

RITWIT Conference Abstract Submission

Title of presentation:

Teachers using their research for professional development: examples from the IWBs and Dialogue Project

Type of presentation: Short Standard Video

Content: Work in progress Empirical research Theoretical/Policy Methodological

Teacher education/development Other _____

Authors + affiliations:

Lloyd Brown, Chesterton Community College
Caroline Neale, Greneway Middle School
Diane Rawlins, Arbury Primary School

Abstract:

This paper directly follows up the overview of the Interactive Whiteboards (IWBs) and Dialogue Project presented by Mercer, Hennessy & Warwick from the Faculty of Education at Cambridge. The authors of the current paper are the three teachers who participated in the research workshops where we collaboratively constructed a notion of classroom dialogue supported by the IWB, and then went on to design and teach a sequence of lessons that exploited the technology in this area. We reviewed the digital video recordings made of our lessons and then evaluated selected episodes from them along with the university team. Our subject areas were Personal, Social and Health Education (Year 6 in primary school), English (Year 8 in middle school) and History (Year 9 in secondary school), and our learners came from across the attainment range, working in groups and whole class settings. We also undertook our own small-scale research studies linked to the wider project and submitted our reports for accreditation. In this presentation we offer our personal perspectives on how involvement in the IWBs and Dialogue Project has impacted over time on our professional development – through summarising (1 year on) how pedagogy and practice related to dialogic teaching and learning have developed within our classrooms and schools. We show some examples of activities and raise some issues for general discussion.

RITWIT Conference Abstract Submission

Title of presentation:

Collaboration and enquiry using Nintendo DS consoles

Type of presentation: Short Standard Video

Content: Work in progress Empirical research
Teacher education/development Other _____

Authors + affiliations:

Dr. Steve Bunce – ICT Consultant, Northumberland County Council and Bedlingtonshire Community High School
Ms. Anna Reid – Knowledge Transfer Associate, Newcastle University and Bedlingtonshire Community High School

Abstract:

Theme One: Pedagogy and classroom activity

- **Collaboration, Classroom dialogue, Student participation, Adaptive teaching and Learning outcomes, Classroom organisation and management, Adaptive teaching:**

Our research focuses on developing enquiry using Nintendo DS game consoles. Newcastle University and Bedlingtonshire High school are working together through a BECTA Harnessing Technology project.

The DS consoles are familiar to the students outside of school, however, they are surprised to be using them in lessons. They have a feature called 'Pictochat' which allows up to sixteen consoles to link wirelessly and send text or freehand pictures to the group. We are trialling the Pictochat feature in lessons as a collaborative tool for discussion and assessment, enhanced by using a visualiser for whole class display.

An example of collaborative planning involved the class creating an adventure story where the next steps were contributed via messages on the consoles. The students contributed their ideas collaboratively forming a mindmap.

In French, the teacher sent messages with deliberate mistakes included and the students corrected them. The consoles afforded the advantage that all of the students were involved and could peer-review the responses. One student was seen to grow in confidence during the lessons as they could see that their ideas were equally valued and also that their responses were similar to those of other students.

- **Collaboration:** The students and teachers are able to collaborate by seeing each other's responses instantly.
- **Student participation:** The whole class can be involved through the display on the visualiser and on the DS consoles. The visualiser can record video footage and stills for assessment.
- **Classroom organisation and management:** There are a number of practical issues associated with using the DS consoles, including distribution, charging, code of conduct and the grouping of the students.
- **Adaptive teaching:** The consoles allow the students time to think and to consider their answers to enquiry questions, before submitting. The teachers and students have to consider their methods of communication and to adjust their questioning to be effective.
- **Learning outcomes:** At the end of the sessions, the students are aware of their contribution and are encouraged to use metacognition to review their thinking. The visualiser in conjunction with the video evidence helps to prompt their responses.

Outcomes of the research

The main aim is to develop enquiry using the technology as a tool to support it. The Nintendo DS consoles enable the students to use familiar technology to collaborate effectively. The students are very engaged and eagerly spread the word around the school about the activities they have been doing. This excitement and engagement in using the technology collaboratively is reflected in the teachers' enthusiasm.

Our presentation will include:

- an introduction to the project
- features of the Nintendo DS consoles, including Pictochat
- the pedagogical use of the technology
- video footage of students and teachers in action
- interviews with the students and teachers to describe advantages, disadvantages and the impact.

RITWIT Conference Abstract Submission

Title of presentation:

How are primary teachers' pedagogy and practice affected by using an IWB?

Type of presentation: Short Standard Video

Content: Work in progress Empirical research Theoretical/Policy Methodological

Teacher education/development Other _____

Authors + affiliations:

Dr Julie Cogill. King's College, London

Abstract:

Using empirical evidence this paper explores the change in pedagogical practice of 11 teachers from 2 schools following one year of IWB use. All teachers had full-time classroom access and were new to the IWB at the start of the year. Interviews and classroom observations were undertaken with all teachers during the Autumn, Spring and Summer terms and the head teachers of each school were also interviewed. Analysis for the research was based on grounded theory (Strauss and Corbin, 1998) using a semi-ethnographic methodology. As a result a secondary aspect of the research investigated the factors which may affect the adoption of IWB practice, for example the context in which teachers were learning to use the IWB, but this and other influencing features are not discussed in detail in this paper.

Pedagogical Knowledge (PK), Content Knowledge (CK) and Pedagogical Content Knowledge (PCK) (Shulman, 1987) were used as a framework to analyse whiteboard practice. In doing so, particular aspects of IWB practice were broadly assigned to each type of 'knowledge': Planning, preparation and classroom management to PK; Use and reflection on use of resources to CK and Teaching for interactive learning to PCK. It also became apparent as the research progressed that other factors such as the educational context in which teachers were working, their previous experiences, their beliefs and values about how children learn and a teacher's own personal disposition to learn may influence change in pedagogical practice during the IWB induction year.

This paper first sets up a model grounded in empirical evidence from this research of pedagogical change subsequent to IWB intervention. The model was derived from established models and frameworks for general pedagogy rooted in teacher knowledge (Alexander, 1991; Banks et al, 1999; Prestage and Perks, 2000; Cox et al 2003). Second, using the work of McCormick and Scrimshaw (2001) relating to the use of ICT, the paper considers how the use of an IWB may lead to more efficient pedagogical practice or result in extending or transforming teachers' practice. Third, the paper addresses the relationship between the IWB and interactivity. What is the role of the IWB in relation to a teacher and his or her group of students and what affordances does the IWB offer to help facilitate an 'interactive classroom'?

RITWIT Conference Abstract Submission

Title of presentation:

**Making new technologies approachable: Designing effective training
for IWB use around the world**

Type of presentation: Short Standard Video

Content: Work in progress Empirical research Theoretical/Policy Methodological

Teacher education/development Other _____

Authors + affiliations:

Michele Conway. Client Support and Training Consultant for Cambridge University Press.
In charge of the Cambridge-Hitachi whiteboard training scheme worldwide.

Abstract:

Before we can consider the effects of new technologies on teaching and learning, we first need to enable educators to use these technologies in an effective manner and to have confidence in their own skills. The majority of interactive whiteboards in schools are used as projection screens to view worksheets and presentations, or the internet, with occasional annotation. Other technologies and platforms are often the preserve of the enthusiastic few.

Providers of new technologies have obligations. One is to develop training that is not a mere demonstration, with some audience participation, of the features of the product but is hands-on, workshop based training relevant to the user's needs and existing knowledge and practice. Another is to create easy-to-use products with tools designed to support and extend existing practice, as well as to encourage investigation of new techniques.

This talk will draw parallels with the situation in the 1980s when personal computers were introduced to schools. At that time most teachers failed to see the relevance of these PCs to their teaching until home computing with software packages for word processing, presentations and internet browsing became common. This process took over 10 years because there was little, if any, training and relevant software. We can either allow new technologies to gather dust for 10 years or learn from the past and deliver training that is relevant, and based on teachers' existing knowledge and skills, combined with software which is user friendly and accessible.

This talk will also expand on designing effective training, focusing particularly on interactive whiteboards and the methods of developing teachers' existing resources into whole class interactive resources. This will be based on the speaker's personal experience of delivering training to educators in at least 15 different countries and cultures – from Mumbai through the Middle East and Europe to San Francisco!

RITWIT Conference Abstract Submission

Title of presentation:

Multimodal pedagogies underpinning the use of visual display technologies

Type of presentation: Short Standard Video

Content: Work in progress Empirical research Theoretical/Policy Methodological

Teacher education/development Other _____

Authors + affiliations:

John Cuthell and Christina Preston: MirandaNet Fellowship
The Centre for Excellence in Work-Based Learning for Education Professionals (WLE Centre) at the Institute of Education, University of London.

Abstract:

During the past ten years, governments and education departments across the world have invested significant sums of money in a range of whole-class visual display technologies such as data projectors, interactive whiteboards and visualisers. However, assumptions that the introduction of a new technology will, per se, achieve pedagogical change and improvements in learning outcomes are difficult to substantiate through research, and, additionally, research findings are often misrepresented in the media (Kennewell, 2006; Cuthell, 2007). This presentation draws on a free visual learning resource, collected for practitioners to share and develop, that has been funded by the WLE centre at the Institute of Education, University of London (Cuthell 2009). The aim is to provide a unique web-based resource to support further research and professional pedagogical development into how learning in classrooms has been impacted by the implementation of visual display technologies, highlighting the benefits and the drawbacks.

First, we will discuss the underpinning literature, drawing together a range of empirical studies which explore learning from varying perspectives and in a range of contexts. The emphasis in the presentation will be a key theory from the socio-cultural semiotic point of view, multimodal theory (Hodge and Kress 1988; Kress and Van Leeuwen 2001; Jewitt and Kress 2003; Kress and Van Leeuwen 2007). This theory about the importance of multimodal signs in learning is particularly relevant to the use of visual display technologies. Multimodal signs are created by learners in a range of modes such as sound, animation, graphics, gaze and gesture. The capacity to read these signs as multimodal literacy is vital for both teachers and students, who must decode visual displays (Jewitt and Kress 2003). The presentation also explores the potential for improving visual learning through emergent multimodal processes that are more dynamic, such as collaborative authorship in digital concept maps (Howell Richardson and Preston 2007; Preston 2009). Second, we will illustrate the wide range of case studies in the visual resource. These are categorised to create a developmental typology of multimodal learning evidence and of approaches to the implementation of visual display technologies. Third, we will discuss examples of visual learning from the collection of evaluations of effective models of pedagogical and curriculum development in the use of visual display technologies through professional learning.

Finally discussion will be invited on the common threads and the key issues of multimodal learning, its technologies and its pedagogies for the profession.

References

- Cuthell, J. (2009) Visual Learning Resource <http://www.mirandanet.org.uk/visuallearning/>.
- Cuthell, J. P. (2007) Ambassadors for ACTIVlearning. In Carlsen, R., McFerrin, K., Price, J. Weber, R., Willis, D. A. (Eds.), Proceedings of SITE 2007 (pp. 1443 – 1499) Norfolk, VA: Association for the Advancement of Computing in Education.
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- Kress, G. and T. Van Leeuwen (2007). *Reading Images: The Grammar of Visual Design (Second edition)*. London, Routledge.
- Preston, C. (2009). Exploring semiotic approaches to analysing multidimensional concept maps using methods that value collaboration. *Handbook of Research on Collaborative Learning Using Concept Mapping*. P. Torres and R. Marriott. Hershey, Pennsylvania/USA, Information Science Reference.

RITWIT Conference Abstract Submission

Title of presentation:

Developing competencies for using the interactive whiteboard to implement communicative language teaching in the English (second language) classroom

Type of presentation: Short Standard Video

Content: Work in progress Empirical research Theoretical/Policy Methodological

Teacher education/development Other _____

Authors + affiliations:

Dr. Euline Cutrim Schmid (assistant professor)
University of Education Heidelberg, Germany

Abstract:

Since the advent of communicative language teaching in the 1980s, language teachers have placed increased emphasis on building language proficiency through meaningful use of language in authentic contexts. Current models of second language teaching, as for instance task-based learning (Willis 1996) and project-based learning (Legutke & Thomas 1991) view the classroom as a place full of interaction, where learners are actively engaged in negotiating meaning. According to these models, in order to develop communicative competence language learners should have plenty of opportunities to use the target language as much as possible, mainly through pair and group work, but also in the whole class context. In the computer-assisted language learning (CALL) field, several authors (e.g. Warschauer, 1999) have emphasised the need to exploit technology towards the implementation of a socio-cognitive approach to language teaching, in which the technology is used to support language use in authentic contexts.

As interactive whiteboards (IWBs) gradually find their way into language classrooms across the world, the investment in good quality training on the pedagogical use of this technology becomes increasingly important. Special emphasis should be placed on how this technology can be exploited to develop pedagogical practices based on a socio-cognitive view of communicative teaching, which is in line with the latest developments in language teaching research and practice. This creates the need for the development of a) a competency model of technology-supported language teaching and b) a model of interactive whiteboard technology training, which should be based on the investigation of teachers' practice and views, as they learn how to exploit this technology for pedagogical purposes.

This paper aims at shedding some light on this issue by addressing the following research question: What are the new competencies that English as a foreign language (EFL) teachers, who use an IWB, need to develop in order to *benefit from the evolving capabilities* and *face the pedagogical challenges* created by this technology to develop pedagogical practices based on a socio-cognitive view of communicative teaching?

The research data discussed in this paper are drawn from a study that investigates EFL teachers' pedagogical needs and developmental paths, as they integrate interactive whiteboard technology into the curriculum in the context of secondary schools in Germany. The research is being carried out in the form of seven in-depth longitudinal case studies with EFL teachers at different levels of technology expertise and teaching experience. Research data are being collected via a variety of ethnographic research instruments, namely classroom observations and field notes, video recordings of school lessons, and in-depth interviews and video-triggered reflective dialogues with the teachers. The various competencies are being identified through the qualitative analysis of a) teachers' narratives, as they describe their experiences with the technology b) teachers' reflections on their practice and pedagogical development and c) researchers' analyses of the lessons taught by the teachers.

References:

Willis, Jane (1996). *A framework for task-based learning*. Harlow, U.K.: Longman Addison-Wesley.
Legutke, M & Thomas. H. (1991) *Process and Experience in the Language Classroom*. Harlow: Longman.
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RITWIT Conference Abstract Submission

Title of presentation:

“Classroom interactions across different areas of the Mexican curriculum: A comparative study between classes using Interactive Electronic Whiteboards (IWBs) and traditional whiteboards”

Type of presentation: Short Standard Video

Content: Work in progress Empirical research Theoretical/Policy Methodological

Teacher education/development Other _____

Authors + affiliations:

Dr. Juan Manuel Fernández-Cárdenas
Lic. Marcela Lucía Silveyra-De La Garza
Comité Regional Norte de Cooperación com La UNESCO

Abstract:

In Mexico, there is controversy in relation to the use of Interactive Whiteboards linked to the UNESCO awarded software ‘Enciclomedia’. There are claims that this new technology will provide a better quality of teaching in Mexican classrooms. In this study we have looked at this issue using a sociocultural perspective, conceptualizing the use of IWBs as a mediated action in which participants construct knowledge together in a multimodal environment. We have video recorded a set of 20 lessons comparing the use of IWBs and traditional boards in different areas of the curriculum. We have analysed this information as a set of sequenced communicative events. Preliminary results shows that the use of IWBs provides more opportunities for interactive events where students can manipulate objects of different multimodal nature to construct knowledge guided by the teacher. We have also looked at the teachers’ interpretations of the use of IWBs, in relation to the disciplinary knowledge they aimed to present across different lessons. We have found that quality events are comprised by interactions where teachers manage to guide a class conversation assuring that students are showing their understanding of the use of multimodal objects according to the goals set for a given lesson. In these cases teachers guide classroom conversations as spirals of linked loops comprising turns of Initiation-Response-Feedback (IRF). That is, teachers guide a conversation so that participants construct knowledge linking their feedback to new IRF loops. The resulting conversational structure is I-R-F/I-R-F/I-R-F/I... Finally, using ethnographic tools, we have documented the participants’ categories and meanings in relation to the use of IWBs as part of a situated activity system. In this respect, we provide an account of the different affordances and constraints of the use of IWBs for giving a lesson, and its implications for pedagogy.

RITWIT Conference Abstract Submission

Title of presentation:

Keeping in touch with learning: The use of an interactive whiteboard in the junior school

Type of presentation: Short Standard Video

Content: Work in progress Empirical research Theoretical/Policy Methodological

Teacher education/development Other _____

Authors + affiliations:

Ann Harlow – Wilf Malcolm Institute of Educational Research, University of Waikato, NZ
Bronwen Cowie – Wilf Malcolm Institute of Educational Research, University of Waikato, NZ
Megan Heazlewood – Toko Primary School, Taranaki, NZ

Abstract:

This paper describes how a researcher worked with a teacher from a small rural school in New Zealand to describe and understand the use of interactive whiteboard (IWB) technology to enhance the learning of young children aged 5 to 7 years. ICT plays a foundation role in the classroom for literacy in all curriculum areas. A distinctive feature of the research was the teacher engagement in the framing of the data collection procedures and the analysis of the data. The teacher considered the value of IWB use included: ‘The interaction that it engenders – you’re there having fun with the kids and you’re laughing, and they’re going up and taking risks to do something. And you as a teacher are taking risks learning about it as well.’ She was keen to learn more about the interplay between the IWB, her teaching actions, student actions and interactions and the impact of this on student learning, broadly conceptualised as the development of knowledge, skills and aptitudes for learning.

The research involved collecting data from intensive classroom observation over three consecutive days using video and audio recordings as well as student and teacher work samples. Data were analysed using the framework developed by Kennewell & Beauchamp (2007), who identified how teachers used features of ICT to enhance learning. The goal was to extend and contextualise the framework in and for IWB use in the New Zealand context. There is a substantial demand for professional learning opportunities to help teachers to make use of ICT for teaching and learning (Harlow & Cowie, 2008) and lack of detailed theoretical work and practical advice on how this might be achieved.

There were four threads of investigation that guided the study:

1. Which features of IWBs provide potential and structure for classroom activity?
2. What are the possible actions for which IWBs provide potential and structure in classroom activity?
3. What are the effects (benefits and limitations) of IWB use for the learning of young students as perceived by the teacher?
4. How does IWB use enhance the development of key competencies as outlined in The New Zealand Curriculum (Ministry of Education, 2007, p.12)?

References:

Kennewell, S., & Beauchamp, G. (2007). The features of interactive whiteboards and their influence on learning. *Learning, Media and Technology*, 32(3), 227-241.

Harlow, A., & Cowie, B. (2008). Will the teacher’s laptop transform learning? *Computers in New Zealand Schools*, 20(3).

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RITWIT Conference Abstract Submission

Title of presentation:

English Now: The place of image and writing in pedagogy

Type of presentation: Short Standard Video

Content: Work in progress Empirical research Theoretical/Policy Methodological

Teacher education/development Other _____

Authors + affiliations:

Carey Jewitt and Gunther Kress Institute of Education

Abstract:

The terrain of communication has changed in profound ways that extend to schools and elements of everyday life, even if these changes are occurring to different degrees and at uneven rates (Luke and Carrington, 2002). The technologies of the English classroom have changed significantly in the last decade. Aside from a handful of exceptional technology rich schools, the ‘new’ technology of the majority of UK English classrooms a decade ago amounted to a television and video player, an overhead projector, and sometimes a computer on the teacher’s desk (generally silently beaming out stars from a black and white screen saver), with occasional trips to the computer suite – to word process written work or research a topic. In the last decade this space has become digital. Government funding of the roll-out of Interactive Whiteboards (IWBs) in 2004-6 marked a major point in the transformation in the pedagogic space of the English classroom (to different degrees and at uneven rates). The IWB provides a multimodal digital hub – a portal to the Internet – that has the potential to broaden the kind of texts that enter the classroom, to change the practices and experiences of teachers and students and therefore the possibilities for learning.

This paper presents preliminary findings on how social and technological conditions inform the pedagogic production of school English: the texts and practices that circulate in the classroom. It draws on nine case studies of the use of IWB technologies in the English classroom (data drawn from Moss et al, 2007). The presentation will focus on how the interplay between social and technological conditions re-organize time and space in the contemporary English classroom, and reshape the place of writing and image in the pedagogic and communicative practices that teachers are engaged in. The place of writing and image in the English classroom appears to be changing and the implications for what counts as English need examining. One effect of this is to remediate writing as a mode in the English classroom: changing what writing is, how it features in the lesson, and how it is configured with other modes. A variety of visual materials circulate in pedagogic spaces and beyond – photographs, video and diverse media through blogs, online photo albums, YouTube, MySpace and so on. Image increasingly provides the starting point for a lesson. Teachers often show a clip of digital video (often via YouTube), display an image to offer a route into a concept – often downloaded from the Internet, use PowerPoint presentations to make their argument, visually annotate a text, and/or connect to a webpage. The use of image is also prevalent in students’ work in the classroom, with the use of clipart, digital photographs – taken by the student or downloaded from the Internet, and the design of PowerPoint presentations both in class and out of school for homework.

RITWIT Conference Abstract Submission

Title of presentation:

Teachers' pedagogic use of the technological possibilities of interactive whiteboards in UK secondary schools

Type of presentation: Short Standard Video

Content: Work in progress Empirical research Theoretical/Policy Methodological

Teacher education/development Other _____

Authors + affiliations:

Carey Jewitt and Gemma Moss, Institute of Education, University of London

Abstract:

This presentation reports on the findings of a large-scale research study (Moss et al, 2007) that evaluated the educational and operational effectiveness of a major UK Government-funded initiative to fully equip at least one core subject department in each London secondary school with interactive whiteboards (IWBs) in 2003/04.

In-depth case studies were conducted from three classes aged 13-14 years in each of nine core-subject departments in London schools: three mathematics, science and English departments respectively. The research framework combining a multimodal focus on texts (Jewitt, 2006) with an ethnographic focus on practices contributes to the ongoing development of research methods for technologies in the classroom.

IWBs appear easy to integrate; many teachers reported using them in most or every lesson with particularly strong use in mathematics and science (as also reported by Higgins et al, 2007). IWBs are mainly used: as a data projector that can navigate to multiple screens; as a surface which can generate a dynamic rather than static display; to enhance presentation from the front of class. Yet there is considerable variation in use both within and between subject departments.

The findings illustrate how teachers' use of technologies more generally is shaped by curriculum content and context. They demonstrate the impact of policy and commercial discourses on teachers' notions of what counts as good practice. Three key themes dominate current thinking about the role of IWBs in changing pedagogy. It is expected to contribute to increased pace of delivery; increased use of multimodal resources, incorporating image, sound and movement in new ways; and a more interactive style of whole class teaching. This research suggests two important caveats. First, it is possible to approach pace, multimodality and interactivity with either a surface or deep understanding of what they contribute to pedagogy (Jewitt, 2006). Second, the value and impact of particular attributes of the technology depends on how they fit with existing pedagogic purposes, approaches and priorities.

The use of an IWB does not itself automatically alter the dynamic of whole class teaching in secondary core subject areas. It does provide an opportunity to think about the strengths and weaknesses of whole class teaching and how else it might be organized. When a focus on interactivity as a technical process took precedence over pedagogic purpose, some relatively mundane activities became over-valued, particularly in classes with lower ability students. Multimodal resources had most impact when their potential to enhance understanding rather than marshal attention had been clearly assessed. For instance the potential of IWBs, especially in combination with peripherals (e.g. scanners, slates, visualizers), to create new spaces for teacher and student dialogue and the co-construction of new kinds of texts will be illustrated. However the research suggested a weaker correlation between speed of delivery and effective teaching than the literature suggests.

RITWIT Conference Abstract Submission

Title of presentation:

Exploring interactivity between learners, teacher and ICT in an Australian primary classroom

Type of presentation: Short Standard Video

Content: Work in progress Empirical research Theoretical/Policy Methodological

Teacher education/development Other _____

Authors + affiliations:

Anthony Jones, Graduate School of Education, The University of Melbourne

Abstract:

Many studies of ICT use in schools have focused on technical matters. The author is part of a small team who have investigated teachers and the pedagogical strategies they employ when using ICT in a lesson. The team has reported on lesson events, mentoring as a model for continuing professional development and teaching strategies with IWBs. In these projects data was collected through video-recorded lessons which were then used to stimulate discussion in interviews with teachers and students.

In earlier studies, a framework was developed to better capture the pedagogical strategies and practices of teacher and student use of the ICT. Some previous research used analysis frameworks that were unable to adequately describe what occurred in the Australian classrooms. To overcome this, Jones & Vincent (2006) adjusted the Beauchamp (2004) transitional matrix to better describe and assist in the analysis and the categorisation of teacher and learner classroom practice that were evident in the video data. This resulted in the Hierarchy of Pedagogical Strategies, or HoPS, framework (Vincent & Jones, 2007), which was developed to analyse teacher practice with ICT across the curriculum. It employed previously used nomenclature for the stages, but the HoPS analysis focused on *teacher skills, what and how the ICT was used, and pedagogy and classroom management* as elements of practice. Making clear teachers' classroom practice when using ICT in the classroom is central in the HoPS framework, rather than any technical aspects of ICT use.

In a 2008 research project an additional layer of analysis was added to the HoPS framework. The purpose of the new layer is to specifically unpack the level and nature of interactivity in a learning environment that involves some use of ICT. The nature, quality and quantity of interactions between learners, teacher and ICT were categorised and analysed. Both the framework used for this analysis and results of the analysis will be reported.

References

Beauchamp, G. (2004) Teacher use of the interactive whiteboard in primary schools: towards an effective transition framework. *Technology, Pedagogy and Education*, 13, (3), pp. 337-348.

Jones, A. & Vincent, J. (2006) *Introducing interactive whiteboards into school practice: one school's model of teachers mentoring colleagues*. Papers from Australian Association for Research in Education Conference, Adelaide. Online: <http://www.aare.edu.au/06pap/jon06333.pdf>

Vincent, J. & Jones, A. (2007) *Effective teacher professional development to stimulate quality teaching with ICT: a case study of one school and interactive whiteboards* Paper presented at the British Educational Research Association Annual Conference, Institute of Education, University of London, 5-8 September 2007 Online: <http://www.leeds.ac.uk/educol/documents/165672.htm>

RITWIT Conference Abstract Submission

Title of presentation:

Interactive Whiteboards and all that Jazz

Type of presentation: Short Standard Video

Content: Work in progress Empirical research Theoretical/Policy Methodological

Teacher education/development Other _____

Authors + affiliations:

Steve Kennewell, Swansea Metropolitan University
Gary Beauchamp, UWIC
Sonia Jones, Swansea Metropolitan University
Howard Tanner, Swansea Metropolitan University
John Parkinson, Swansea Metropolitan University
Helen Denny, Swansea Metropolitan University
Helen Lewis, Trinity College Carmarthen
Anne Loughran, Trinity College Carmarthen
Cheryl Anthony, UWIC
Bethan Jones, UWIC

Abstract:

The teacher's role has often been described as one of 'orchestration', and this musical analogy is a powerful one in characterising the manipulation of features in the classroom setting in order to generate activity or 'performance' which leads to learning. The analogy can reflect a variety of classroom settings and practices according to which musical tradition is considered.

When someone orchestrates a piece of music in the classical tradition, they make a decision about how they will combine and sequence textures and timbres to achieve a finished composition. In the classroom analogy this could be equated to how the teacher chooses to combine and sequence different features of the setting and student or teacher voices.

However, teachers do not generally plan classroom activity so rigidly. Whilst having clear objectives for learning and a broad plan of how the activity might be structured, we have found that the most effective teachers allow for a considerable degree of learner influence over the course of activity. This involves the teacher stimulating learners to generate and express their ideas, responding contingently and encouraging other learners to respond to their peers, and allowing learners as well to 'conduct' the features of the setting so as to gain support for the pursuit of their goals. In musical terms, this is more characteristic of the style of orchestration adopted by jazz musicians.

In both styles of orchestration, the ICT equipment could be equated to the instruments that the players have at their disposal. The role of the orchestrator in both classical and jazz is to try and draw the best from the instruments and players at their disposal. One of the challenges for using ICT in this context is exploiting its ability to provide contingent responses. We have investigated in some depth the ways in which ICT has been exploited by teachers, both planned in advance and in response to events during lessons. This paper will draw on our work in two research projects based in Maths and Science classrooms to examine the conditions for effective use of ICT as a feature to interact with, about and through.

In most of the lessons observed, the IWB was the only ICT used and the deeper pedagogical interactions occurred 'off-screen', although the IWB was used to scaffold thinking, provoke questions and hence to motivate pupils to engage with the forthcoming tasks. Teachers were able to orchestrate this whole-class phase with contingent questioning of pupils, encouraging explanation of their ideas. Some teachers encouraged pupils to improvise, to find their own ways of seeing things, to share their methods and ways of thinking and to ask their own questions. Others felt the need to stay with the score as published or planned, avoiding the unpredictable world of pupils' improvisations. This paper discusses the extent to which teachers are able to use IWBs to jazz up their teaching styles, and analyses the factors which influence teachers' choices about which features of ICT to use and the affordances that they perceive.

RITWIT Conference Abstract Submission

Title of presentation:

From replication to transformation: the impact of one-to-one technologies on pedagogical practices in secondary classrooms

Type of presentation: Short Standard Video

Content: Work in progress Empirical research Theoretical/Policy Methodological

Teacher education/development Other _____

Authors + affiliations:

Cathy Lewin, Manchester Metropolitan University

Jane Pullinger, Holywell High School

Abstract:

This paper reports on the introduction of a digital learning companion (DLC) (a netbook) for each pupil in Year 8 in a Welsh secondary school in 2008-09. The aim was to enhance teaching and learning, and engage with parents and carers. The DLC was used at school and at home by the student and family members to extend levels of engagement with learning in a mixed socio-economic context with some significant pockets of deprivation.

The DLC was introduced as another 'tool' to be used by students and their teachers to embed ICT use into the curriculum within standard classrooms (ie not dedicated ICT suites), thus offering potential to support whole-class activities. Given that the device is extremely portable and is equipped with audio and video recording facilities it has the potential to enable extensive and innovative use both inside and outside the classroom (for example, on the sports field, during field trips or educational visits). The integration of the DLC with a learning platform could also ensure that innovative approaches to online learning are cultivated thus enabling the learner to develop greater autonomy outside school. The school established a professional learning community in order to 'promote and sustain the learning of all professionals in the school community with the collective purpose of enhancing pupil learning' (Bolam et al, 2005, p.iii). In addition, as part of this research, the members engaged in action research on the effectiveness and impact of the DLCs in the classroom. To support the development of pedagogical practices, participants played an active role in the research by carrying out small-scale, focused activities complementing data collection and analysis carried out by the research team. Teachers developed their understanding of ICT uses through 'involvement-in-research' and the research team were able to capture and make explicit practitioners' knowledge.

This paper will focus on the ways in which different teachers integrated the DLCs in their classrooms to support whole-class teaching, and the extent to which existing pedagogies were replicated and new practices were introduced. These differences will be analysed in the light of individual pedagogical beliefs and practices. The paper will also consider how the various kinds of use were influenced both by engagement in the professional learning community and with action research, and also by the learners themselves, drawing out the implications for teacher development. The paper will conclude by comparing and contrasting the use of DLCs, to support whole-class teaching, with interactive whiteboards and visualisers, drawing on the ICT Test Bed evaluation (Somekh et al, 2007).

RITWIT Conference Abstract Submission

Title of presentation:

Using ICT to solve teachers' problems, not to create new ones

Type of presentation: Short Standard Video

Content: Work in progress Empirical research Theoretical/Policy Methodological

Teacher education/development Other _____

Authors + affiliations:

Sheyne Lucock, General Inspector (IT), Barking and Dagenham LA

Guy Underwood, Senior Adviser for ICT, Barking and Dagenham LA

Abstract:

Many teachers' reluctance to fully embrace technology in the classroom is due to the failure of local and national government, consultants and advisers to properly analyse teachers' and pupils' needs, identify the barriers and problems to effective teaching and then design and apply technology solutions to address them. Throughout the last 30 years the reverse has happened, in that technology developed for purposes other than education has been thrust upon teachers who have been told to change or adapt their teaching in order to fully utilise this technology. This has been accompanied by assertions that if only teachers were properly trained and changed their practice then the technology would bring about improved standards.

One example comes from the early 1980s when teachers could use a low-resolution PC with software they often wrote themselves and a large screen TV/monitor to assist in getting over difficult teaching points with a whole class. The same teachers were then given more modern PCs with higher resolution graphics that no longer worked with affordable large screens. They lost the ability to use software with a whole class and instead had to contrive individual or paired work around computers, regardless of the preferred pedagogy. This was the case for many years before projectors became affordable.

The second example comes much later in the form of the Interactive Whiteboard which was hailed by experts as a natural extension of the way teachers worked already. Rather than systematically analyse existing pedagogy to see if technology could solve any problems inherent within it, the technology merely entrenched existing practices regardless of their effectiveness. Thus teachers were given technology that was difficult to use and which ensured that they had to continually face away from the class, and move in front of a display that was never designed, both in terms of its size and position, to be accessible and viewable by all pupils in a class.

The third example comes from the inexplicable failure in schools to exploit visualiser technology that solves many of the day to day problems that teachers and pupils are faced with and which limit their effectiveness. These include showing something small to the whole class, modelling a skill or technique, exemplifying with pupils' work, and having a shared focus for dialogue.

This presentation will draw upon the experience of the ICT Test Bed Project and subsequent investment in Barking and Dagenham in which technology solutions were applied to problems identified within the pedagogy as a result of a proper and thorough analysis and stakeholder engagement. This at least partially addressed the issues of teacher training because technology that is readily seen as indispensable in solving many day to day problems in classroom teaching has a much higher and faster rate of uptake by teachers and pupils.

Finally the presentation will suggest that policy makers should in future adopt a much more conventional approach to the implementation of ICT solutions, including a systematic analysis of the problems to be solved.

RITWIT Conference Abstract Submission

Title of presentation:

Using interactive whiteboards to orchestrate dialogue in UK classrooms

Type of presentation: Short Standard Video

Content: Work in progress Empirical research Theoretical/Policy Methodological

Teacher education/development Other _____

Authors + affiliations:

Neil Mercer, Sara Hennessy and Paul Warwick
Faculty of Education, University of Cambridge

Abstract:

This paper focuses on the use of interactive whiteboards (IWBs) as a tool for encouraging and supporting classroom dialogue. (IWB technology comprises a computer linked to a data projector and a touch-sensitive electronic board displaying the projected image, and allows direct input via finger or stylus.) Our particular concern here is with the promotion of ‘dialogic’ communication in which a teacher and students explore and generate ideas and questions together (Alexander, 2006; Mercer & Littleton, 2007; Mortimer & Scott, 2003). In such interaction – widely recognized as educationally valuable - the teacher recognises and clarifies students’ existing understandings and draws upon these to formulate joint understanding; this may involve open-ended higher order questioning, feeding in ideas, reflecting, interpreting and evaluating.

In this study we investigated how teachers with a commitment to a ‘dialogic’ approach to teaching and well-articulated pedagogy for ‘integral use’ of ICT (Dawes, 2001) can exploit the *technical interactivity* of the IWB to support *dialogic interactivity*. The teachers involved participated in workshops designed to raise their awareness of the nature and functions of classroom dialogue, and then went on to design and implement their own IWB-supported lesson plans. These lessons were video recorded, ‘critical episodes’ from them were then selected independently by teachers and researchers and jointly evaluated in terms of how IWB use supports dialogue. The methodology built upon that of recent studies which relies upon partnerships between researchers and teachers engaged in transforming professional knowledge together. Our study included interchange between teachers of different subjects (English, History, and Personal, Social and Health Education) and primary/secondary phases, and learners across the attainment range, working in groups and whole class settings. Outcomes include illustrative examples of teachers’ effective strategies for orchestrating dialogue (including multimodal forms) in these different contexts. The findings are expected to inform teachers’ initial training and professional development.

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- Mercer, N. & Littleton, K. (2007) *Dialogue and the development of children's thinking*. (London, Routledge).
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RITWIT Conference Abstract Submission

Title of presentation:

From theory to practice: improving pedagogy for interactive whiteboard use in mathematics

Type of presentation: Short Standard Video

Content: Work in progress Empirical research Theoretical/Policy Methodological

Teacher education/development Other _____

Authors + affiliations:

David Miller, Derek Glover and Doug Averis, Keele University

Abstract:

There is considerable evidence that despite the investment in interactive whiteboard technology there has been little change in the way in which students learn because the IWB is used in a didactic rather than dialogic way.

In a project funded by the National Centre for Excellence in Teaching Mathematics the Interactive Whiteboard Research Group in education at Keele University brought together research staff and practitioners at differing career points within a range of secondary schools to develop materials and to consider a framework for professional development to enhance secondary mathematics teaching.

The approach was that of a Developmental Work Research team following a series of interactions and then tasked to produce a framework for professional development and a range of materials which could be circulated to trainers and practitioners to help practitioners make the change from didactic to interactive teaching. The objectives were to share understanding of the theory of interactivity, to consider its implications in mathematics teaching, to develop appropriate materials and guidance in their use with interactive whiteboard facilities, and to evaluate the impact of changed approaches on pupil understanding and attainment.

The proposed paper will outline the Developmental Work Research approach, detail progress towards the attainment of objectives, and propose a model of working whereby expert teachers and others, including those with some doubts about the interactive whiteboard use can be brought together. The purpose of this is to replicate the rationale and relationships of Developmental Work Research working so that all secondary mathematics teachers within schools can make a more enhanced and interactive use of the interactive whiteboard to support both conceptual and cognitive development for pupils.

RITWIT Conference Abstract Submission

Title of presentation:

Building capacity using voting system technology to facilitate Assessment for Learning

Type of presentation: Short Standard Video

Content: Work in progress Empirical research Theoretical/Policy Methodological

Teacher education/development Other _____

Authors + affiliations:

Fiona Moorehead-Lane – Education Consultant for Steljes Limited

SMART Technologies

Cambridgeshire Education Service & Curriculum Consultant team

Maggie Dutton – MI Integration Manager, Cambridge Education Service

Cambridgeshire Primary schools – Stukely Meadows Primary, Huntingdon Infants, Hatfield Juniors, Eynesbury Primary and Sawtry Juniors

Abstract:

A strategic project developed through a partnership between Cambridgeshire Education ICT Service and SMART Technologies through the UK distributor, Steljes, aimed at developing capacity using new technology for pupil assessment and increased classroom engagement.

We embarked on a planning phase to identify willing schools to receive a short-term loan of the class set of Senteo voting system handsets. Support dates were planned to include an initial familiarisation and software setup session, and regular opportunities each term to meet to share good practice and undertake a kit handover to the next school. A blog area on the Cambridgeshire ICT website was developed and proved integral to resolving initial setup queries, sharing experiences and posting curriculum resources during the early part of the project.

We have seen very positive outcomes during the project's first year, some reflected here: <http://www.cambsed.net/afl/public/default.aspx>. Notably these are the ability to track individual pupil progression within subjects or over a specific duration, without the usual burden of marking and levelling. This has shaped future project direction to explore how best to establish pupil portfolios in secondary schools. Teachers reported increased pupil participation, engagement and positive effects of instant feedback during lessons, particularly during mathematics mental/ oral starters and overall topic assessments. The combination of individual device feedback, an overview of the whole class through the SMART Notebook software and teacher commentary facilitates reflective learning with every pupil, during every lesson. Opportunities for whole class interaction and idea sharing have been seen to impact on the pace and direction of learning during lessons. Additionally, we observed community development between teachers where resource sharing, mentoring and ongoing support facilitates adoption of whole class technology, both within schools and cascading understanding across schools. The project is evolving from primary classrooms into a special educational needs school, with plans to extend into some of Cambridgeshire's secondary schools in the near future.

RITWIT Conference Abstract Submission

Title of presentation:

Integrating GeoGebra into IWB-equipped teaching environments

Type of presentation: Short Standard Video

Content: Work in progress Empirical research Theoretical/Policy Methodological

Teacher education/development Other _____

Authors + affiliations:

Zsuzsanna Papp-Varga, Eotvos Lorand University

Zsolt Lavicza, University of Cambridge

Abstract:

GeoGebra is free, multi-platform, open-source dynamic mathematics software with rapidly growing worldwide popularity. The basic idea of the software is to join dynamic geometry, algebra, calculus, and spreadsheet features which other packages treat separately, into a single easy-to-use package for learning and teaching mathematics from elementary through university level.

The aims of the project described in our presentation are threefold. Firstly, we aim to examine how GeoGebra can be successfully used for mathematics teaching in Interactive Whiteboard (IWB)-equipped teaching environments. Secondly, we intend to uncover how professional development programmes could be developed and improved for the joint use of GeoGebra and IWB. Thirdly, we aspire to identify additional software features that would make GeoGebra more suitable for IWB environments.

The interactive nature of the software lends itself naturally to its use in IWB environments. However, such environments differ from projector-based or computer-lab settings. In addition, the software was originally designed for computer-based use and may not encompass all features needed in IWB environments. During the past year, several workshops, in schools and conferences, were offered for teachers and teacher educators about the use of GeoGebra with IWB in Hungary. Participant feedback and comments were collected at these events and training materials were continuously improved.

At the beginning of 2009 several new workshops, utilising the improved training materials, will be offered for teachers in Hungary and data will be collected about both the effectiveness of workshops and the usability of GeoGebra with IWB. The data will consist of questionnaire responses and interviews. Subsequently, lessons of participating teachers will be video-recorded and interviews will be conducted with teachers and students to further understand the classroom use of GeoGebra with IWB.

Based on the data analysis, we aim to better understand GeoGebra use with IWB and to contribute to professional development opportunities for teachers in Hungarian schools and beyond. In addition, we will make recommendations for the modification of the GeoGebra interface to become more suitable for IWB environments. In our talk, we will outline preliminary findings of this study with particular focus on the pedagogical opportunities that the joint use of GeoGebra and IWB can offer for mathematics teaching.

RITWIT Conference Abstract Submission

Title of presentation:

Identifying teachers' pedagogical practices with Whole Class Technologies

Type of presentation: Short Standard Video

Content: Work in progress Empirical research Theoretical/Policy Methodological

Teacher education/development Other _____

Authors + affiliations:

Dr Christine Redman, University of Melbourne.

Professor Anne McDougall, University of Wollongong & University of Melbourne,

Professor Susan Rodrigues, University of Dundee

Abstract:

This paper explores a methodology designed to examine teachers' pedagogical choices and use of interactive and multi-modal technologies in their classrooms. It identifies which factors influence teacher's pedagogical choices by exploring why they include and select particular technologies in a teaching scenario. The paper uses a theoretically informed approach to framing classroom research interested in identifying what shapes pedagogical practices and a methodology that may enable researchers to identify pedagogical practices. Whole Class Technologies (WCT) are researched as cultural artefacts closely related to the social cultural context of their production. The research approach focuses on the everyday socio-cultural factors that may influence a teacher's pedagogical practices with WCT.

Classrooms are complex and dynamic places. The theory underpinning this research methodology focuses on how individual teachers adopt and adapt their practices based on their values and perceptions about what is valued by their community. The methodology attends to how members of a community of practice talk about their practices and are positioning themselves according to their perceptions, assumptions and expectations of their workplace (Davies and Harré, 1990).

This paper takes a socio-psychological approach to the analysis of discursive practices, permitting a study of teachers' tacit interpretations of institutional values and their personal identity formation. This study examines how teachers interpret and adapt their classroom pedagogical practices and use WCT, according to their perception of accepted practices in their institutions. Understanding how discursive interactions in school settings are interpreted may provide a deeper awareness of which institutional values support or impede teachers in their pedagogical choices of the technology and ways of using its affordances. Our focus is on how individuals explain their choice of practices in relation to what others in the institution value, and a sense of what other people perceive they *should* be doing. Teachers' choices are also informed by their own experiences, values and confidence.

Teachers make daily choices about how they will use WCT, enacting their agency, in relation to their interpretation of the value of practices encountered. This socio-cultural theoretical research approach examines how teachers perceive they are influenced, supported or impeded in their pedagogical choices. Positioning Theory (Harré, 1999) is an analytic tool that helps to identify, track and code the pedagogical choices, and the perceived impetus behind the pedagogical practices. Positioning Theory, informed by Vygotskian social-cultural theory, compares and considers the social and cultural factors and how they impact on an individual's daily practices. This paper describes how this approach could be used to support a more objective way to codify and understand the values that shape, support or impede the actions and choices of teachers on a daily basis. These understandings may help to identify the perceptions and factors that inform the reasoning behind the pedagogical choices teachers make as they selectively utilise and respond to the affordances of specific WCT.

RITWIT Conference Abstract Submission

Title of presentation:

Collaboration and enquiry using a tabletop interactive multi-touch whiteboard

Type of presentation: Short Standard Video

Content: Work in progress Empirical research Theoretical/Policy Methodological

Teacher education/development Other _____

Authors + affiliations:

Ms. Anna Reid – Knowledge Transfer Associate, Newcastle University and Bedlingtonshire Community High School

Dr. Steve Bunce – ICT Consultant, Northumberland County Council and Bedlingtonshire Community High School

Abstract:

Theme One: Pedagogy and classroom activity

- **Collaboration, Classroom dialogue, Student participation, Adaptive teaching and Learning outcomes**

Newcastle University and Bedlingtonshire High school are currently developing an assessment framework for enquiry, based around Costa's Habits of mind. Anna Reid, Knowledge Transfer Associate, and Steve Bunce, ICT Consultant have been working closely with the staff and students of the school.

The research is developing through a BECTA Harnessing Technology project focussing on enquiry and virtual worlds; this involved the creation of a tabletop whiteboard. Through this link, we have joined with Culture Lab at Newcastle University, who are working on multi-touch interactive tabletop whiteboards. Their hardware and software enables three people (via three coloured pens) to concurrently interact with the content and the activity can be tracked. The students have investigated 'mysteries' on the surface.

- **Collaboration:** The students and teachers collaboratively investigate the mysteries and conduct enquiry within virtual worlds
- **Classroom dialogue:** The sessions have been recorded using video cameras and the students have 'tagged' the activity. Using special video tagging software, the students analyse the activities and recognise where the Habits of Mind features occur.
- **Student participation:** The group are all involved in the activities and their participation can be tracked through the software (observing which pen is active and its actions).
- **Adaptive teaching:** The sessions allow the students time to think to consider the mysteries or their designs of the virtual world. The design of the tabletop allows the students to move around and try out their ideas. The teaching style has to be adaptive to react to the different pathways of thinking and enquiry, which are enabled through the technology.
- **Learning outcomes:** At the end of the sessions, the students are aware of their contribution and are encouraged to use metacognition to review their thinking. The software helps to track their contribution in conjunction with the video evidence.

Outcomes of the research

The main aim of the research is to develop the assessment framework for enquiry, using the technology as a tool to support the development. The interactive multi-touch whiteboard has enabled the students to collaborate effectively and really feel that they are involved in new and innovative practice.

Our presentation will include:

- an introduction to the project
- the design of the whiteboard
- the pedagogical use of the technology
- video footage of students and teachers in action

Interviews with the students and teachers to describe advantages, disadvantages and the impact.

RITWIT Conference Abstract Submission

Title of presentation:

Multimodality, orchestration and participation around classroom use of the interactive whiteboard: A discussion

Type of presentation: Standard

Content: Theoretical **Other:** Literature review

Authors + affiliations:

Alison Twiner, The Open University

Abstract:

Theme one: Pedagogy and classroom activity
Subthemes: Classroom dialogue, student participation
Additional subtheme: Multimodality

This paper will offer a discussion of the literature concerning multimodality, orchestration and participation around classroom use of the interactive whiteboard (IWB). The main aim of this discussion will explore the place, or potential of the IWB in fostering multimodal approaches to teaching and learning. In order to address this, conceptions of the role of language in mediating other modes and media, in terms of its centrality or complementarity will necessarily be addressed. Equally the role of various actors (including teachers, learners) in designing, orchestrating and interpreting multimodal material requires consideration.

Use of the IWB within a multimodal classroom experience is most strongly advocated with respect to what it can add to lessons and learning that was not previously possible. For example, prepared material can be worked through, edited, highlighted, and saved for future revision. Simulations can illustrate oral description. DVD freeze frames can be annotated to pose and capture ideas, as 'improvable objects' (Wells, 1999) plotting the creation of understanding, thus opening a 'dialogic' exploration rather than copying of content.

In addressing classroom discussion and dialogue around material presented via such technologies, the role of language is seen differently in the literature, as either the glue that links together all other activated modes of communication (such as image, music), or as a mode which can be foregrounded or backgrounded like any other. These differences will be explored.

In terms of pupil participation, a multimodal curriculum involving design and redesign of meaning 'sees the learner as fully agentive, as becoming fully aware of the potentials, capacities and affordances of the materials to be used in the designs' (Kress, 2000: 141). Where available tools include the IWB, the notion of pupil interaction with learning materials as well as engagement with content comes to the fore. This identifies the role of the teacher in orchestrating planned and spontaneous lesson material and discussion, and also the importance of the active role of learners (New London Group, 1996) in creating, conveying and understanding/recreating meaning.

Increasing recognition of the pervasiveness of digital technologies and multimodal experiences in pupils' out-of-school lives is pushing a need to incorporate such tools within teaching and learning, to enhance current and evolving practice. Many teachers are striving to provide such experiences. Exploring how various media and modalities interact with each other, and how they are orchestrated and employed by users, is a key way to understand their impact on teaching and learning.

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RITWIT Conference Abstract Submission

Title of presentation:

Interactive Whiteboards and Collaborative Pupil Learning in Primary Science

Type of presentation: Short Standard Video

Content: Work in progress Empirical research Theoretical/Policy Methodological

Teacher education/development Other _____

Authors + affiliations:

Paul Warwick (speaker), Ruth Kershner, Neil Mercer, Judith Kleine Staarman
Faculty of Education, University of Cambridge

Abstract:



Project RG49888

This presentation will report on a study focusing on UK primary school children's learning in the semi-autonomous, collaborative use of the IWB during science curriculum activities. In addressing the question 'How do children use the IWB when working together on science-related activities?' 36 lessons were videoed and subjected to an analysis of spoken and physical interactions, producing learning episodes for further coding and commentary. Findings suggest that productive pupil collaboration is arrived at through a complex web of interactions between the affordances of the IWB; the mediating role of the teacher, including task design; the nature of collaboration and dialogue; the classroom environment, particularly the physical space at the IWB; and pupils' learning. The research is significant in suggesting that the technology is probably not the key driver for the development of productive pupil collaboration at the IWB. The shared understanding of teacher and pupils with respect to task intentions and productive talk and collaboration seem particularly significant in promoting an environment in which the affordances of the technology can come into play.

RITWIT Conference Abstract Submission

Title of presentation:

Integrating ICT in the secondary mathematics classroom through handheld technology networks

Type of presentation: Short Standard Video

Content: Work in progress Empirical research Theoretical/Policy Methodological

Authors + affiliations:

Mr D Wright and Dr P Woolner
Centre for Learning and Teaching, Newcastle University

Abstract:

The introduction of interactive whiteboards into classrooms has seen an increasing use of ICT by teachers. However, this may mean that students are getting fewer opportunities to use ICT individually or in small groups (Smith et al, 2006).

Several years ago, inspection evidence showed that most pupils had some opportunities to use ICT as a tool to solve or explore mathematical problems. This is no longer the case; mathematics makes a relatively limited contribution to developing pupils' ICT skills. Moreover, despite technological advances, the potential of ICT to enhance the learning of mathematics is too rarely realised. (Ofsted, 2008, p.27)

The project investigated the integration of ICT for students' personal use in the secondary mathematics classroom through using small software applications on handheld tools (graphical calculators). An additional dimension of the project was an enquiry into networking the handhelds so that data, software and output can be shared and an interactive space created for whole class interaction and discussion. This aspect of the empirical study is in its initial stages, but our review of research carried out in the US and Europe reveals the transformative potential of this technology for the mathematics classroom.

The presentation will focus on:

- A discussion of the pedagogical impact of a networked system of handhelds in the classroom, drawing on empirical evidence and our review of research.
- A demonstration of some of these facilities
- A discussion of the resources and support needed to integrate ICT for students and teachers in the mathematics classroom

Findings indicate that

- small software on handhelds is an effective starting point for the integration of ICT into the mathematics classroom for both teachers and students
- the network system can motivate and engage students and provide an effective assessment tool for teachers
- introduction of the network system raises important issues about pedagogy and knowledge in a connected classroom
- teachers need significant professional development support to adopt a new technology in their practice.

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