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A class act: empathetic robot tutors in classrooms to facilitate teaching and learning

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A European project to develop robotic tutors that will support teachers and motivate students in secondary schools is being led by University of Birmingham engineers and computer scientists, in collaboration with Heriot-Watt University and other European partners.

Significant work has been devoted to the design of artificial tutors with human capabilities with the aim of helping increase the efficiency achieved with a human instructor. Yet these systems still lack the personal, empathetic and human elements that characterize a traditional teacher and fail to engage and motivate students in the same way a human teacher can.

The EMOTE (EMbOdied-perceptive Tutors for Empathy-based learning) project (**www.emote-project.eu (http://www.emote-project.eu)**) will design, develop and evaluate a new generation of artificial embodied tutors that have perceptive capabilities to engage in empathic interactions with learners in a shared physical space.

The researchers will take 'off-the-shelf-robots', adding new capabilities, that will give them the ability to facilitate learning, perceive children's abilities, and even be empathetic to their difficulties.

The newly developed robots will be able to provide personalized pedagogical strategies and will even be able to read a child's actions and behaviours, recognizing when a child becomes frustrated and, because they will have a body – with hands to point, and a head that can be move - will be able to react to the child in a recognizably human way.

Learning content will be displayed on an interactive touch-table, where the child will be able to communicate with the robot face-to-face. The physical robot will be used in schools, but at the same time the researchers will develop a 2D tutor for more informal settings, like studying at home, which can be viewed by the child on a mobile phone or PC.

'In the last few years there has been a growing interest in social robotics, which aims to build robots that can engage with human users in a socially acceptable way. Robots are now starting to be used as 'partners' who collaborate with humans,' said Dr Ginevra Castellano, project coordinator from the University of Birmingham's School of Electronic, Electrical and Computer Engineering.

'We are particularly interested in developing robots that can help to support learning in the STEM subjects, with a particular focus on geography. By supporting learning in new ways, this could make these topics even more engaging, developing interest from students,' she continued.

The project will run for three years and is funded with 2.9 Million Euros. The researchers aim to test a working robot in a real life classroom context within the next two years, working with children and teachers to improve the learning experience.

Ends

Notes to Editors

The project's website could be found at : **http://www.emote-project.eu/ (http://www.emote-project.eu/)**

Other partners in the project include:
Inesc Id - Instituto De Engenharia De Sistemas E Computadores, Investigacao E Desenvolvimento Em Lisboa
Jacobs University Bremen Ggmbh
Goeteborgs Universitet
Ydreams - Informatica S.A.

For further information
Kate Chapple, Press Office, University of Birmingham, tel 0121 414 2772 or 07789 921164.

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