LESSON OBSERVATION: using technology in teacher training to learn about technology in the classroom

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Initial Teacher Training (ITT) programmes are planned around both University and school-based learning opportunities. However, it has been the trend over the last decade to make a trainee teacher’s experience much more school based in the belief that, due to the practical nature of the profession, trainee teachers progress better alongside practicing professionals in the school environment (Department for Education and Science, 1991). Therefore, whilst on their school placements, trainees, alongside their more experienced school-based colleagues, are exposed to and need to address, educational changes which impact on learning and teaching strategies. Since the introduction of the National Curriculum at the end of the 1980s, there has been a plethora of change and innovation for schools to manage. However, probably the most ubiquitous innovation at all levels of education has been the pervasion of ICT across the curriculum in order to equip learners for the increasingly technological society in which they live.

The uptake of ICT in schools has meant the introduction of computer suites, the need for word processing skills, the setting up of intranets and e-mail accounts for pupils as well as staff, the introduction of PowerPoint presentations and video-conferencing into class learning as well as for professional use. However, the introduction of computer suites and the limited number of ways that computers can be arranged, plus the fact that a computer is realistically a station for one learner, have often created frustration both for learners and for teachers. It can prove to be extremely difficult for the teacher to manage large groups of learners whose individual attention is focused on an individual computer and a teacher’s communication attempts can prove to be somewhat problematic when addressing backs of heads!

It was with the gradual emergence of interactive whiteboard (IWB) technology in the 1990s that ICT in learning and teaching began to mean more than word processing and computer skills for teachers.

An interactive whiteboard is a large display panel that can function as a simple projector screen or as a computer projection screen that can be controlled by touch or an electronic pen. IWBs can be used as presentation devices or the user can utilise the technology to create and interact with data. There are various boards being used in schools, but the Promethean boards offer the user a very high degree of innovative potential. The Promethean ACTIVboards and the ACTIVstudio software present the user with an infinite number of possibilities to enhance the learning experience. Making use of the ACTIVulate and the ACTIVote device, learners can interact with the boards from their seats and teachers can receive instant feedback during their lessons. For further information about the Promethean boards and IWB training, see www.mmu.ac.uk/ioe/promethean/

First impressions of teachers fortunate enough to have early access to IWBs, were that they had a technological tool which could put them back into a familiar driving seat in the classroom (Haldane, 1999). They had the opportunity to use ICT innovatively “from the front” in the form of a familiar and fundamental teaching aid, but one which had the technological potential to inject revolutionary learning opportunities into all aspects of the curriculum.

The introduction of IWBs, however, has not been without its problems. For a variety of reasons, some teachers have been unwilling to engage with whiteboard technology. For example, some schools have placed IWBs next to the old whiteboard in their classrooms. Teachers are then faced with a choice; to continue using the traditional whiteboard with which they feel confident and comfortable or to venture into the realms of, at least, initial uncertainty.

The choice cannot be made off the cuff in front of the class in the way that a teacher might choose between a flipchart or the whiteboard because, as with all new technology, there is a skills development stage that has to be addressed before the pedagogic benefits can start to be realised. When familiar and unfamiliar teaching tools sit in such contiguity, therefore, it should not be surprising that the tried and tested old whiteboard is more likely to remain the teachers’ choice.

Another possible reason for teachers’ cautionary approach to IWBs may be inextricably linked with teachers’ confidence and their perceptions of teacher/learner relationships and power/control in the classroom. Teachers and trainees have had to come to terms with word processing and computers, but struggling individually with a new computer or a new software package is very different from struggling with a technological teaching tool in front of a whole class of students – especially when it looks so beguilingly like a familiar piece of teaching equipment and the students in their classes could well be more technologically able than they are.

Beginning to teach with an IWB means, therefore, that there is yet more demand on teachers who already are in an overloaded profession. Skills training, revisiting lesson plans which are already seen as successful, designing new approaches to learning, resource development etc, all need to be undertaken. Although acquiring the skills needed to make full use of the IWBs can be initially daunting, the development of increased competence can soon begin to breathe new life into classroom experience.

Even the more cautious, with support in the acquisition of the necessary skills,
begin to realize that an IWB is not simply an enhanced whiteboard. Rather, it is a large interactive computer which, if required, can emulate a traditional whiteboard but which also has the scope for taking learning far beyond the confines of the classroom. However, Glover and Miller (2002) suggest that experienced teachers may take time to be convinced of the value of IWBs.

Taking these points into account, it is therefore be assumed that all the staff in a school have the expertise needed to make best use of all the functionality available to them, simply because IWBs have been installed in classrooms.

Not every classroom has an interactive whiteboard (IWB) and not every school has been able to invest significantly in the installation of IWBs. Uptake in schools has to some extent been influenced by Government grants and where there has been funding available (Technology College and Education Action Zone bids, New Opportunities Funding etc) the introduction of IWBs has been spread around the school, often locating an IWB in each department. However, where installation has been dependent on school budgets, installation is much more patchy (Glover and Miller, 2001). Consequently, IWB expertise in schools is also patchy and therefore, development opportunities for trainee teachers whilst on school placement are highly variable.

So, if trainee teachers’ experience of IWBs in schools is somewhat variable and unpredictable, what about ICT and IWB developments in Higher Education Institutions where ITT students still spend some of their time? Naturally, HEIs have been responsive to the needs of University students. It is expected that students will have access to large suites of networked computers for use on a drop-in basis, computers available in a variety of study areas, electronic access to journals and data bases via technologically advanced library services, access to multi-media facilities and equipment for use both on and off site. A growing number of lectures are also being delivered in state-of-the-art electronic lecture theatres.

Although trainee teachers can clearly benefit from these developments, they also need to have exposure to the technologies being developed for 21st century classrooms. Kennewell and Morgan (2003) found that student teachers, as well as recognizing the importance of IWBs, see consequent extra preparation time and lesson planning as less of a concern because they view ICT as an implicit part of their work. Tutors at the Manchester Metropolitan University’s Institute of Education also recognized that their trainee teachers saw IWB technology as an important aspect of their preparation for teaching.

So, from 1999, when use of IWBs in schools was embryonic, secondary trainee teachers have had opportunities to see IWB demonstrations as part of their Professional Studies programme at the IoE. They observed short demonstrations which were followed by discussions about the possibilities and potential of this new technology for their own subject teaching. However, as IWB usage in schools has increased, more trainee teachers have had real experience of IWBs in action whilst on their school placements. Therefore, whilst demonstrations in Professional Studies at University were still innovative and exciting for some, they were becoming inappropriate for those who had been exposed to their use in the classroom.

An important part of the trainee teacher’s University-based activity is to engage in peer group discussions about their real school experiences and the situations they have encountered in a variety of educational contexts and to debate the consequent issues which arise. The opportunity to participate in such activity is presented to secondary trainee teachers at the MMU’s Institute of Education as an integral part of their Professional Studies unit.

Professional Studies is delivered to mixed subject groups of Trainees and examines a range of major educational issues, some of a fundamental and prevailing nature, others more specific and relating to current national educational policy. A fundamental aim of the Professional Studies programme is to help Trainees to synthesise experience, practice and education theory in order to help generate a depth of understanding of and to prepare themselves for membership of a complex, demanding and ever changing profession. Professional Studies sessions, together with their school experience placements, help Trainees to learn from a wide range of educational contexts, some of which will have experienced first hand.

However, in order to present large numbers of trainees with the same practical classroom experience, the Professional Studies programme attempts to present trainee with realistic classroom situations and scenarios. Exposure to the real classroom situation has necessarily, in University, to be dealt with in a “second-hand” and simulated fashion where Trainee’s learning, therefore, has been of an “abstract conceptual nature” (Kolb, 1999) as opposed to the “concrete experience” learning opportunity they will have had individually on their school placements.

Professional Studies tutors delivering the Unit make every effort to create “situated learning” experiences – examining the body of theory in the context of its application (Brown, Collins and Duguid, 1989). These includes: watching training videos of teachers demonstrating aspects of their classroom skills (where both the teacher and the pupils are role-playing their scenarios); listening to guest speakers who present (in a variety of ways) specific aspects of class management or their schools’ policies and strategies; reading carefully selected case studies and press cuttings as exemplars of particular situations; problem solving, role play, setting up simulations covering a range of situations; observing skills demonstrations; discussing and debating a broad set of educational issues.

By 2002, as IWBs were becoming much more widely adopted in schools, it was clear that Professional Studies needed to present something more than an IWB demonstration; it needed to locate the experts out in school to introduce IWB pedagogy into the programme. It was time to utilise the technology to bring real teachers, teaching real lessons in their real classrooms, into the university in real time. So, engaging the help of the Promethean Centre of Excellence at MMU, which had been established as a partnership venture between Promethean Ltd, the Institute of Education and Media Services at MMU (www.mmu.ac.uk/ioe/promethean/,
We valued the opportunity to get powerful teaching and learning tool and some of the potential of this very group. The teacher was able to show us stimulated considerable interest in the whiteboard was fascinating and observing a teacher using the interactive enthusiastically, “The live lesson who had participated in the session, said Design and Technology trainee teacher Centre of Excellence at MMU.

As a result, in May 2003, over eighty Final Year secondary trainee teachers at Crewe were electronically “invited into” a classroom to observe a real-time lesson at Bishop Rawstorne Language College in Croston, Southport. Trainees in the University, through the use of one of the electronic lecture theatres on the Crewe campus, linked with an electronic classroom at Bishop Rawstorne Language College, where they could observe and interact with a class teacher using a digital whiteboard to teach French to a group of Year Nine students.

Trainees had the opportunity to “meet” the French teacher, prior to the half-hour lesson so that he could provide them with some information about the class he was about to teach and share with them the learning objectives for that particular lesson. Whilst observing the lesson, trainees were required to observe the way the teacher made use of the digital whiteboard and the way the learners responded. They were also required to consider implications for teaching and professional practice in their own subject areas.

At the end of the lesson, the teacher again made himself available (electronically) to engage in professional discussion with the trainees before they split into their usual tutor groups for further small-group discussion to debate the issues which had arisen.

There was a great deal of interest in how the technology could enhance the learning experience and trainees were keen to take advantage of the training facilities offered by the Promethean Centre of Excellence at MMU.

After the event, a 2Yr BA (Hons) Design and Technology trainee teacher who had participated in the session, said enthusiastically, “The live lesson observing a teacher using the interactive whiteboard was fascinating and stimulated considerable interest in the group. The teacher was able to show us some of the potential of this very powerful teaching and learning tool and we valued the opportunity to get involved in live discussion about its use. Several groups of enthusiastic trainees arranged half-day training sessions in the University’s Promethean Centre of Excellence so that we could get some hands-on experience of the boards. This more individual training allowed us to ask more detailed questions and to experiment with the boards in a way which was more closely related to our own subjects. We were guided expertly through a basic skills course and we all agreed that the boards would be exciting and useful in our teaching, going far beyond the normal constraints of marker and whiteboard facilities that we had used on our previous school experiences.”

The Promethean Centre of Excellence has set up a University Liaison/Support Group (UL/S Group), which is made up of representatives from each of the seven University Learning and Teaching Committees in order to support each of the faculties in the development of this important technology (see the Promethean Centre’s website for the names and contact details of representatives). The UniLinks project offers exciting possibilities for a wide range of diverse learning opportunities and it is anticipated that at least one project will be based in each faculty. News and updates will be published in the Promethean Centre’s Newsletters which can be accessed on the Centre’s web pages.

The opportunity for a whole group of students to observe a highly competent practitioner in action and then to discuss what they had observed whilst still fresh in their minds, proved to be an extremely powerful learning experience. Having a window into the real world of work from the University lecture theatre or teaching room, would appear to offer a whole new range of possibilities across many different subject disciplines and for all phases of education. Such an approach may, in future, open up new ways of helping young people to choose appropriate and fulfilling careers.

At the MMU’s Institute of Education, the experience of real-time observation whetted our trainees’ appetites for exploring IWB technology. Fortunately, during the summer of 2003, Teacher Training Agency funding for the development of ICT in Initial Teacher Training enabled the IoE to promote its use of electronic whiteboard technology on a much wider scale and within a shorter timescale than it had originally expected. Over £150,000 has been spent on converting a further 20 classrooms across three sites.

Our strategy of training and cascading expertise via a number of “pioneer” colleagues supported internally via the Promethean Centre of Excellence would not have been sufficient to meet the increasing demand stimulated by the technology becoming much more pervasive. While it is important to have a number of IWB “champions” from different disciplines, our experience also suggests that for meeting peaks of demand for upskilling, the partnership arrangements between the Centre of Excellence at MMU and Promethean Ltd, which gives access to their training support, are extremely valuable.

MMU already has the benefit of state-of-the-art electronic lecture theatres and many colleagues make good and effective use of the large screens beyond using them merely as projectors for PowerPoint presentations and glorified OHPs. Those colleagues who have taken advantage of Robert Ready’s and Mike Shaw’s electronic lecture theatre training will already be aware of ACTIVstudio and some will have ventured into experimentation. However, the University uptake of classroom-sized boards is embryonic at present and, with an increasing number of students are already arriving at University with experience of exciting and innovative approaches to learning in their schools, it is timely for the University to be considering a wider scale introduction of these teaching aids if we are to maintain students’ interest in and excitement about learning.

Having used the technology to open a window from the University into a remote classroom, we are now working with colleagues from other faculties (the UniLinks project) to see how we can open up two-way windows into and out of the University, thus creating electronic links with a variety of external/remote establishments. The opportunity to provide not just the telepresence of a lecturer, but also their highly interactive electronic teaching and learning aids via the IWB, potentially adds a whole new dimension to access to Higher Education.

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References


TELESTIA AB MULTI MEDIA CD ROM – PATTERN TECHNOLOGY

Introduction

This paper describes a change in teaching practice which was introduced as a result of the availability of new teaching materials specific to the subject area, developed as part of a EU funded project.

The overall background to the course development was a shortage of technical skills, particularly creative pattern cutters within the UK clothing industry (DTI, 1998). These facts were substantiated by a skills audit carried out by Skillfast UK, formerly known as CapitB Trust, the national training organisation for the British clothing industry (CapitB, 2001). The original aim of the Clothing Design and Technology (CDT) course, based on this research, was to provide the clothing industry with proficient pattern cutters (MMU, 2001). Pattern Technology is still considered a fundamental element of the BA/HND CDT and HND/FDT courses, being a double credit unit.

An innovative method of pattern cutting, which was developed by Sitam AB, as part of an EU initiative under the Leonardo da Vinci programme, has been successfully used to teach pattern technology to BA/HND CDT and HND/FDT courses for the past seven years. The original training package produced in Thessalonica Greece, comprised a book, template, ruler and flexible squared ruler (Vouyouka, 1996). This system

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has recently been packaged as an interactive multi media CD Rom, with web based training programmes currently being developed and piloted by MMU and our European partners (EU 5th Initiative Project).

Impact on teaching

It is essential that stage one students acquire a good knowledge of basic pattern cutting techniques and principles. With the steady increase in student numbers it is vital that we review and update the implementation of this subject area to ensure that all students can achieve this objective. In addition we are aware of the diversity of learning styles within today’s student group and we need to develop a range of teaching strategies to accommodate these differences (Kramer-Koehler, et al, 1995). Physical