# What is the project about?

Furthering the frontiers of online virtual tutoring.

Why are we doing it?

Our use of **cutting edge technology**, combined with innovative applications of this technology, will allow **replication of the behaviour of a human tutor** more closely than ever before. This will empower educators to deliver the right lesson at the right time for every child, promoting truly personalised learning in a scalable way.
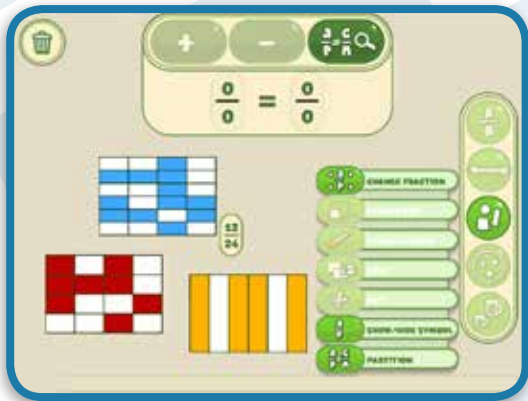
A snapshot of the first phase of Fractions Lab, the iTalk2Learn Exploratory Learning Environment.

What are the key innovations of the project?

The following key areas will be combined to **influence virtual tutoring behaviour** and **further tutoring capability**, taking online virtual tuition to the next level.

- **Use of speech recognition to influence the sequencer**. The key innovation here is to interact with and listen to a student's speech throughout a tutoring session to detect patterns of behaviour, mood and readiness to progress. This provides a whole new set of input to influence tutoring system behaviours to more accurately and effectively adapt to each student's learning needs.

- **Automatic accumulation of historical tutoring 'experience'**. Existing virtual tutoring systems base their lesson assignment upon assessment of each child's academic profile and performance. This project is exploring the impact of historical performance across an entire student base as well as the behavioural patterns of each individual student, in order to more intelligently adapt to each students' needs – just like a real tutor with a lifetime of tutoring experience.

- **Intelligent switching between exploratory and structured learning activities**. Research into the combinations of different types of learning activities may allow tutoring systems to promote robust learning by applying an optimal switching methodology to the use of different types of learning activities. Students will be assigned a rich combination of lessons, based upon their exact learning requirements.

iTalk2Learn Partners

Stiftung Universität Hildesheim is a German University with a focus on pedagogics, cultural sciences, languages, and computer science. The Information Systems and Machine Learning Lab is a world leading research group on machine learning and recommender systems. www.uni-hildesheim.de

Ruhr-Universität Bochum is one of Germany's leading research universities with an acknowledged reputation for excellence in research, for the promotion of early career researchers and for its forward-looking teaching concepts. www.ruhr-uni-bochum.de

London Knowledge Lab is a collaboration between two centres of world-class research – the Institute of Education and Birkbeck College. Its aim is to explore the roles of technology in learning, and to understand how it relates to broader social, economic and cultural factors. www.lkl.ac.uk

The Institute of Education is one of the world's leading institutions for education and social sciences and tops the league table for education research. www.ioe.ac.uk

Birbeck is a world-class research and teaching institution, which is engaged in conducting research that is actively pushing back the boundaries of the world's knowledge across the disciplines. www.bbk.ac.uk

SAIL LABS Technology is one of the world's leading innovators of speech and language technology. SAIL develops technologies to mine media and text including the indexing of audio, video and text, speech recognition, transcriptions from multiple languages, and the processing of social media. www.sail-labs.com

Testaluna designs and develops videogames, simulations, virtual communities combining high quality entertainment with training, educational, therapeutic or promotional purposes. www.testaluna.it

Whizz Education works with parents, schools and ministries of education to raise standards in maths for 5 to 13 year olds. The Maths-Whizz® suite incorporates adaptive tutoring, whole class learning tools and application of best practices. www.whizz.com

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