Time not yet right to swap books for e-learning

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Online learning has the potential to reshape education, but a lack of standards and an overwhelming number of apps makes it difficult to identify effective tools, says cognitive science researcher Björn Sjödén. Software developers need to up their game

Björn Sjödén says most e-learning tools are ineffective.

The majority of education software is useful for telling students what they have got right and wrong in tests, but is found wanting when it comes to explaining things.

This is the view of cognitive scientist Björn Sjödén, who has waded through a large number of computer programmes in pursuit of the vexing question, 'What makes good educational software?'

The somewhat unhelpful answer is that, "Most digital learning tools used in schools are unsatisfactory and only test the knowledge the pupils already have," says Sjödén, a researcher at Lund University. In Sweden, most classrooms are equipped with tablet computers, which are intended to create a more independent learning experience for students.

However, while there is a benefit for teachers in capturing data about each student's progress for later review, iPads and similar devices are far from substituting for traditional instruction, according to Sjödén's research.

"Probably more than 90 per cent of the learning tools available online are simply test tools," he says. "They provide no explanatory information in addition to the correct answer. The pupils often compete against time, but [this does not lead] towards greater understanding."

Apps for tablets and smartphones represent a fast growing sub-category of e-learning tools - after

games the most downloaded items from Apple's online app store are education apps.

But few are of a high quality, said Sjödén. He was recently involved in a pilot study with the universities of Lund and Linköping's interdisciplinary Educational Technology Group, which examined the 100 most downloaded apps for maths and language in Sweden.

"Barely half of them could be considered digital learning tools according to our standards," Sjödén said. Only 17 per cent provided any useful feedback. "Some were so bad that we, as researchers, would never even consider testing them in class," said Sjödén.

Over the past 15 years, school results have been going down fairly rapidly in Sweden, though it is not clear whether the shift to online learning is contributing to this slump.

However, the latest report from the Programme for International Student Assessment (PISA), a worldwide study of 15-year-old students run every three years by the Organisation for Economic Co-operation and Development, showed that students who use the internet the most, both in and outside of school, also perform the worst in the PISA's standardised tests.

Make imaginative games

While Sjödén believes the printed book is still by far the most successful education asset we have, he sees little value in transferring books onto screens. A more fruitful approach would be to design educational apps that provide meaningful feedback and interaction. The aim should be, "to show there are different ways of thinking to reach a goal, and present consequences that cannot be demonstrated in a book," Sjödén said.

As one case in point, part of Sjödén's research involved getting two groups of pupils to play a maths game which involved interacting with a computer character for eight weeks.

To assess if this was improving learning, he set one group a digital maths test where the same character featured. Another group took the same maths test but without their digital friend.

The results were telling. "The pupils that were helping their digital friend were more engaged. They were almost three times more likely to click 'yes' when the computer asked them if they wanted to continue to harder sums," says Sjödén. Low-performing pupils became especially motivated.

Sjödén thinks imaginative games like this can really bring home the advantages of e-learning.

"If none of the large, well-established companies will [take this on], I hope that one of the new enterprises will succeed. The developer who makes the first real digital learning tool will have control of that entire market," he said.