Learning Sciences Research Institute

Research Day

Tuesday 9th November 2010

TIME	PRESENTER	TITLE	ABSTRACT
9.00		**Tea and Coffee**	LSRI Labs
9.10		**Welcome from Mike Sharples Director of the LSRI.**	
9.20	Crook Charles	**"The grumpy faction in learning science"**	Psychology has been central to the multidisciplinarity of the Learning Sciences. However, Psychology has a preference for abstracting learning from the various socio-cultural contexts in which it occurs. This can cause us to miss things that matter. In this talk some research examples will be recruited that encourage more attention to those socio-cultural contexts and, in particular, the forces they exert to dampen intended transformations in the experience of learning. Sometimes helpfully, sometimes not.
9.30	Sarah Lewthwaite	**Hack is a Feminist Issue**	This short presentation I will talk about the realities of articulating digital research in the field. Increasingly new digital tools and media are available to researchers, each offering a new affordance in terms of data collection. These can emerge over the course of a PhD project. The pragmatics of research mean that we may often draw on such tools, however, there appears to be a tension between this apparently pick-and-mix approach and the wider theoretical demands of methodology grounded in a particular paradigm, discipline or theory. This is not a new problem, this sort of 'hacking' for research purposes has theoretical lineage in sociology, where it is known as *bricolage*. Viewing research hacking activities through this sociological lens exposes the value of bricolage as an agile, economical, interdisciplinary, feminist and anti-hegemonic undertaking. Using examples from accessibility and my own digital disability research, I introduce and recommend bricolage as the Swiss-Army Knife of research approaches.
9.40	Natasa Lackovic	**'Creating and discussing pictorial artefacts in HE: students' engagement'**	I am going to show different pictorial artefacts chosen to represent one concept. The core of my research is an idea to put students in the role of creators who can voice their understanding through pictorial artefacts for the purpose of an animated and useful discussion/debate with their peers'
9.50	Shaaron Ainsworth	**Understanding learning with words, pictures and other forms of representations**	When people are learning complicated new ideas, interpreting and constructing visual or multiple forms of representation (often with technology) can bring unique benefits. In other words, representations are powerful tools for learning but like all powerful tools they need careful handling if learners are to use them successfully. My work explores the many factors that influence learning in such environments including cognitive social, emotional, and motivational explanations.

Agenda

13.00 - Welcome

13.10 – Mobile learning: status and trends (Prof. Sharples, University of Nottingham)

13.40. -The Ensemble project: when m-learning fosters social inclusion (Ravotto, University of Florence)

14:00 - Didactic methodology beyond Ensemble (Ranieri, University of Florence)

14:15 - Contents production and delivery (Giorgini, Giunti Labs)

14:30 - Coffee break

14:45 - The experience in Yvelines (Cayla and Bouchereau, CG78; De Sousa, CRDP)

15:15 - The experience in Prato (Boscolo, Prato Municipality)

15:30 - Q&A

15:50 - End of the event (LSRI seminar to follow)

LSRI Seminar:

Meurig Beynon, University of Warwick

Constructionist learning by computing for construal

A *construal* is a physical object that supports sense-making through exploratory interaction and interpretation. This notion was elaborated by the historian and philosopher of science David Gooding in his account of Faraday's experimental methods. The advent of computing technology has liberated the making of construals, but construal-by-computer is not well-served by the focus in computer science on principles and tools for developing *programs*.

In this talk, I shall present a prototype environment for creating construals by computer that exploits model-building with dependency such as is represented in spreadsheets and dynamic geometry environments. Our construals are made up of definitions that express dependencies between observables. As will be illustrated with reference to construing human solving of Sudoku puzzles, many kinds of human agency can be expressed through modifying the current set of definitions. The construal serves as a shared artefact with which developers, teachers and pupils can all interact concurrently in essentially the same way, each according to their role and experience. Preliminary experiments with schoolchildren highlight potential for rich and radically new kinds of learning experience and unprecedented scope for recording, monitoring and intervening in support of constructionist learning.

			an interesting and engaging tool can be developed. I hope to open the gates to a novel and exiting use of ICT in schools, while illustrating the role identity plays in the secondary school classroom.
12.00		**Lunch**	Buffet Lunch in the LSRI Labs.
1.00		**Ensemble Project Workshop**	

Ensemble project

Education and Culture DG

Lifelong Learning Programme

ENSEMBLE project - Final Workshop

The ENSEMBLE Consortium announces the final project workshop on the theme of "**m-learning fostering social inclusion, the experience of the ENSEMBLE project**"

1:00 PM - 4:00 PM, 9th November 2010

Learning Sciences Research Institute, Exchange Building, University of Nottingham

Background:

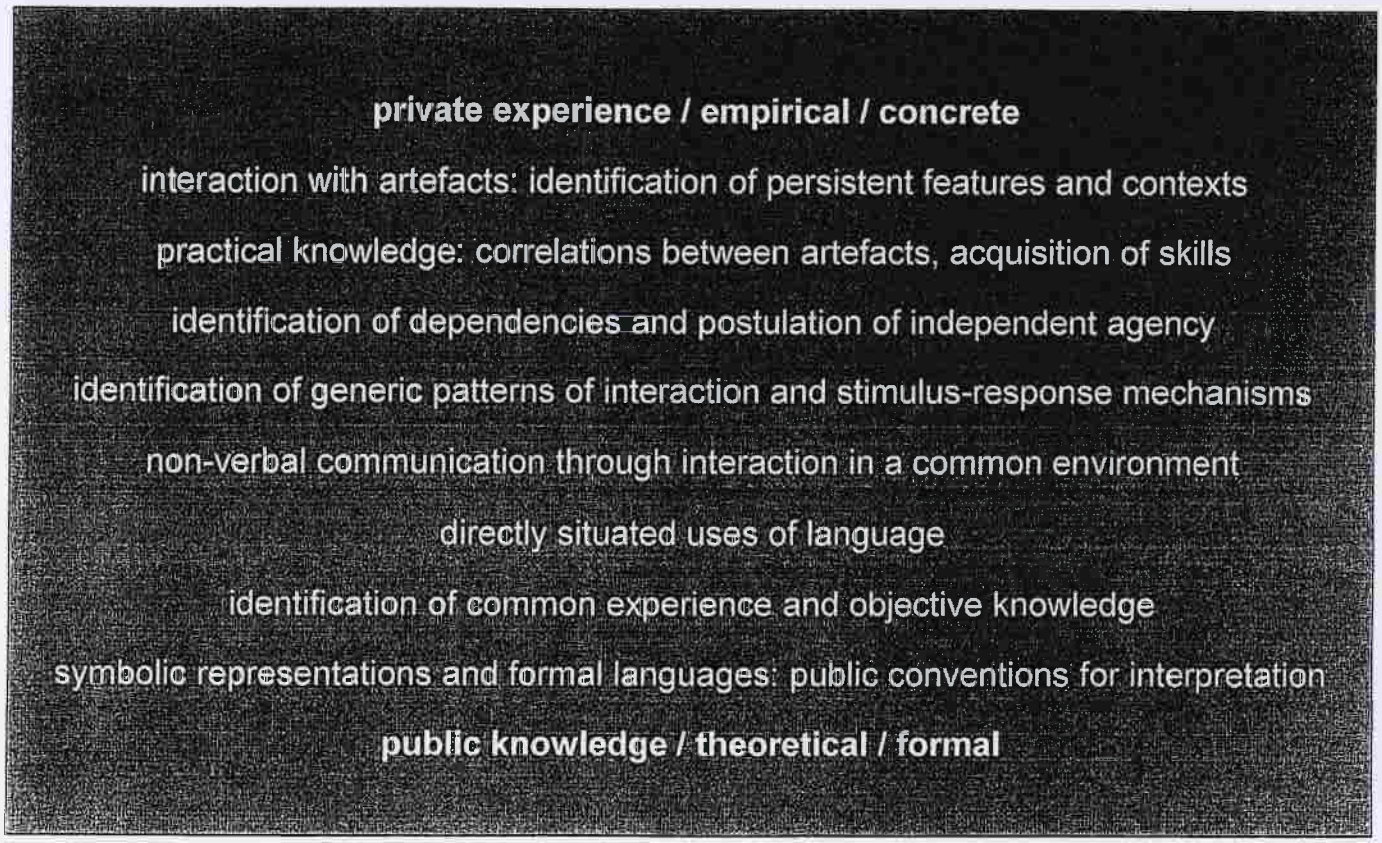
In the last five years, the political approach to immigration has put emphasis on measures of integration of newly arrived migrants and their families as second generation member states citizens. To do so, the EU underlines the relevance of media which has considerable responsibility in its role as an educator of public opinion. Active citizenship, equal opportunities and participation represent in this new era, some of the main issues of immigrant integration policy, together with the need to develop specific integration policies in the training and education field as core of one of the Recommendations launched in 2000 within the *Lisbon Strategy* (2000).

In the above mentioned framework and among the matching of European citizenship matters and contemporary mobile ICT tools issues, ENSEMBLE project co-funded by the European Commission under the Lifelong Learning Programme combined the development of an innovative didactic methodology to social integration of group at risk of exclusion. The digital divide concept as transversal subject of the partnership mission, represents the ground where ENSEMBLE tested and analysed the use of mobile media by migrant population in order to enhance their participation to training and education.

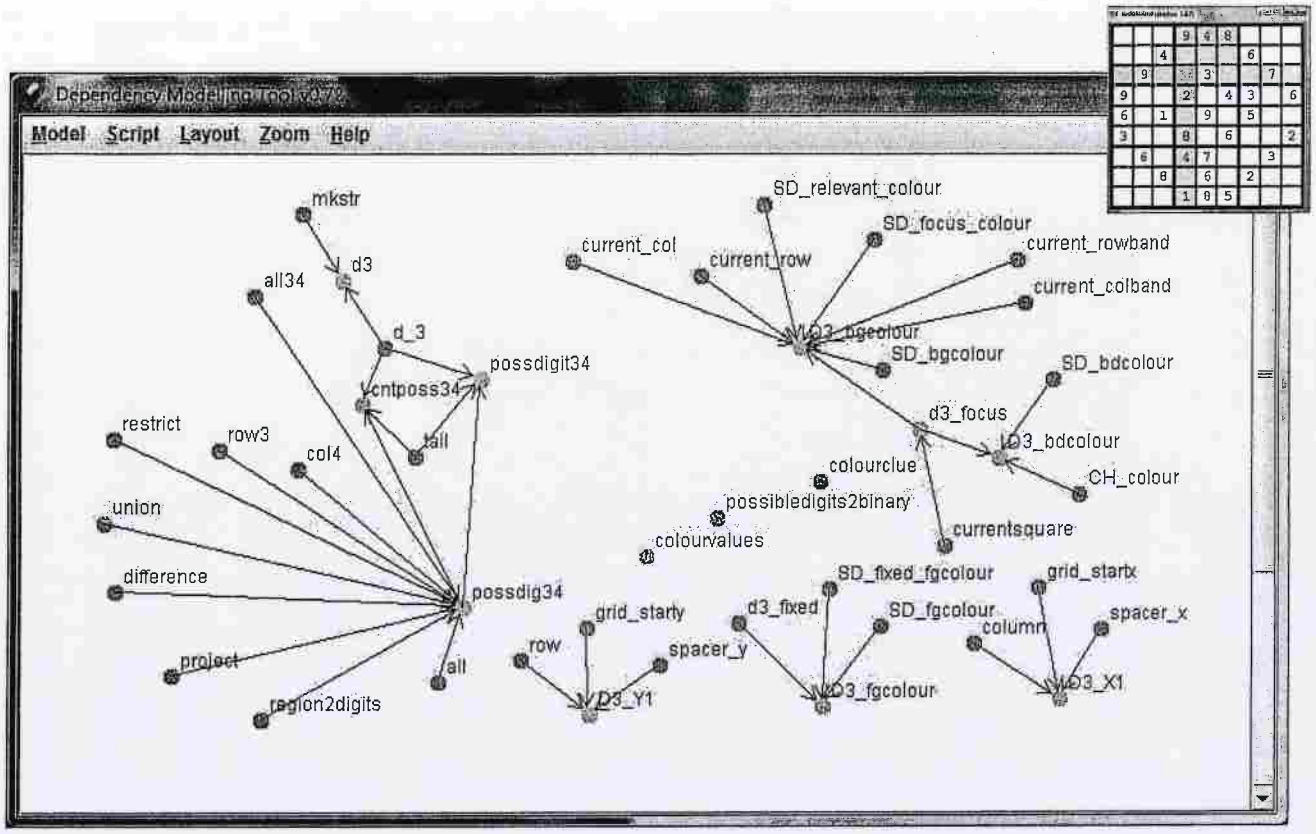
10.00	Ian Jones	**Mathematics Cognition**	The LSRI has hosted several mathematics cognition projects over the recent years and continues to do so. Current funding sources include ESRC, British Academy, Action Medical Research and Esmée Fairbairn Foundation. Camilla Gilmore is currently researching the cognitive processes underlying arithmetic by studying numeracy in both children and adults, and is also examining the mathematics learning difficulties of children born prematurely. Terry O'Brien has recently started a PhD research studentship into the development of children's mathematical competence. Ian Jones, along with Camilla and Matthew Inglis at Loughborough University, is exploring the role of understanding the equals sign in understanding symbolic arithmetic and algebra. LSRI maths cognition researchers are also founding members of the Mathematical Cognition Group which meets monthly to share research and data.
10.10	Terry O'Brien	**Children's representation of number**	The use of symbolic number in the form of number words and digits is central to the maturation of magnitude representation. Mathematical development at primary school level sees children graduate from initial dependence on concrete representations of number (e.g., using fingers and manipulatives) for counting and simple arithmetic to later use of symbolic representations in calculation. I hope to explore our understanding of how this progression occurs. Through outlining a previously conducted small scale study I will look at some of the paradigms from psychology that have been useful in investigating number sense and how they have helped inform current models of numerical representation.
10.20	Paul Dempster	**"Preview: Automatically data-mining learners' behaviour using CALL software to generate learning recommendations"**	Construct a learning environment which functions a bit like an electronic dictionary, except it doesn't just contain words but grammar patterns and examples too. Learners look up words, add new ones, and use automated drilling & testing features to enhance their ability. While the user is doing this, the system is recording every interaction with the user -- every consumption, creation or modification -- every aspect of how the user uses the system. That data, and the data from every other user of this system, are data-mined for patterns and similarity. Users can see what others have done in similar situations and what outcomes they had; they can self-reflect on their own learning; they can discover popular content areas they were previously unaware of; and they can receive automatic recommendations to improve their learning.
10.30		**Coffee Break**	

10.50	Matthew McFall	**'Wonderful Learning Experiences'**	These five questions are at the heart of Matthew's research: • What is Wonder? • How do individuals conceive of wonder? • How do wonder and learning connect? • How might wonderful learning experiences be generated? • What might be the benefits of wonderful learning experiences? These questions addressed, and more, in a 10 minute Magic Lantern Presentation!
11.00	Liz FitzGerald	**Informal and incidental learning in location**	My current research focuses around interaction with the landscape or other nearby surroundings to provide 'teachable moments' to a wide variety of people who like to explore the outdoors, such as visitors to National Parks, nature reserves or historic buildings. In particular, I am keen to find out how serendipitous discovery of geolocated media can provide ad-hoc learning experiences relating to the environment, via location-aware crowd-sourced content.
11.10	Nicolas Van Labeke	**Principled Design of Auditory Learning Games** **Project: LSRI - NBRUH (National Biomedical Research Unit in Hearing)**	Our work is driven by a methodological approach termed Design-based Research (DBR), which aims to improve education or training practices through iterative analysis, design, development and implementation of effective interventions. Working as part of a LSRI/NBRUH collaboration, we are investigating how auditory perceptual learning, educational technologies, and computer-based games can be combined into an approach to training that is personalised to individual needs and preferences and can be delivered outside the laboratory, on home computers or mobile devices. The approach reconsiders how auditory training is delivered as a life-long and life-wide intervention, by establishing a clear distinction between auditory testing and auditory training. The work focuses on: (i) designing multiple casual games for training on a range of specific auditory tasks, (ii) defining user-centred adaptive methods of delivery suitable for micro-adaptation (at the level of human-computer interaction), meso-adaptation (at the level of game structure) and macro-adaptation (at the level of training intervention), (iii) deploying casual games within an intervention-based and user-centred web platform. We will demonstrate some of the prototypes under development for supporting Auditory Discrimination Training in Tinnitus.
11.20	Sam Meek	**How can mobile applications enable student reflection and learning in the field?**	In the field of geography, physical geography and geology students are taught about geological processes through evidence which can be observed in the field on organised trips. With the proliferation of high end computing technology, geographic information systems are utilised in modelling geographical processes such as glaciers in order to understand the contemporary landscape. Data collection, reflection and learning are usually disparate experiences as they take place in different times, places and contexts. Previous work has shown the benefits of enabling reflection in the field through technology and this Ph.D research aims to enable model building and visualisation of geographical processes in the field to encourage reflection, better data collection and more accurate models through a field based, collaborative, technological intervention. The data collected from the intervention will allow for an evaluation of field modelling as pedagogical technique and thus add to the disciplines of mobile learning, geographic information science and computer science.
11.30	Brett Bligh	**Learning from multiple perspectives in multi-display learning spaces.**	Learning Spaces emphasises the importance of linking the design of physical learning environments, technological innovations and pedagogical models in order to facilitate more effective models of student learning. A priority, therefore, is to postulate good examples of technology supported Learning Spaces which can enable new forms of teaching and learning as a result of interdisciplinary work. Here, I propose Multi-Display Learning Spaces as such an example and argues that this classroom model enables a new form of learning, "multiple perspective learning", which allows students to construct complex arguments in small group settings by comparing and integrating multiple perspectives based upon a series of visual representations and appropriate scaffolding by the teacher. I will describe environments -- in terms of space, technology and pedagogy -- which can facilitate multiple perspective learning, focussing on experiences of innovative teaching undertaken with the schools of Architecture, History, Education and Classics.
11.40	Rob Jones	**How Can Literary-Linguistics Inform a Poetic Model of Interactive Narratives?**	Interactive narratives are now a mainstay of modern entertainment, and new technologies are enabling greater access through mobile devices and the web. This interest in new media manifests itself in a variety of storytelling forms, including media-rich mobile content, location-aware theatre, social networking and digital games. The use of narrative-based learning as an educational tool is also well-established. All of these different experiences have interactivity at their core, engaging directly in a dialogue with their audiences – by looking at these new narrative paradigms as texts, I aim to employ existing literary-linguistic techniques outside of their traditional media to provide a greater understanding of how this new dialogue functions and what particular features make it effective for different purposes. This new understanding can then feed back into the design of these experiences to improve them in the future, benefiting both educators and the creative industries.
11.50	Sherriden Masters	**"Hidden identity in the classroom"**	I have created an online system that allows pupils to hide their identity during classroom role-play. I am exploring the effects of removing the trappings of a physical role play, and the impact of moving role play from "real life" into an anonymous visual learning environment. I am particularly interested in the effect anonymity has on levels of contribution, pro/anti-social behaviour and diversity of opinion. I feel that by aligning anonymity, ICT skills and role playing in a cross curricular nature,

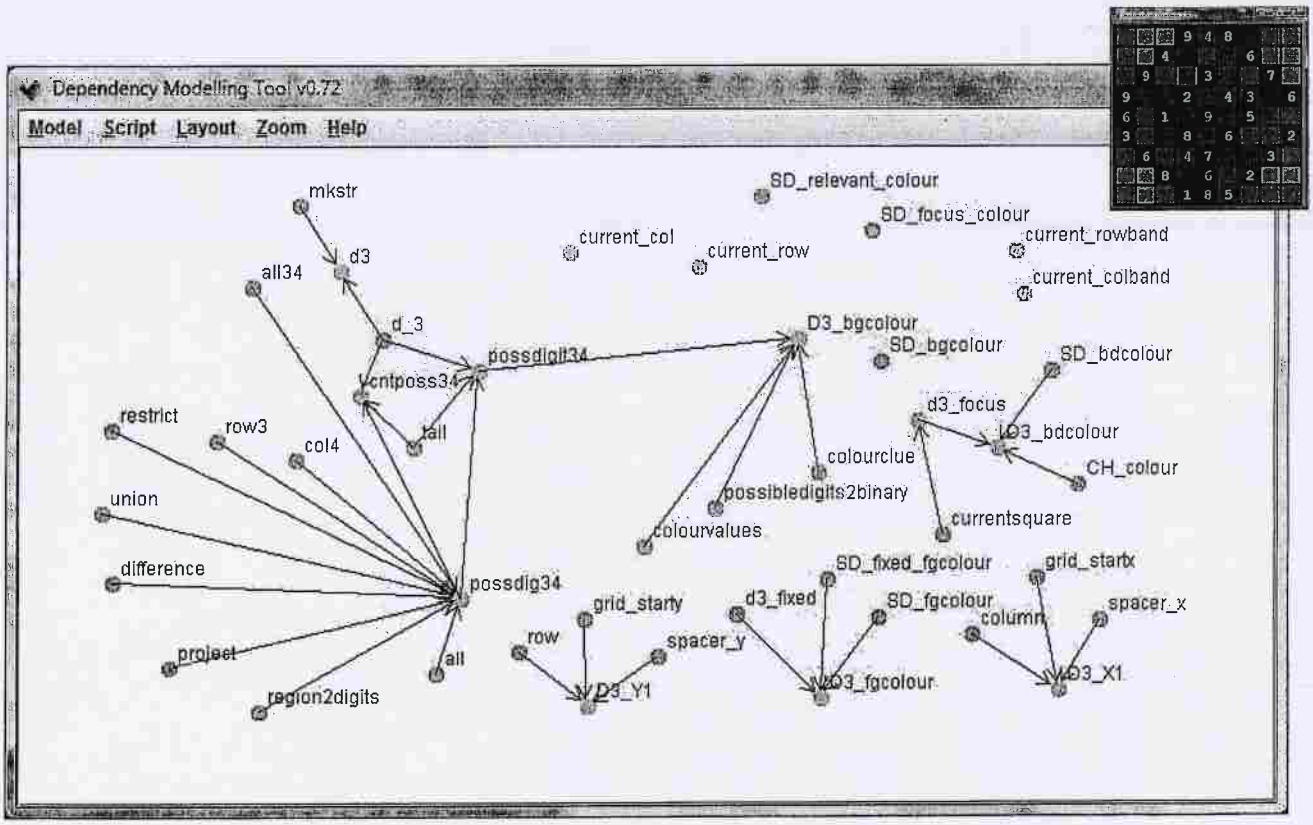
1. Network of dependencies as a playground for exploration by many agents
2. Every state change captured by redefining the values of a set of observables
3. Integrates roles of developer, teacher and learner
4. Tracing states of mind - in so far as these are reflected in explicit observables
5. Recovery of state
6. "Block" redefinition: semantics of (re)definition
7. Reflecting many metaphors for state-as-experienced
8. Incorrect / incomplete construals are the norm
9. Aesthetics of model-building
10. Inconsistent representations correlated using dependencies
11. Retrospective bug-fixing: interpolated into solving process
12. Consequences of even modest procedural component in managing state
13. Transition from manual to automated processing
14. Replay of interaction - "as if live" Multiple views
15. Multiple variants of models: openness for re-use



An Experiential Framework for Learning (EFL)



Observables associated with the grid cell D3 (lightblue)



Observables associated with cell D3 (“colour Sudoku”)