Using Thunder to increase student involvement in History seminars

Dr Brett Bligh explores the impact of technology-supported methods on classroom practice.

A teaching and learning challenge

Although small group seminars have a primary aim of promoting student discussion around a topic in order to deepen understanding, in impoverished form they may instead be more like small lectures, with patterns of teacher talk and short student response, known as initiation-response-feedback sequences, dominating discourse.

The School of History has been taking strides to develop its educational technology base because this is seen as a mechanism for increasing student interest and improving involvement. Often, undergraduate students arrive at University already familiar with technologies such as interactive whiteboards from school and college. There is a perception that undergraduate teaching practices, by comparison, might appear to students to be strongly traditional. However, issues such as lack of support or exemplars of good practice often result in poor take-up by tutors or abandonment of the technology altogether.

Thus, a project was conceived within which a tutor from the School of History, who did not consider herself technology-confident, would be supported and scaffolded to use a novel new teaching and learning system. A series of learning scenarios were developed jointly between the research team and the tutor, after which the tutor put each scenario into practice twice, with two parallel tutorial groups. The purpose of the project was to determine whether student involvement could be improved by the use of the technology-supported scenarios, and to assess the quality of the interactions which were fostered as a result of the designs.

The process

The Thunder system used as the basis for this research is a novel technology, originally developed for business use and appropriated for use in educational settings as a result of capital investment by the Visual Learning Lab, a national Centre for Excellence in Teaching and Learning in the UK. The purpose of the technology is to allow the display of many pieces of information simultaneously within the room, using the concept of "flipchart pages" which are displayed by multiple projectors and controlled by a central easel. The Thunder system also replicates the easel interface on a piece of client software, which we loaded onto tablet PCs, allowing free-form interaction such as the writing of notes, drawing of diagrams and contribution of pictures to occur from the learners' seats.

The process of acclimatising the tutor to the technology and developing appropriate educational scenarios was a two-way discussion which took into account the needs of the module and the affordances of the technology.

Students using tablet PCs for small group work

Four seminar scenarios were eventually put into practice, across eight teaching sessions. The module, *War and Clash of Ideologies*, offered many opportunities for interesting visual representations, either to be presented for discussion from existing sources or to be constructed by students themselves during the sessions. Care was taken to ensure that this aspect of the seminars was embedded into the scenario design from the beginning.

The first session served as an introduction to the students, both of the notion of Ideology itself and to the Thunder system.


The Thunder system

Initially, the tutor used the system to display materials and construct summaries of the discussion, before handing over control of the system in what we presented as a "baton passing" activity, where students took turns to lead the discussion and use the Thunder wall to note down ideas. For simplicity, we used only the easel within this session, and did not bring in the tablet PCs.

The second session centred around the notion of asynchronous small group communication. We introduced the Thunder client to the students, loaded onto the tablet PCs. Students were divided into three groups and asked to consider, within the groups, factors in the rise of Stalin. During this activity, of approximately 15 minutes, no conferring occurred between the groups. Within the groups, students either typed notes into a word processor, or drew them freehand using the tablet PC software. At the end of the group activity, the groups each sent their notes to Thunder simultaneously, using the client program. Next, a plenary discussion was held, in which the tutor was able to identify the common threads in the students' work and to point out the differences in perception of the material that were apparent.

The third session comprised two distinct tasks. The first task asked the students to draw non-mimetic representations of *"liberal democracy"*, with Lissitzky's famous 1919 lithograph *Beat the Whites with the Red Wedge* as an inspiration. The second task, meanwhile, built upon the previous session and required student groups to consider the factors affecting the different pre-war outcomes for liberal democracy in Italy, Germany and France. This time, however, the group communication was synchronous, meaning that each group could see the work being undertaken by the other groups as it was happening, since the activity on the groups' tablet PCs was constantly projected on the wall.

The fourth session was structured as a debate on military and political tactics in China during the Civil War. Two large teams represented, respectively, the Chinese Communist Party and the Kuomintang, while a third, smaller, team acted as arbiters for the debate. The Thunder system was used to summarise arguments within the lengthy debate, such that they could be conveniently referred to later. The system was also used to present questions to the two opposing camps by the arbiter team.

During the process, we utilised ethnographic techniques such as
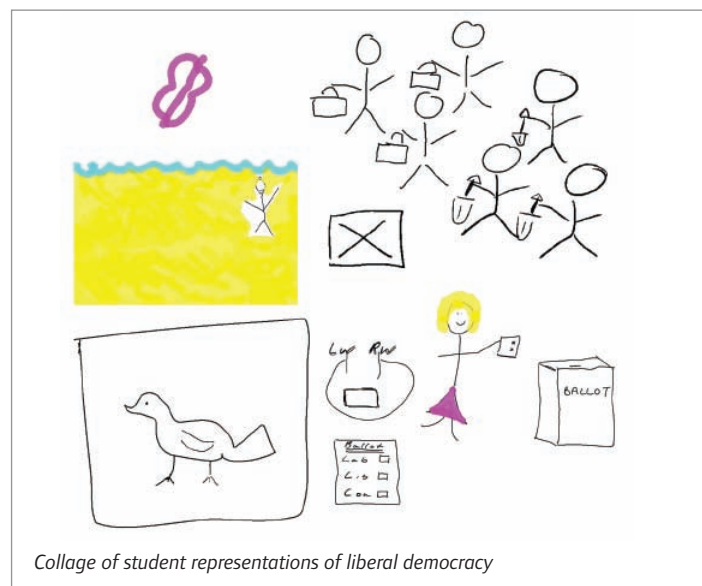
Collage of student representations of liberal democracy

video recordings and field notes to assess the effectiveness of the technology and the teaching scenarios in meeting our objectives. We used critical incident technique to analyse the video footage, with Bielaczyc's Social Infrastructure Framework and Astin's theory of student involvement used to construct incident categories. We also worked with the tutor to film a reflective video diary immediately after each session, and elicited additional student responses through questionnaires and two recorded focus groups.

Evidence of success

In brief, our results showed a gradual increase in confidence with the system, which seemed to echo the inevitable increase in familiarity between members of the student group, and between students and the tutor. The first activity was successful in introducing the students to the system and overcoming initial levels of apprehension. The tutor was able to show the students that she was learning the system along with them, allowing learners the freedom to make mistakes when using the system without attendant feelings of guilt or incompetence. Video analysis of the first session showed that when presentations were focussed around an individual speaker, then the attention of the audience was directed at the speaker and the easel, rather than at the simultaneously displayed pages. This scenario shared some similarity with our previous work using Thunder with students from the School of the Built Environment, so in fact we were happy to re-confirm our previous results in this instance.

The group work exercises in the second and third sessions worked very well. Students were able to discuss topics in depth during the breakout sessions and produced quite significant sets of notes to contribute to the plenary discussions.

Some student groups typed bullet-pointed notes into a word processor, while others chose to draw diagrams and hand write and utilised more colours in their presentation. Perhaps the aspect of these sessions which most confounded our expectations was that student behaviour in the asynchronous and synchronous activities seems to be very similar. Video evidence seems to indicate that this might be because student attention, during the synchronous sessions, was directed inwards within the group, rather than outward at the multiple projected screens where the construction of work was being displayed.

The exercise involving the drawing of abstract diagrams by students proved controversial. At the beginning of the session, many of the students claimed not to see the relevance of the exercise. After some persuasion by the tutor, students were persuaded to draw the diagrams. A few attempted artistic renditions of liberal democracy, while others utilised formulaic representations such as ballot papers. The ensuing discussion, however, proved to be a rich discourse about what constituted liberal democracy and what assumptions underpinned it, with some of the more stereotyped representations drawing considerable critical attention. Ultimately, the exercise was seen to have been valuable by the tutor despite the divided opinion among the students.

Finally, the Thunder system's use during the structured debate allowed the discussion to adopt highly structured and complex lines of reasoning, which took into account many facets of the political and military strategies involved, rather than merely constituting query-response patterns and verbal confrontation.

Outcomes

The most tangible direct outcome of the project was that the History tutor, Carole Mallia, was recognised for her innovative seminars by being presented with a University of Nottingham Postgraduate Teaching Assistant Award (see page 2). After accepting the award, Carole reflected the aims of the project when she said: "Working with Brett and the VLL team certainly helped me gain confidence in using unfamiliar technology, and has made my approach to learning and teaching more open and confident. Feedback from students was particularly positive in the potential for using the Thunder in seminar teaching, as well as for their own study and preparation. The fact that students were spending more time thinking and responding to others in seminars, rather than taking notes, seems to have been one of the most beneficial aspects for them, and was my main aim for participating in this project".

While this project was rooted in History Education, it must be emphasised that the theories we used – of student involvement and the integration of technology, space and learners – were designed to influence the design of teaching and learning scenarios in a very general sense. Equally, many theories of learning interactions are domain-neutral. Our only pre-requisites for this project were interesting visual representations and a willingness by tutors and students to engage with new technology-supported methods which would inevitably impact upon their classroom practice. In theory, our project is applicable to a range of other domains while, in practice, we are already undertaking similar sets of activities, using the Thunder system, in conjunction with the School of Classics and with the MA course *ICT in Education*.