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Emotion-aware teaching software tracks student attention

16:59 05 January 2007 by [Tom Simonite](#)

Tutoring software that knows when students' are losing interest in a lesson and can adjust to keep them on track is being tested by researchers in China and the UK.

The system keeps track of students' attention by measuring physical signs of emotion. It then varies the speed and content of a lesson based on an assessment of their level of interest. Ultimately, it could improve electronic tutoring programmes, say the researchers involved, thus helping developing countries deliver education to remote areas that lack educational institutions.

"In China, they are around 300 universities short of demand," says Vic Callaghan, a researcher from Essex University, UK, who co-developed the system with Liping Shen from Shanghai Jiao Tong University in China and others. "They are very interested in using e-learning to educate students over large distances."

Shanghai Jiao Tong University already supplies video streams of lectures and presentation material via the internet, as well as software that lets students interact with a distant lecturer by voice or text through a computer.

"But these systems are unable to take into account the needs and response of the student in the same way a teacher in a classroom can," says Callaghan, "that's what we are trying to do, by making a system that can sense emotion."




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Ring bearers

To use the new learning software, a student wears a ring fitted with sensors that monitor heart rate, blood pressure and changes in electrical resistance caused by perspiration. This data is then transmitted via Bluetooth to a computer that assesses the wearer's emotional state. It judges whether they are interested and keeping up or bored and struggling.

"We've built a prototype that can moderate the flow of educational information as a result," Callaghan told **New Scientist**. For example, it can slow down or change topic if a student seems disinterested, or appears to be falling behind.

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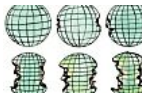
The software might also try a different mode of delivery, switching from text to video, for example.

"It can also learn that certain types of material are more stressful to the student than others," he adds. This could help the system determine which material is most difficult for a student and requires further focus.

The team plans to test the system on students in real learning scenarios in China. The results should help them improve the system's ability to judge attentiveness accurately and also develop course material better suited to long-distance learning.



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