

Interactive Whiteboard Uses in HE: Visualising Complex Information and Processes

Dr Rolf Wiesemes, The University of Nottingham

rolf.wiesemes@nottingham.ac.uk

Introduction

Current research in the area of Interactive Whiteboard use focuses almost entirely on the use of interactive whiteboards (IWBs) in primary and secondary schools.

Due to a lack of publications in HE it is difficult to assess what is happening in relation to IWB and related technology use in HE. Taking the University of Nottingham as an example, it seems that IWBs are currently available for use in most schools and faculties. However, pilot work seems to indicate that whilst IWBs might be available in most schools for use, exploiting its potential for the learning of difficult concepts and for 'deep learning' is limited.

In order to start filling this gap in research the VLL team has started to conduct a series of small-scale research projects linking IWB (and related technology uses such as use of multiple screen environments for learning and teaching) with the development of 'deep learning' (see for example: Biggs, 2003; Laird, et al, 2008; Ramsden, 2003) and the learning of difficult concepts. Overall, this project focuses on examining one particular angle ('deep learning') of the student experience of visual learning in HE. This particular angle is crucial, as it builds on and transfers the existing evidence base from primary and secondary school IWB research into HE whilst recognizing the fundamental differences between these learning settings.

Literature Review

Whilst there is a wealth of literature on the use of IWBs in primary and secondary schools, there is to date only a very limited amount of research that examines IWB uses in Higher Education. We agree largely with Laurillard's and Prosser's arguments that HE should always be about 'deep learning'. This might also mean that simple transfer of IWB practices from primary, secondary and further education into HE might not be desirable and inappropriate.

Additionally, Laurillard's and Prosser's arguments focus on learning whereas the majority of literature into IWB uses at all levels examines primarily teacher use of IWBs. This divergence of foci is problematic, as teacher or lecturer high end use of IWBs (as for example described in Haldane and Somekh's (2005) five tiered model of use) cannot necessarily be equated with supporting 'deep learning'. This position is also supported by arguments provided by Steffe and Olive (2002) who see the value of IWBs in supporting the learning of 'symbolic subjects' (such as Mathematics and Science). This points at Burke and Ray's broader arguments (2008) that technology in itself is not enough in order to engage students. These arguments also are supported further through Kennewell's (2005) argument who refers to the potential of IWBs use for recapitulating of information and non-linear lesson 'flow'. Whilst these arguments are relevant it is equally important to question how far IWB use might support purely 'linear' and single direction 'flow' of learning, i.e. it is key to question

critically how far IWBs can reinforce more traditional teaching and learning methods rather than support more learner-focused teaching approaches.

Research Context

IWB uses have been incorporated in the School of Pharmacy since 2007. Current uses of IWBs vary within these teaching sessions. IWB uses are also combined with other technology uses (such as video conferencing via Skype) in order to link University of Nottingham Pharmacy students in University Park Nottingham and the University of Nottingham in Malaysia.

Research Methodology: Research Rationale, Research Questions, Methods

Based on initial observatory research, the research team identified that there might be a potential tension between the envisaged and the real effects of IWB technology uses for subject knowledge and communication skills in a Pharmacy course. The key research questions from this would be: *What effects do IWB technologies have on students' development of subject knowledge and communication skills in a Pharmacy course?* Addressing this research question also allows to explore how far the notion of 'New Millenium Learners' (Pedro, 2006) might or might not apply to IWB users in HE and whether these conceptualizations of learners can be further clarified through research into specific visual learning technologies.

This research was conducted as observational and focus group research with 15 1st Year Pharmacy students. The students were self-selected. They were of various nationalities, had different ethnic backgrounds and were both male and female (but with a higher number of female students which reflects the gender mix in Pharmacy studies). The VLL research team conducted 3 focus group interviews with 5 students per group lasting between 30-50 minutes. Subsequently, the interviews were transcribed and analysed separately by the 3 members of the research team involved. This separate analysis was conducted as a simple content analysis, but also ensured inter-rater reliability.

Findings, Discussion and Conclusions

Overall, the interview findings clearly indicate that IWBs can contribute to developing students' learning. However, the impact of IWB use on student learning depends not on the technology itself, but on pedagogically meaningful uses of IWBs that make a genuine contribution to the students' learning. Taking into account the Laurillard's (2002) comments regarding deep learning in HE, it will be useful to consider for IWB uses in HE how IWB technologies can contribute to increased learner engagement and ultimately how IWB use can support 'deep learning'.

This points at the recognised need to examine IWB uses critically in relation to student learning. It is worth remembering that the concept of IWBs was initially adopted from the traditional whiteboard. The whiteboard – whilst it might remain a used and useful teaching tool – also represents traditionally highly didactic teaching and traditional teacher-learner power relationships in the classroom. IWB technologies offer far more opportunities to reconsider how lecturers teach and how students in HE learn. We would argue that this does not necessarily require technically highly complex IWB uses, but can be achieved through IWB uses that are clear about what can be pedagogically achieved and what the desired learning outcomes for students are.