



Education fast-forwards the future with Autodesk

In Dumfries & Galloway, schoolchildren as young as eleven are using the same technology as cutting edge design and manufacturing professionals worldwide

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Larann Foss
Teacher
Lockerbie Academy

As a region best known for tourism and agriculture, Dumfries & Galloway – Scotland’s second largest regional council – is perhaps not the first place that springs to mind when considering cutting-edge design technology. But, with 16 secondary schools and up to 8,000 students across the region, all looking ahead towards the careers which are their stake in the future, the demand for the best educational facilities is very strong.

“We send people far and wide from here,” says Larann Foss, a teacher at Lockerbie Academy and also a curriculum leader and custodian of IT development for the regional umbrella, Lochside Education Centre. “At the end of the day, we’re trying to prepare our students and we have to make sure that we give them the best opportunities in the careers that they follow, so we have to follow the developments in industry,” he says.

Many educationalists believe that these developments in a nation’s industry are only sustained by the inflow of new talent as the next generation is fed into them, and this can only happen effectively when students are motivated to learn. Many also believe that you can help sustain an economy by making apparent to students, as a natural part of their subjects, the maths of engineering, the physics of construction and the chemistry of health.

The educational thinkers in Dumfries & Galloway do this by making sure their students are given the opportunity to use exactly the same design software that engineers, designers and manufacturers use in the real world.

“Predominantly, it is Autodesk software that is used throughout the world so we thought it best, to prepare our students for the future, to go in line with

that,” says Mr Foss. “Until 2006, the schools had all been using whatever software they had secured themselves. But as an authority, we said, ‘lets’ make sure they’re all looked after properly’ and took the decision to roll out one standard software, and that was Autodesk Inventor. It was a key factor in the schools going along with it.”

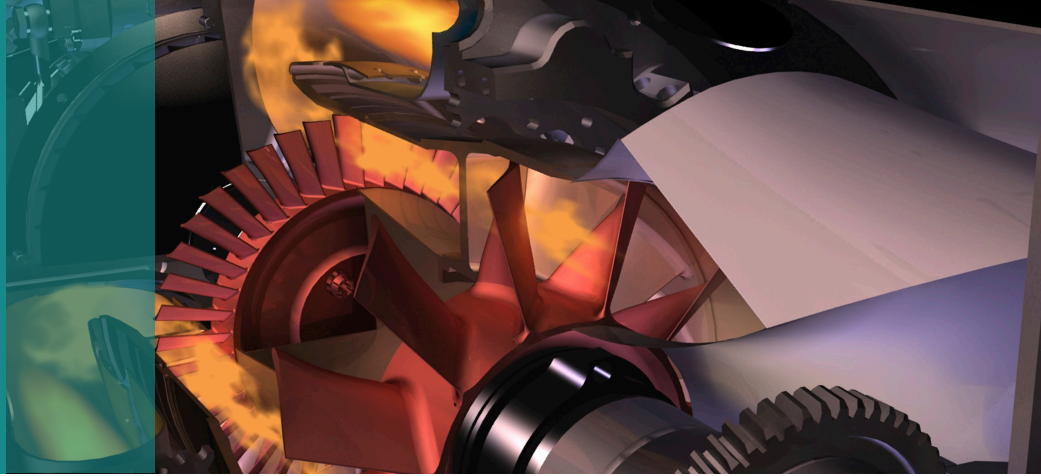
“We’ve had Inventor installed on the PCs going right back to Inventor 10, so that was 2006. More recently, we decided to buy the software outright so that it stays in the schools indefinitely,” says Mr Foss, who was responsible for putting in place the training for the staff and for ensuring there were no problems with the existing technology, the server or the desktops.

Autodesk Inventor provides a comprehensive set of tools for designing, producing and validating complete 3D digital prototypes of virtually any product. It was developed to help designers visualise, simulate and analyse how a product will look and how it will work under real-life conditions before a part is ever built. This may be something the students go on to do later in life, but it begs the question: how is it used by secondary school students and do they all use it?

“Every school in the region uses Inventor but it all depends on the school and how it adapts the software to its needs. Some schools use it from the first year, all the way up, others may not, but every pupil will come into contact with the software at some point,” says Mr Foss.

“For the kids doing Highers or A levels, they’ll all have to create their own 3D models from scratch as part of the coursework. But with the younger kids, it’s more basic, They’re looking at duplicating existing products, using the software to understand

Dumfries & Galloway



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how the products are made and how the software works.”

Given the widespread use of Inventor in industry and in tertiary education, this experience gives the Dumfries & Galloway students a great advantage when they go on to study a design linked course at university – “It gives them a year or two’s head start versus someone who hasn’t use the software,” he adds.

Mr Foss’s own students at Lockerbie Academy had an even better head start than most, as his school trialed the software at the outset.



“You could say we had an advantage, we’ve been using Inventor there for over two years and with my knowledge, it’s helping greatly. Of the tutorials that I made up, pupils worked through them very easily and if anyone had problems, I was right there on site, plus, when we rolled out the software, we acted as an online ‘consultancy’ to the pupils and technical teachers throughout the region.”

What sorts of products were these students working on?

“They’re all things they can bring in with them – hairdryers, hair straighteners, fishing reels – something with a few movable parts they can take apart. We didn’t want anything too big or overly complex. For Highers, they have to have several parts that they can take apart and do exploded views from, but that’s more advanced and slightly more complicated.”

At first, schools are surprised to find that the educational versions of Inventor – bought at education prices – are exactly the same as the commercial versions; they are fully functional software with no features removed. As a consequence, the only limitation on the students’ design capacity outside his or her imagination is the curriculum, who do this.

Given the creative freedom offered to students by this kind of software, many of Lockerbie’s pupils are

keen to jump ahead to working in 3D before it’s on the curriculum. But any experimentation is carried out in their own time, which means it tends to be the more able pupils, who have already finished the curriculum led coursework.

“We’ve got a few kids at Lockerbie who have used the automated side of it and created flyby views – there was one boy who created a video file of the mechanical tin opener he’d designed, showing all the mechanical parts working,” says Mr Foss.

“But in most schools, it’s a ‘Catch 22’; do you give them the freedom to create whatever they want and

risk running out of time or do you guide them in the direction you know they need to take to get through the curriculum – we could spend a lot more time on it and do a lot more powerful things with it but we just don’t have the time within the curriculum. Now, if we could offer a Higher on Inventor that would give us real scope!”

It seems that the organisation charged with developing and evolving the curriculum may be in agreement. The Qualifications and Curriculum Authority acknowledged back in 2007 that with a changing society and greater expectations for our young, the role of schools and their methodology must change with it.

The organisation’s curriculum director, Mick Waters, stressed the need to excite the thirst for learning in all pupils: “Our biggest curriculum challenge is to sustain a desire to learn whilst providing the skills and qualities necessary for young people to influence their own lives. This learning outlook will be a vital quality for successful lives and a strong economy,” he said.

In providing its students with the industry’s latest 3D digital design tools, it seems certain that Dumfries & Galloway is promoting the desire to learn and thus empowering its 8,000 pupils to help influence not just their own lives but those of society as a whole.