What is iLAB:Learn?

Based in B83 in the King George VI Building, iLAB:Learn is a practice-based research lab which supports and promotes the research, development and application of digital technologies in education and learning. Members of iLAB:Learn include staff and students from the School of Computing Science (CS) and School of Education, Linguistics and Communication Sciences (ECLS).

Its mission is to undertake world-class research in Education and Computing Science by combining the expertise of staff and students in pedagogic theory, methods and practice and in web-based technologies, pervasive computing and situated interaction.

Projects undertaken in iLAB:Learn are based around a distinctive program of technology enhanced learning research that exploits social computing, pervasive computing and situated interaction technologies and applications. Staff and student researchers use theory and practice to motivate, develop and evaluate technology enhanced learning. **There are currently 4 technology enhanced learning installations in iLAB:Learn available for PGR student projects:**

![Ambient Kitchen](image1)
![TableTops](image2)
![Subtle Stone](image3)
![SOLE and SOME](image4)

How do you become involved in iLAB:Learn PGR research?

PGR students in on ED.d and IPhD pathways in ECLS are encouraged to write proposals for their doctoral research based around one of the installations in iLAB:Learn. PGR students will be supported through this process by working closely with a member of academic staff to formulate specific ideas on how to develop their research interests in terms of the existing installations.

Overleaf you will find summaries providing you with an outline of the different installations in iLAB:Learn, together with ideas for potential PGR research projects and contact details for members of academic staff. You can find out more about the staff supervising projects in iLAB:Learn by consulting their academic profiles. ([ECLS](http://www.ncl.ac.uk/ecls/staff/) and [CS](http://www.ncl.ac.uk/computing/staff/)).

Personal email addresses follow this format: firstname.surname@ncl.ac.uk.
Language Learning and Skills Development

Ambient Kitchen for Language Learning

This project has produced a digital kitchen that speaks to the user in French, (or another language) and gives instructions on how to prepare a French dish. Sensors are attached to all equipment so that each time an item is correctly or incorrectly moved participants can be given appropriate verbal feedback and further instructions. A situated language learning session will take students through the cooking instructions step-by-step, as it receives evidence from the sensors that the participants have carried out the stages of the task. This project provides an opportunity for language learning to be combined with the completion of a motivating real-world task in an authentic setting using the latest technology.

The 18-month project to prepare materials for teaching French language and cuisine is now finishing and a 3-year project preparing materials for teaching English language and cuisine is now starting. If you are interested in a PhD project or other research project based on the English kitchen.

Contact: Professor Paul Seedhouse (ECLS); Dr Dawn Knight (ECLS); Professor Patrick Olivier (CS).

Emotional Communication

The Subtle Stone

The Subtle Stone is a handheld tangible tool designed to bridge the emotional communication gap that exists between student, teacher (and researcher). The communication embodied by the Subtle Stone is based upon colour. The use of colour allows the student to develop their own language linking colours with emotion - this feature provides a crucial level of privacy. To communicate with the teacher (or researcher) the student simply squeezes the Subtle Stone until it displays the colour that represents the emotion that the student wants to communicate.

The Subtle Stone looks at how technology might bridge the emotional communication gap in the classroom. It offers students privacy in their emotional expression to their teacher, as well as giving the teacher more detailed feedback about the emotional impact of their teaching strategy. Your research might explore the emotional experience of learning in a new context. Or, alternatively, you might want to create a framework that helps teachers know how to respond to students’ emotional experiences in the classroom. Finally, you might develop a broader theory based on empirical data collected through students’ use of the Subtle Stone that defines the relationship between emotions and learning. Other ideas related to emotion in learning and teaching, or the Subtle Stone technology are more than welcome.

Contact: Dr Madeline Balaam (CS); Professor David Leat (ECLS)

Evaluation and Curriculum Development

Self Organised Learning Environments (S.O.L.E.)

The purpose of a Self Organised Learning Environment is to improve students’ learning by adjusting the balance of responsibility between teacher and student. The fundamental concept, originating from Sugata Mitra’s ‘Hole in the Wall’ study in India, is that children are capable of teaching themselves a range of topics, given Internet access and the appropriate environment.

SOLEs are an example of Enquiry-based Learning, in which the teacher poses a question that they may not know the answer to. Students form groups to gather research from the Internet under the governance of a student ‘police officer’ or ‘manager’. The enquiry culminates in a conference-style series of presentations, in which teacher and students build knowledge together and discuss connections and meaning of their findings. You may be interested in developing the following: How much can students teach themselves? How can the SOLE methodology be integrated into different school infrastructures? What is the role of the teacher in a SOLE? And What overlaps does SOLE methodology have with other existing pedagogical practices, for example ‘Philosophy for Children’.

Contact: Professor Sugata Mitra (ECLS); Paul Dolan (ECLS); Professor Patrick Olivier (CS)

Tabletops

Tabletops are an emerging technology that offers good potential as a collaborative teaching and learning platform.

A Tabletop is a large horizontal display that allows a number of students to interact with its contents directly using pens or multi-touch. This technology is unique in combining the benefits of face-to-face collaborative learning that usually takes place around traditional tables with benefits gained from using computer technology (e.g. regulating the task and the interaction, and logging the session for reflective playback).

Previous and current PhD students have investigated the use of this technology for problem solving (Digital Mysteries), language learning, collaborative writing, and collaborative reading. As a new technology, the door is still open for more investigation of the potential support of this technology for learning, e.g. relating physical manipulation to analysis of talk.

Contact: Professor David Leat (ECLS); Dr Sue Pattison (ECLS); Dr Dawn Knight (ECLS); Dr Madeline Balaam; Professor Patrick Olivier (CS); Dr Ahmed Kharrufa (CS).