Personalised learning on a massive scale has potential and pitfalls

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Open University report predicts that adaptive teaching tools will grow in popularity, but highlights

need to tread carefully with the data they collect on students

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- By Chris Havergal

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Rise of the machines: tools may monitor eye movement and facial expressions

Computer-based teaching applications that monitor and respond to students' performance are set to allow for increasingly personalised learning experiences, but users must have a say on how much information they are willing to share.

This is according to *Innovating Pedagogy 2015*, the Open University's fourth annual report on the technological trends revolutionising global education, which identifies the growth of adaptive teaching as one of the key developments likely to emerge in coming years.

Adaptive applications typically analyse students' abilities and interests using tests, algorithms and psychometric tools, and develop a bespoke path through a programme of study to suit the learner. They can also suggest areas of weakness that the student should review, the report says.

Mike Sharples, chair in educational technology at the OU's Institute of Educational Technology and co-author of the report, said that adaptive applications would demonstrate how standardisation was not an inescapable feature of large-scale educational programmes such as massive open online courses.

"In the past, we have often thought it is one or the other: either you have personal learning alone, or you have a social experience and learn collaboratively," Professor Sharples said. "Now we are learning how we marry the two."

The report, produced in partnership with California-based SRI International, says that the ways in which adaptive teaching tools monitor students needed careful consideration.

Some have the potential to monitor brain activity, boredom and time spent on off-task activity, and another trend highlighted in the report is technology that can monitor students' responses by tracking their eye movements, facial expressions and posture.

This could be used to check if students are glancing back to earlier material, potentially indicating that they are struggling with some concepts, or to see if they are rapidly skimming text, in the event that they are already familiar with it.

Other applications could allow for "stealth assessment", the collection of comparable data on student performance through personalised tasks that blur the lines between learning and testing.

Professor Sharples said that these trends indicated that ethical issues were likely to become ever more significant in learning technology, and that students needed to be engaged in discussions about these as well as researchers.

“As a learner, it feels uneasy if a system is monitoring your every move and trying to work out how good a learner you are, and that is something we need to be aware of as teachers,” he said. “In terms of what learners will be happy with, there is a trade-off between having a very responsive system that helps them to learn a difficult skill and monitoring their every movement.”

chris.havergal@tesglobal.com

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