

Dewis: An algorithmic based e-assessment and e-learning tool [film transcript]

Dr Karen Henderson: So, Dewis is a web-based algorithmic e-assessment system. So what we mean by algorithmic is that each time the student goes into an assessment they see a completely new set of questions and so they can use it either, or academics can use it either for summative assessment *or* students can use it formatively as a learning resource.

Dr Rhys Gwynllwy: It was developed in-house and the motivation for creating and developing it was..., we wanted an e-assessment system that emulated the human marker.

Dr Karen Henderson: You can use it to do intelligent marking so, for example, if you set a question which has multiple parts then you can set continuation marking so even though a student makes a mistake perhaps early on in the question, you can still give them, um, follow-on marking and, um, hence it emulates, um, a human marker.

Dr Rhys Gwynllwy: So, there's artificial intelligence inside the question and the marking and the feedback. In mathematics and engineering and a lot of fields there are questions which don't have just one single answer. Um, let me give you an example. Let's say a question asks the student to give a prime number greater than hundred. There's an infinite number of them and there's no way any system can hold all infinite number solutions so the student enters their answer and what the verification marking in Dewis does, it takes in the answer and runs the computer algorithm to see if the answer satisfies the criteria. It hasn't got a correct answer to compare with; it checks whether it satisfies the criteria. So my example case, the system will check that the student's number is bigger than hundred and if it's a prime number. If it is, it satisfies both those criteria, it congratulates the student. If not, the system can explain which criteria the student's answer did not satisfy, and try to explain to the student why their answer is wrong.

Fabia Jeddere-Fisher: Um, I use Dewis on one of my Level 1 modules. It's quite a maths heavy module; it's called Engineering Principles and we use it to, um, have tests throughout the year covering the four key topics on the module. Um, the tests are multiple times so they can take the tests up to three times and it's about three hours long each test. We have the test open for about two weeks so the students get to take their time in completing the test; they get to do it in their own time, their own space, and it's been really successful.

Ytzen Van Der Werf: I think the best feature of Dewis is the fact that you can use the same type of questions but with different parameters so the question keeps changing. Students can practise a question twice, three times, ten times with different parameters so they don't do the exact same question again.

Fabia Jeddere-Fisher: If you put a lot of hard work in over the summer, get everything ready, the structure, the parameters, but then it's the peace of mind, it's just done. The moment you open the test, the students can just get on with it in their own time and they just need to complete it before the deadline.

There's a couple of other really great things because firstly you pretty much have to do no marking. It's doing all the marking for you, and it's put it all on to Blackboard so then you can just

grademap it when you're ready. Um, it also means that you can check progress so when, because it's open for two weeks, I'm seeing the students week by week so I can turn up to class and I can know who has accessed it and who has done their first attempt and for those students that haven't even looked at the e-tests I can know and I can approach them and I can talk to them about the e-tests.

Basil Norbury: Well from a technical perspective, the Dewis, er, navigating through Dewis is quite easy to go through, its features and everything, it's quite easy; the instructions are excellent and I've had a very good support from the LIU and the Dewis team so I have no problems in that direction. I'm not really a techie-type person but boy I've learnt a hell of a lot by just using the Dewis and it hasn't taken long.

Fabia Jeddere-Fisher: Um, the Learning Innovation Unit were *vital* in us getting this right for my module. They were helpful all the way along; they gave me a template to work to, they helped me unpick what do we mean by a parameter, a tolerance, where do I need parameters, which ones are going to be fixed and they were great, and they helped us through the whole process.

Ytzen Van Der Werf: From administrative point of view it's definitely very easy to use because the whole system is integrated with Blackboard, it generates all the data that you need, you can run your statistics, and you've got a great overview of your students' ability and, er, performance.

Fabia Jeddere-Fisher: They love the way that they could do it from home, that they could do it in their own time. We have a lot of part-time students so that's really important for them. They even loved it so much they wanted the Dewis tests to be opened again to help them with their exam revision and we were able to do that easily, to have it as a formative assessment and it was just available for their revision.

Basil Norbury: So it's a very good gauge for measuring where students are and also where they need to be; a very good tool.

More information:

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