



Another era Princess Elizabeth and Prince Philip picnic near Balmoral in previously unseen photos from the 1940s and '50s

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# Pupils prefer lessons with robot teachers

**Nicola Woolcock**  
Education Correspondent

Children prefer lessons taught by robots because they are less judgmental and frustrated than real teachers, an education expert has claimed.

John Hattie, director of the Melbourne Education Research Institute, said that children could ask the robot the same question multiple times and it did not become frustrated. It also did not know whether they had been naughty yesterday, or if they had a certain disease or problem.

Professor Hattie warned teachers not to underestimate the ability of robots to take over at least some aspects of their job, the *TES* magazine reported.

He was speaking this week at a conference in Edinburgh related to his book, *Visible Learning*, for which he analysed thousands of pieces of education research to determine what worked in schools.

He said: "Last year when I was in Asia, I watched a class being taught by a robot and it was really fascinating because at the end of the session ... I

had the opportunity to talk with the kids and I asked them about the experience. And you know the [usual] story: the teacher-student relationship is critical, the student-student relationship is critical. What did these kids say? 'Eh, we prefer the robot to the teacher.'

"That whole business of artificial intelligence is screaming us in the face. We need to be interested in how the robots can help us to reduce some of the problems that we have that are related to human interaction and all the biases that relate to it."

Sir Anthony Seldon, the University of Buckingham vice-chancellor, has warned that robots will begin replacing teachers in the classroom in the next decade. He believes intelligent machines that suit individual learning styles could make some traditional teaching redundant.

Programmes being developed in Silicon Valley will learn to read the brains and facial expressions of pupils, he said. He has written a book, *The Fourth Education Revolution*, and claimed the impact of technology would be beyond anything in the industrial revolution.

## Remote control of museum restorers

**Tom Whipple**  
Science Editor

Your museum's prized Babylonian bust is cracked, but you are based in Syria and the best expert cannot get into the country. What do you do? You bring in the telerestorer.

The State Hermitage in Saint Petersburg, Russia, is testing a system in which restorers can work remotely, using a headset and a robotic hand that mimics their movements.

Alexey Bogdanov, its deputy director, said that there was so little lag in new 5G mobile transmissions that even highly precise movements could be controlled at distance. He said that the movements are still "fuzzy", but he expects them to improve until the technology can be used on real works.

Mischa Dohler, from King's College London, who is involved in the project, backed by Sony Ericsson, told a conference at the Crick laboratory in London that the technology could solve the problems faced by some Middle East museums, which are hard to access.

THE  TIMES

# Sternberg

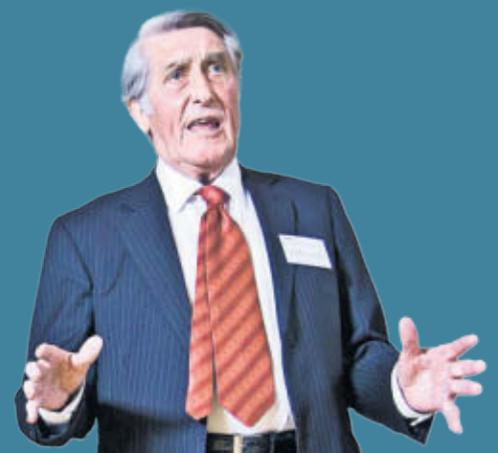
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