in a bank of computers.

“I suspect that we will see the biggest impact in the summer when tutors who are teaching skills-based subjects will be looking at using this resource for their subjects.” Paul Jennings, TEL Curriculum Manager

Chris Holland believes that the resource will have an impact on every skills-based subject:

- Carpenters can use it to simulate rafters and joists;
- Plumbers can create pipes and bends;
- Electricians can wire up a circuit board using the resource.

Chris Holland thinks that the biggest impact will be felt by first year students.

“First year students switch off very easily, and this will stop them from losing interest. With all of the computers in place I think the resource would improve success rates because a lot of the boys struggle with the theory side of the subject, and skip lessons.”

The suite has also had a big impact on Chris’s teaching style as he now strives to make lessons active.

As the Curriculum Manager for Technology Enhanced Learning, Paul Jennings is very happy that this project has improved the opinion of e-learning around the college.

“This resource has given technology enhanced learning authority and credibility around the college as a non-IT member of staff has created something which really enhances learning.” Paul Jennings, TEL Curriculum Manager

The lessons learned

And for other colleges and staff looking to implement a similar system, Chris Holland believes teaching staff should let their creative juices flow.

“I would advise them to just have a go and see what they can do to make a more active classroom. I am only a bricklayer by trade and not an ICT expert. I was fearful about the technology at first, but I wasn’t afraid to have a go. Hopefully I will give other staff the confidence to try to work with technology in their teaching.” Chris Holland, Brickwork Lecturer
The college has weekly technology enhanced workshops, and also utilises the LSIS professional development advisers network to create a community of sharing.

As a result, Paul Jennings would eventually like to see staff sharing these resources across the college, and the UK, so all can benefit together, freely, on a creative commons licence.

Useful links

http://www.colchester.ac.uk/


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