

International multimedia for teaching education?

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Abstract. The University of Exeter, in England, with support from the Higher Education Funding Councils, led a consortium of four universities in a project which developed a range of multimedia resources for student teachers in the UK. The resources were designed to enhance and improve courses and to extend teaching and learning styles. Dissemination of these resources within UK higher education is now underway through the Telematics Centre at the University of Exeter. Colleagues from within Europe, North America and Australasia have shown an interest in these materials. This paper describes the resources and raises the issue of their relevance to communities outside the UK.

1. Introduction

The University of Exeter developed a range of multimedia resources for student teachers, to enhance and improve courses across the UK. Dissemination of these resources within UK higher education is now underway and the materials have had some exposure across Europe, North America and Australasia. This paper raises the issue of their relevance to communities outside the UK by considering their transferability from three angles:

1. The multimedia resources themselves.
2. The styles and framework of teaching and learning.
3. The focus of the materials to compare and contrast approaches to education.

1. *Multimedia resources.* This paper will focus on three multimedia resources developed in the project. Two were filmed in classrooms in the UK and the other is made up of landscape scenes from an area of England. This clear UK root makes it interesting to consider whether these resources have a role to play elsewhere. Could video of an English classroom enhance courses for teachers outside the UK? Despite cultural and structural differences in education, would video which focuses on either classroom management or use of multimedia in the classroom in the UK be of interest to other audiences? Perhaps a generic framework for viewing landscape, although based on UK scenes, does have a place in education in wider contexts. Could the materials be used to approach a situation from a different angle, or are the strategies depicted for the classroom, or the study of landscape, too dependent on the 'geography', culture and accent displayed in the resources?

2. *Styles and framework for teaching and learning.* The project has had a focus on different styles of teaching and learning, in particular looking at the power of the image, and how its use can enhance teaching and learning. It has also developed a framework for flexible learning. These ideas should not have a cultural bias. Perhaps these aspects of the project are of value to colleagues outside the UK, even if the materials themselves are not.

3. *Comparing and contrasting approaches to education.* Finally, the issue of whether or not the resources as they stand are felt to be of value to initial teacher education outside the UK. They provide data and a stimulus for discussion of issues in comparative education. As such they can take their place alongside other materials which offer examples of classroom practice in the UK. There is no claim, however, that they are 'typical', or even representative. Such claims would raise issues of how differences *within* countries compare to those *between* countries.

With these three points in mind, this paper describes the national initiative, the Images for Teaching Education project and the resources developed.

2. The Images for Teaching Education project

The funding councils for higher education in the UK have an innovative programme, the 'Teaching and Learning with Technology Programme' (TLTP) which to date has funded two phases of projects, with a third phase supported by the England and Northern Ireland funding councils, due to start in 1998. TLTP aims to increase the efficiency and quality of learning in higher education throughout the UK through the application of new technologies. Within the second phase of projects 'Images for Teaching Education' was successful in its bid to develop and implement multimedia resources relevant to Initial Teacher Education. The project was led by the University of Exeter in collaboration with the University of Reading, Sheffield Hallam University and the University of Northumbria. It created, and is currently disseminating and implementing, a range of multimedia resources which are designed to enhance and extend initial teacher education throughout the UK. A framework for implementing the use of the resources has also been developed [5].

There are three main strands within the project:

- Critical Encounters in Secondary Education;
- Multimedia in the Learning Environment;
- English Chalklands.

This paper will review each of these strands of the project as it addresses the questions raised in the introduction.

3. Critical Encounters in Secondary Education

Critical Encounters in Secondary Education [9–12] takes some 'key' or 'critical' moments in school settings and explores different strategies to help student teachers manage these and other situations effectively. Whilst it is impossible to completely recreate reality outside the school, image-based technologies allow surrogate classroom experiences to be available. These may be used to stimulate focused interaction and discussion between student teachers and their tutors, as well as providing resources which cater for a more flexible approach to learning.

Practical training in classroom situations is of undisputed value in student teacher education. The recent UK government initiative to increase the proportion of time student teachers spend in the classroom supports this belief. However, it is impossible to provide all students with the necessary depth and breadth of experience. Similarly it is only possible to learn from complex experiences when they can be reviewed in an objective way. Whilst this is a valuable and central part of the mentoring process currently in place at the University of Exeter [8], there are limits to the extent of this practical experience. There are also



Fig. 1. 'Move over there now'.

some situations which a student teacher does not meet and others which it may not be desirable for them to experience firsthand within their school-based work, but which nevertheless do occur in classrooms. The authors argue that discussion of the positive management of such situations has a place in teacher education courses.

The multimedia resources developed in this strand of the project give the user access to short video clips of classroom scenarios. Each depicts a scene, the management of which could be of critical importance to the subsequent smooth running of the lesson and provision of a good learning environment. There are video clips showing a teacher faced with managing various types of disruptive behaviour in the classroom, such as the spraying of a deodorant aerosol or two girls shouting abuse at each other across the class. Another clip shows school students directly challenging the teacher's authority by, for example, being heard to say 'Don't worry about her, she's only a student teacher'.

Some clips focus on occurrences such as students disturbing a lesson by coming into class late, a teacher requesting a student to move seats and a pair of students who are chatting and off task throughout the lesson.

Each of these sequences is about 30 seconds long and, in most cases, they are accompanied by several associated 'outcomes' or ways in which the incident could be managed. In some cases there is also a clip showing how a different style of management might have altogether averted the incident. The 'outcomes' are not to be taken as the best, or only, way to manage the classroom. Instead they are provided to encourage discussion and reflection.

The clips themselves are designed to offer stimulus for discussion, and it is envisaged that the majority of the discussion will take place after viewing and reviewing the 'stem', which shows the actual 'critical incident' rather than the associated outcomes. Previous research [16] found the availability of 'outcomes' enhances, but was not crucial, to the discussion.

The clips are currently published on videodisc (both PAL and NTSC) and videotape. The material on videodisc is accessed via a light pen wiped over a bar-code. The videodisc is accompanied by a wealth of bar-coded support materials to allow for a variety of modes of use. For example, some materials are designed to support university tutors and mentors in using the videodisc resource to lead a tutorial session with a group of student teachers. Others are specifically written as flexible learning materials to allow a group of student teachers to work in a self-supported manner at a distance from their tutor. There is also information available to support and encourage users who might wish to customise the resources or to generate their own materials.



Fig. 2. Two school students using multimedia to support work in mathematics.

Videodisc technology allows rapid random access to the video footage which is displayed at high resolution. The bar-code contains information to directly control the videodisc player so no computer is needed. This makes the delivery hardware low cost and the resource transferable. The second audio track available with this technology offers additional possibilities to enhance the usefulness of the materials. In this instance, a commentary which raises issues for consideration is available for some of the sequences. This has been shown [14] to be of particular use for small groups of students working at a distance from a tutor. A digital version of the resource is under production and will be available on CD-ROM by September 1998.

4. Multimedia in the learning environment

This is a resource for users new to educational multimedia. It is designed to promote effective use of multimedia and to develop understanding, knowledge and confidence. It addresses the question of *What is multimedia?* and *How can it promote learning?* by providing information and raising issues for discussion and further research.

This too is a videodisc-based resource supported with printed materials. The 34 short sequences are divided into 6 chapters which address issues such as the management of multimedia in the learning environment, examples of applications of multimedia to education and various aspects of learning with multimedia. There is also a short section which illustrates and describes some of the technologies used.

As with *Critical Encounters*, a range of modes of use are encouraged and catered for in the support materials. This resource is particularly well suited to use in an open learning environment for student teachers to access to address their own needs.

5. English Chalklands

This resource, based on a bank of still images of landscapes, illustrates the main types of rural land-use, rural vernacular architecture and some of the principal prehistoric sites in a region of England known as the Chalklands. It provides opportunities for exploring technological, socio-economic and aesthetic perspectives on landscape as well as the more usual geographical content. Although the resource has



Fig. 3. A sarsen cottage in Oxfordshire, UK.

been designed primarily to support teacher education courses, it is also of direct relevance to many UK undergraduate courses.

The main aim of the resource was to provide the user with a generic approach to the study of landscape. Students in the south west of England, for example, will often use the resource to learn how to set about the study of landscape. This will then allow them to work within the framework provided to study the particular landscape in their part of the country. In this way it may be a resource transferable also to students in other countries. Additionally to a non-UK audience the content of the images may also be of relevance as they are 'very English'. They depict many scenes unique to this area of England and it may be that from this angle it is of interest to colleagues and students outside the UK.

The resource comprises 100 still images, each accompanied by a soundtrack, accessed through a branching menu structure. The soundtrack contains questions for consideration and discussion as well as informative comment.

This resource is laid onto a Photo CD Portfolio and as such can be used on a photo CD player, a CDi player. It can also be viewed through a CD-ROM drive on either a Mac or PC, but was not specifically designed for this mode of use.

6. Application of technology

As well as being a user friendly and efficient way of enhancing existing provision for the topic of class management, issues around the use of multimedia in education, and the study of landscapes, the resources also give student teachers and university tutors an opportunity to use and see the use of one of the many technologies available to them today. Although confidence and competence with information technology is one of the criteria for UK student teacher education, current research continues to show that almost a third of UK student teachers enter upon a course with little or no awareness of its application in education [1] and few have experience of learning through IT.

7. International application

Reports from many countries suggest that the UK is not alone in seeking to prepare student teachers for a wide range of classroom situations they will have to face, or to recognise the importance of

preparing new teachers to enable them to take advantage of the multimedia opportunities now available to them. Footage taken in classrooms in The Netherlands, Australia, USA and Canada, which was reviewed within this and previous projects, would seem to parallel incidents used in Critical Encounters. Critical situations in the classroom such as these are not restricted to the British Isles. So although these multimedia resources are being developed within the UK framework for education, it is felt they may have relevance to a much wider international audience.

The resources could be used in one of several ways; either as complete items, or, for example, a videodisc and its access index could be used to allow users in other countries to use the footage for their own purposes, or simply to illustrate an approach. Thus the footage used on its own as a stimulus for discussion may well be of value. The support materials are designed to focus the viewer on issues of verbal and non-verbal communication, movement and position of the teacher in the classroom, use of threats and sanctions, etc. Many of the comments and strategies offered are likely to be relevant to users outside the UK. In addition, the instances which appear to offer a very 'British' approach could be of interest to those involved in comparative education or to raise intercultural awareness.

The second way in which the materials may be of interest to a wider audience is simply to illustrate this way of using image-based materials to stimulate discussion. In the UK there has been considerable interest in this particular application of technology [15].

Recent advances in multimedia telecommunications provide new opportunities for the resources to be accessed or shared with colleagues outside the UK. Samples of the materials are on the WWW (<http://www.ex.ac.uk/telematics/>), and sessions working with colleagues in other European countries have been undertaken using an ISDN videoconferencing link.

8. Other media for images

CD-ROM versions of the resources are under development, but it is felt that the choice of the medium is important. It must take into account both accessibility and the ability to empower student teachers and university tutors to adopt both the approach and the materials within their own teaching. The reformatting of the materials for dissemination on CD is therefore one of redesign and repurposing, not simply a technical issue of a change in format. It is envisaged that a 'Net-linked' CD, or 'CD-NET' will be produced. This will allow the WWW to play a role in offering a discussion forum and updating facility.

9. Conclusion

The evaluation and trials of these materials showed they were valued in the UK. They have also been presented at conferences abroad (EdMedia '96) and shown to colleagues across Europe through the Telematics for Teacher Training (T3) project. Through this paper and these activities, the question: *Is multimedia for teaching education an internationally transferable resource?* is addressed.

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