

The Transfer of Educational Multimedia Across Professional Boundaries

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SUMMARY

This paper addresses issues of transferability of multimedia materials across professional boundaries. It describes certain aspects of the development of a multimedia resource for teacher education, with particular reference to the integrative learning framework in which it was embedded. It then describes the process of adapting the framework to develop a training resource for a different profession and target audience, and applying it to this new audience and context. The paper concludes with a general discussion arising out of this work, regarding those features of an integrative learning framework which may be transferable and those which are more situationally dependent.

INTRODUCTION

The focus of this paper is on the transferability of elements of the design and development of a multimedia resource from one that addresses classroom management in teacher training to one that supports the training of estate agents in the UK (known as realtors in the USA).

There are many examples of creative deployment of ICT being used to address a range of training needs, and some research has been undertaken which examines the effectiveness of this – see, for example, Shyu (2000), Ellis and Childs (1999) and Hawkrigge *et al.* (1988). However, when it comes to the creation of a new multimedia resource, the process of identifying which aspects of training can best be met, and then structuring the necessary pedagogic and design framework, is complex and time-consuming and also benefits from multidisciplinary teamwork (Dillon *et al.*, 1998). Many of the underlying principles of learning and design might be generic and transferable across situations, but these must be applied in different ways for specific purposes and target audiences (Tearle and Dillon, 2001). There is a need to get a better understanding of the balance between those elements which are potentially generic

or transferable, and those which are more situationally dependent.

In order to design and develop the multimedia resource *Critical Encounters in Secondary Education* for initial teacher training, an integrative learning framework was developed (Dillon *et al.*, 1999). The term ‘integrative learning framework’ is used to describe the educational framework within which the resource was designed. Use of the word *integrative* is in recognition of the way the framework attempts to maximize the fit between the characteristics of the media adopted and a range of different approaches to teaching and learning. This paper focuses on elements of the integrative learning framework which could inform, and were transferable, to the design and development of a multimedia resource for a completely different purpose and profession: the training of estate agents in the UK.

CONTEXT

The original resource, *Critical Encounters in Secondary Education*, was developed by the Telematics Centre, at the University of Exeter School of

Education, working with colleagues from four other UK universities, under the Teaching and Learning Technology Programme (TLTP) (Dillon *et al.*, 1999). TLTP was an initiative established by the UK higher education funding councils, to increase the efficiency and quality of learning in higher education throughout the UK through the deployment of technology. *Critical Encounters in Secondary Education* focuses on issues of classroom management in secondary education in the UK (taken here as 11–16-year-olds), an area high on the agenda of teachers and student teachers.

The initiative for the subsequent resource for estate agents came through exploratory cross-sector work between the Telematics Centre and the Property Services National Training Organisation (PSNTO) to consider the training and assessment needs of estate agents within the UK. *Critical Encounters in Secondary Education* provided a powerful and visual stimulus for focused discussion given its role within a professional development remit for trainee and practising teachers. The multimedia resource, and the integrative learning framework within which it is embedded, were used to form the basis of a design and pedagogical framework for the development of new multimedia training materials for estate agents. This development also provided the opportunity for a practical synergy between academia and business.

Estate agents provide an important service within the UK economy but have a poor public image, sometimes attributed at least in part to their lack of relevant training. The wide dispersal of offices, together with the nature and economics of the work, makes conventional training difficult to access. Some of the more situationally dependent settings within the profession have also traditionally proved hard to provide high-quality training for. It was felt that a new image-based flexible learning resource, addressing some of the known problem areas, could provide the key to a new approach to training in the sector.

THE ORIGINAL RESOURCE: CRITICAL ENCOUNTERS IN SECONDARY EDUCATION

Critical Encounters in Secondary Education focuses on issues of classroom management in secondary education in the UK. The multimedia resource is designed to support and enhance formal and informal training situations and provide further opportunities for flexible learning in different settings. It is based around 144 very short (between 15 seconds and one

minute) videoclips, set into an integrative learning framework.

It was important to ensure the design and the layout of material incorporated forward thinking about possible modes of use and differing learner needs, so the resource would have enough flexibility built into its layout to allow it to be used to support a range of teaching and learning styles, and be appropriate for a range of audiences. For example, it is directly accessible to learners (student teachers) as well as practising teachers and teacher trainers. Similarly, in some modes of use it can be very loose and open-ended, in other ways a trainer, or learner, can be operating in a highly structured and well-supported environment. This led to the development of the integrative learning framework.

Originally the materials were developed for use on videodisc (controlled through use of a barcode reader), with videotape and paper-based support materials, as well as a commentary on the second audio track. The resource was then redesigned for dissemination on CD-ROM, and has been used for training sessions via a video-conferencing link as well as within web-based learning environments. In each case careful consideration was given to the way the materials were made available to users to ensure the principles behind the learning framework designed originally were maintained. Currently, further developments for Internet-based use are under discussion.

An important feature of the resource is the use of visual and audio stimuli, in particular through the use of videoclips. These videoclips are used as a primary data source to stimulate discussion and promote collaborative and inquiry learning and are not simply for information (Smith and Blankinship, 2000). The way the videoclips are made accessible to the learner, how they are structured and the process of ensuring they portrayed practice which seemed to the viewer 'realistic', as well as containing the particular points which the storyboard identified, are all seen as central to this objective of stimulating discussion to promote learning. Figure 1 shows the main menu from the *Critical Encounters in Secondary Education* CD-ROM. It illustrates the open and non-linear structure of the resource, allowing a learner to draw on video stimuli as required, with the minimum of 'hindrance' of a branching or hierarchical menu structure.

Most of the videoclips are described as being either 'stems' or 'outcomes'. The stems are short videoclips of typical classroom (workplace) situations leading

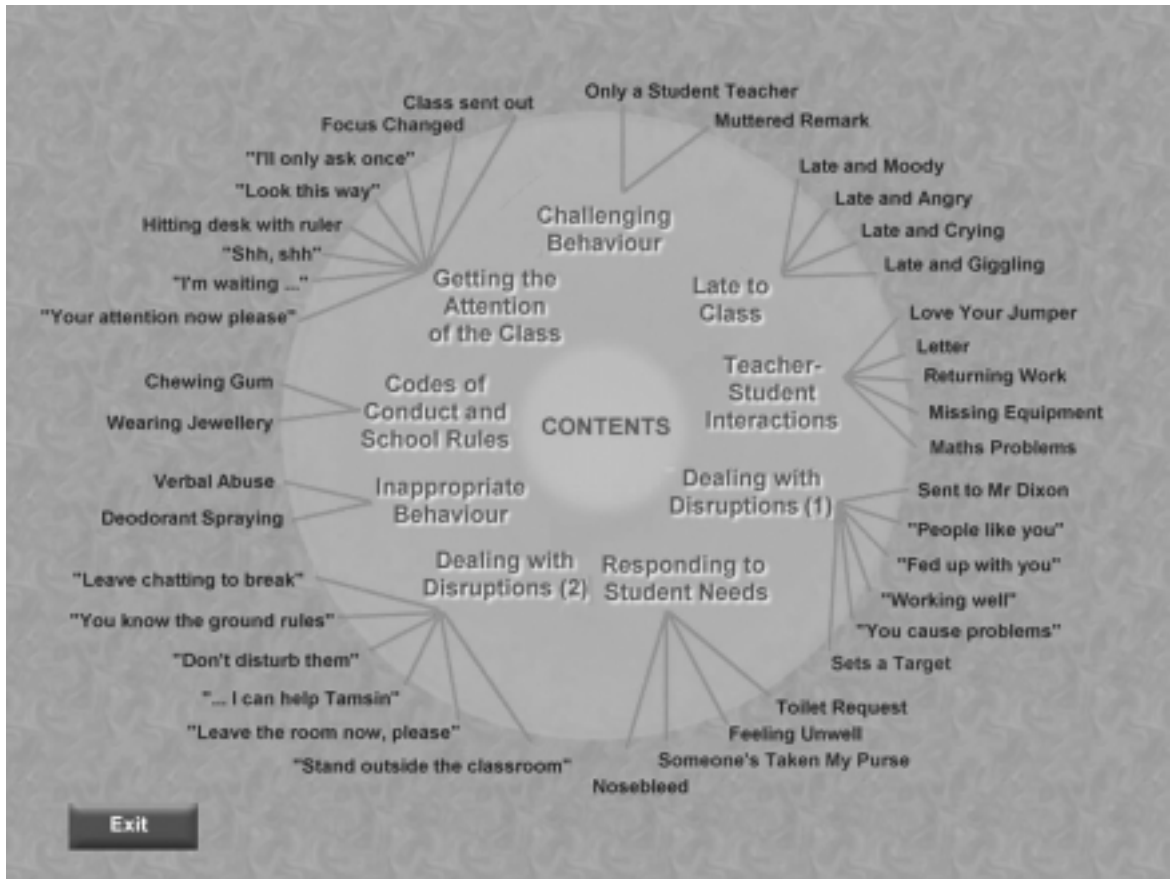


Figure 1 Main menu screen from the *Critical Encounters in Secondary Education CD-ROM*

up to a point where some teacher intervention might be expected. Each stem has between two and five associated outcomes which show a range of ways of responding to the situation. Figure 2 shows a screen from the *Critical Encounters in Secondary Education CD-ROM*, when a learner has just viewed the 'stem' of a situation, and now has the option to view it again, select one of the associated outcomes to review, or move to a different section. Suggested ways of using these clips to promote active learning are given on the resource as well as in accompanying materials.

The other particular features of the video clips are with regard to acquiring 'realistic' footage, content and the 'labelling' of sequences.

In order to try to capture authentic material, trial filming was undertaken to test the use of scripted dialogue versus broad storyboarding, and also the use

of teachers or actors. This resulted in the decision to work with teachers, experts in the subject and not of the media, and to provide an outline storyboard rather than a complete script.

With regard to content, research was undertaken into what type of situations, as well as common ways of handling them (both those likely and unlikely to be considered good practice), would be of most interest and value to student teachers. Practising teachers, student teachers, teacher trainers and school students all contributed to the research, which allowed a collection of outline classroom situations to be developed. Considerable importance was attached to the provision of a wide range of ways of handling these situations, and this relates to the purpose of the video as a primary data source and not simply information. The video clips included both positive and negative attributes and role models of practice. This was the subject of much discussion prior to

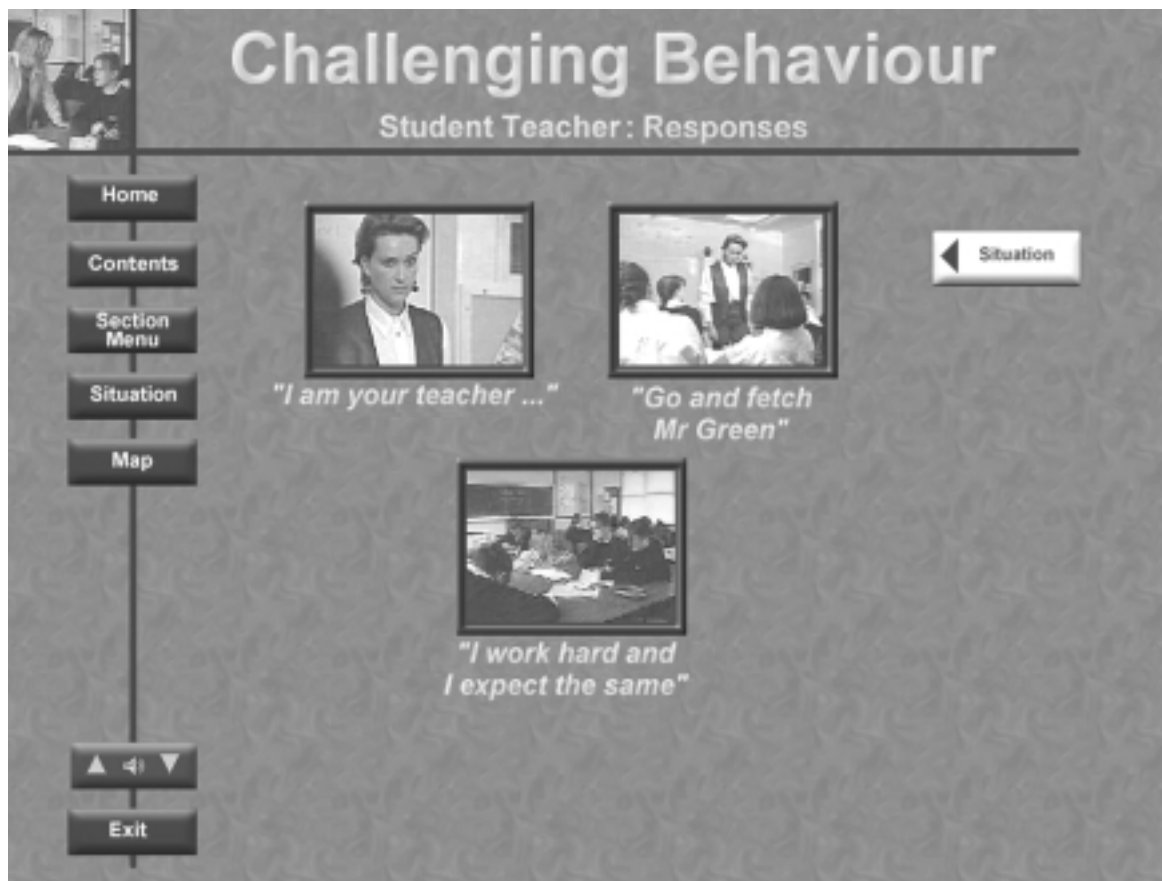


Figure 2 Screen of 'outcomes' from the *Critical Encounters in Secondary Education CD-ROM*

filming, but interestingly was never challenged once the videoclips were in place. Whilst there was wide recognition that there is no single correct way of handling one situation (Kyriacou, 1998; Watkins and Wagner, 2000), some users were perhaps still looking for a 'lesson' in 'how to do it right'. There was perhaps less familiarity with a 'non-instructional' resource like this where the images were to provide rich contexts in which authentic situations could be explored and inquiry learning could take place. In fact, careful reviewing of clips reveals that even short clips contain so many facets of behaviour that to depict any one videoclip as simply 'good' and 'bad' would be inappropriate.

Care was taken in the labelling of videoclips, and in the optional commentary to try to avoid any prior subjective view as to the nature of the way the teacher handled a situation, for example, a phrase taken from the natural audio of the videoclip might

be used as its identification such as 'What went wrong?', rather than 'ineffective teacher behaviour'. Some recognition of humour was encouraged within the clips, as it was found this helped to engage users, diffuse potential unease and encourage interaction.

This whole process of creating the videoclips and embedding them into a carefully structured integrative learning framework was felt to contribute significantly to the quality of the resource.

THE NEW RESOURCE: CRITICAL ENCOUNTERS IN ESTATE AGENCY

It was decided that the training resource for estate agents, named *Critical Encounters in Estate Agency (CRESTA)*, would concentrate in the first instance on just one aspect of the work: the 'Selling Process' as undertaken by front-line sales negotiators working for estate agents UK-wide. It was here where the

parallels with the learning outcomes around which the education resource were developed, were strongest. The negotiator (front-line sales person) in an estate agent's office has to learn to manage discussions with prospective buyers. For example he/she must learn to assess whether or not a client seriously intends to buy, to uncover what the buyer's needs are, even if they cannot express them clearly, and then to match needs to the properties available by explaining the features of the property in such a way as to show how they are of specific benefit to the prospective buyer. In this situation it was felt, as with teacher education, that videoclips of authentic practice were of particular benefit, and that to see a range of practices involving different negotiators would be useful.

The CRESTA resource therefore drew on many of the features of the integrative learning framework developed for the teacher education materials. It used videoclips structured in a similar way to those in Critical Encounters in Secondary Education with a general introductory audio commentary for each section, and accompanying text so the stages in the process were clearly exemplified and the learning points illustrated. This resource was designed primarily for use in support of formal training situations but could also be used for flexible independent or group study, and has a user-friendly interface and navigation system. The CRESTA resource provides links into the National Occupational Standards for estate agents in the UK and was developed initially for CD, though it is envisaged, and was anticipated throughout, that products developed as an outcome would also be available online.

DEVELOPING THE NEW RESOURCE

In terms of the planning, there were two main phases: the identification of user or 'learner' needs and then the adaptation of the integrative learning framework. In each case it proved most useful to go back to the structures used when building the original resource, ask similar questions, and look for common and new ground.

Identification of learners' needs

It was important to identify clearly the requirement of the 'new' resource, and to be clear about common ground and also key differences for the two resources.

A number of features common to the needs of the both sets of learners (student teachers and estate agents) were identified. These included:

- *Surrogate experience*: the need to provide an authentic surrogate experience, due to the difficulty of providing learners with sufficient access to a wide range of 'real' classroom/workplace situations.
- *People management*: the need to help learners develop their own 'people-managing' and decision-making skills in relation to common workplace settings.
- *Ease of use*: the need to develop a resource which was intuitive to use, and provided structure but not restriction.

There were also differences recognized between the groups:

- *Professional development/training*: student teachers are, by definition, following some form of course, and as such, are set in an education context. Estate agents are essentially employed to do a job, with limited opportunities for training, the value and priority attached to training also differing significantly between companies. Estate agents are therefore likely to approach training in a different way from student teachers, probably with less experience of it, and perhaps be less comfortable with it.
- *Support for learning*: in most cases the student teachers were following a full- or part-time course, and likely to be working with others in the same situation. Most, therefore, had good access to someone experienced in the field, such as either a practising teacher or teacher educator. The same was not true of the estate agents' situation, where, although there may be good practice in the workplace, it was often difficult or less acceptable to make use of this in a learning situation. The estate agent may also find her/himself working in isolation from others learning the profession.
- *Learning styles*: existing training materials and courses within estate agency are usually of a quite formal and tightly structured style. Within education, however, a whole range of learning styles are likely to be experienced.
- *Workplace experience*: the estate agents bring to the training everyday real-life experiences, as training forms at most, a small part of their working routine. Student teachers may well be

using this resource with little or no real classroom experience.

- *Familiarity with the workplace*: teachers are working in a familiar setting of a classroom, where they spent many years as a pupil. Estate agents have often come new into a completely unfamiliar setting.
- *Externally defined elements*: the estate agents were in general linked into a common national training outcome, for which use of this resource could provide 'evidence'. There was rarely a formal assessment outcome required by student teachers working with this resource, but a common motivation of wanting to improve classroom management skills.

Adapting the integrative learning framework

When developing the CRESTA resource, the appropriateness of the integrative learning framework

developed for the teacher education materials was considered carefully, and it was decided that there were both transferable and situationally dependent features. With the two specific situations described here, the largely transferable features included:

- The structuring of videoclips into 'stems' and 'outcomes'.
- The use of appropriate and less appropriate actions for each situation.
- The use of outline storyboarding for each clip, to ensure that important behaviour, words and body language were covered, but not to provide a word-for-word script.
- The use of professional negotiators to be the subjects in the film rather than to use actors, with members of the public as 'buyers'.

With regard to the more situationally dependent features, it was noted that in view of the expectation

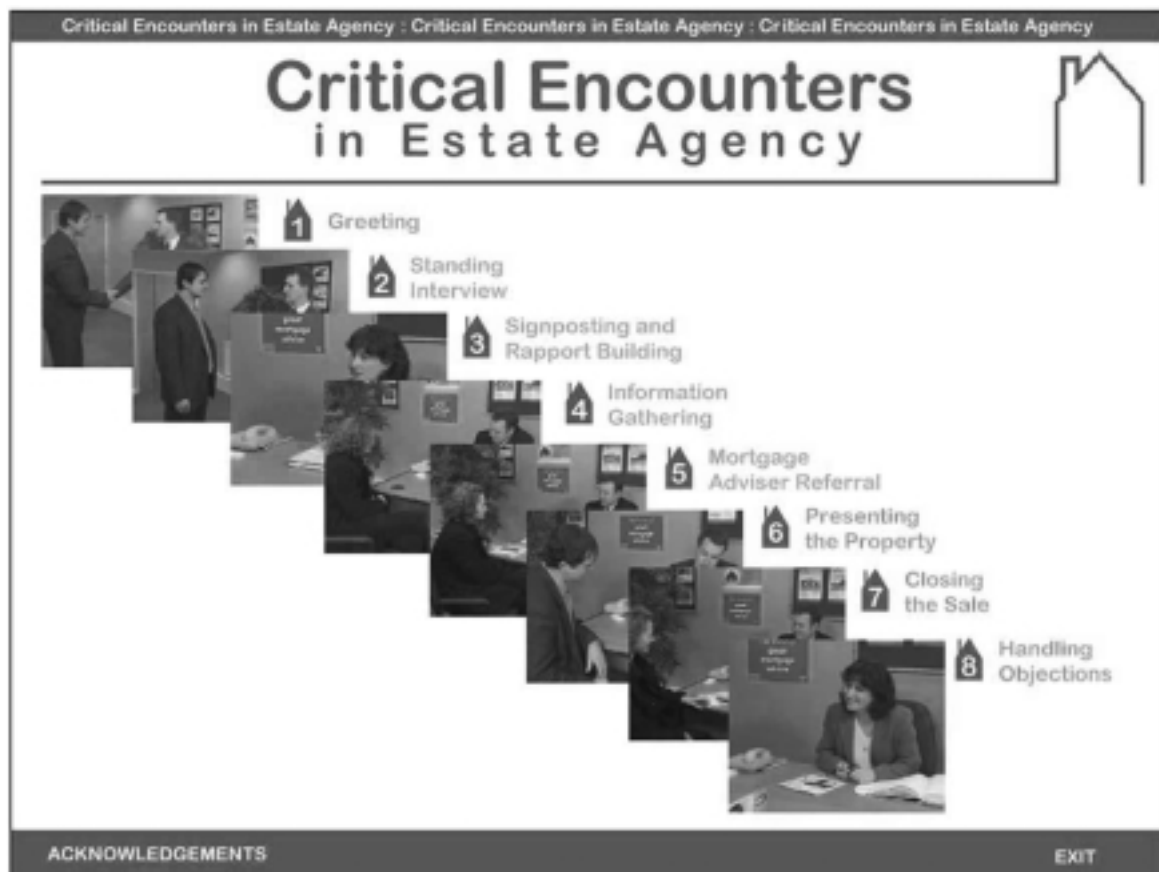


Figure 3 Main menu from the CRESTA CD-ROM illustrating the Selling Process

of a structured learning style, as well as the fact that the situation being dealt with, the Selling Process, had quite a clear ordered structure to it, the resource should offer a suggested but not constraining sequence for working through it. Within a section the learner could call on the available video clips and support pages as he/she felt fit. This necessitated breaking down the Selling Process into its component parts to provide a linear structure as shown in Figure 3.

In comparison with the 'expected' style of training materials within the profession, it was felt that this resource promoted a significant move from quite a didactic instructional model to one which was more inquiry-based. In recognition of this, the multi-discipline development team decided that in this resource the video clips would be given labels which described the general manner in which the situation was handled. Whilst it was agreed not to use the

words 'good' and 'bad', the labels used on the CRESTA resource generally gave the learner a subjective statement about the sequence he/she was about to view. For example, one was called 'rude and indifferent' another 'friendly and effective'.

Similarly, the learning points (offered through a text screen) noted specific points for each situation, which are not intended as, but could be interpreted as, a set of rules (see Figure 4). In the education materials the framework was much more open, simply directing the user to a particular gesture, or comment, for example, 'look at the teacher's body movements as she turns to face the board'. Student teachers were also provided with a structure for working with the materials, designed for a situation when a group of student teachers were working together without a tutor. It was not felt to be necessary or useful to provide this for the estate agents.

Critical Encounters in Estate Agency : Critical Encounters in Estate Agency : Critical Encounters in Estate Agency

Signposting and Rapport Building

LEARNING POINTS

Rude and indifferent

The Negotiator:

- fails to build rapport
- makes no eye contact
- uses a clipped questioning style
- responds rudely to the customer's request
- fails to say excuse me when answering the telephone

No bonding here - infact the customer is lost - probably for good!

Back Continue

ACKNOWLEDGEMENTS CONTENTS EXIT

Figure 4 Learning points from one stage in the Selling Process

The other point was with regard to the computer literacy of the estate agents. Previous research (Residential Estate Agency Training and Education Association, 1997) showed that the IT capability of the majority of estate agents was not well developed, so particular care was taken to ensure that navigation through the materials was as clear as possible.

THE THEORY UNDERPINNING THE INTEGRATIVE LEARNING FRAMEWORK

Many features of the integrative learning framework developed for Critical Encounters in Secondary Education have been described in this paper. The framework was underpinned by a constructivist approach, based on the theory that each student will bring with them different prior experiences, and they will tend to generate perceptions and meaning consistent with these prior experiences. Through application of this framework, the education resource was therefore designed to accommodate prior knowledge, user expectations, and affective as well as cognitive features (Dillon *et al.*, 1999).

Some may feel there is some behaviourist approach evident within the learning framework, characterized by some serial structuring of material (this may be stronger for the slightly adapted framework for the CRESTA resource, discussed below). This combination of constructivist and behaviourist approaches to the multimedia design aspects of the resource were common in the early to mid-1990s (Atkins, 1993; Beruvides and Koelling, 1994).

It should be noted that this discussion is with regard to the design of the learning framework, and not for the approach to the topic of classroom management. However, application of the integrative learning framework enabled users to consider the wide range of schools of thought on the subject of classroom management as well as the different theoretical frameworks underpin the understanding of behaviour (Burden, 1995).

USER FEEDBACK

Evaluations of both resources were undertaken in several settings, in each case covering formal and informal training situations. There was very positive feedback from both sets of users, trainers and learners alike. In both cases the use of the resource to support a formal learning situation was the strongest. It was felt that access to the videoclips, when used

within a structured session, was extremely powerful, and perhaps the 'chosen' training solution.

When used as a flexible learning resource, it seemed that there were far more opportunities, and it was far more acceptable practice, for student teachers to work in small groups (in order to facilitate discussion and promote learning), than for estate agents. Those in the latter profession were in almost all cases working in isolation. Some interesting points emerged from the evaluations, which perhaps illustrate some key differences between the way the two target audiences are used to working. One of these was with regard to time spent working with the materials. In several of the CRESTA evaluations comments were made about wanting guidelines as to how long should be spent working through the materials, or on any one section. The trainers often wanted to know how many 'training hours' the resource provided. There was no mention of time taken on any of the questionnaire responses from users of Critical Encounters in Secondary Education, either student teachers or tutors.

Technical problems were far more prevalent for estate agents than within education. Whilst this might have been partly due to the resource itself, it was felt that the education setting was, at the time of the trials, much better equipped to handle the use of ICT-based training materials.

DISCUSSION: THE TRANSFER ACROSS PROFESSIONAL BOUNDARIES

The broad structure of the resource, and the use of videoclips to provide surrogate experiences, were found to be transferable across professional contexts. The original resource was built on a sound integrative learning framework, and it was evident that this, in the main, provided the vehicle for transferability.

Reference has already been made regarding some of the differences in target audience and contexts for the two resources discussed in this paper. Student teachers, although encompassing a wide range of settings and situations, are set in a clearly defined educational context. The business workplace presents a whole new set of challenges in respect of the design of multimedia training materials. The learning which takes place here may be termed 'occupational learning', and it must be undertaken within the complex and different structures and cultures of various business contexts. Every workplace is characterized by a number of different

forms of knowledge, most of which have a high level of situational dependency – see, for example, Blackler (1995) and Saunders (1998). This is true not just between different business sectors, but also across workplaces within a profession such as estate agency. For example, Saunders (1998) refers to different company ‘cultures’ as comprising of shared knowledge, beliefs, ways of acting and norms governing social interaction. Not only will the ‘cultures’ be different, but there are likely to be different levels of commercial sensitivity and confidentiality, and different formalized and encoded routines and procedures between companies within a profession; things less prominent in the formal education sector.

The main areas to which attention had to be given and changes made have been noted earlier. The key one was possibly that of the context and constraints on training for the estate agents. It was felt that had the CRESTA resource been developed for use by someone from an education background, working regularly in a ‘face-to-face’ situation with a group of estate agents, then less changes to the framework would need to have been made. As it was, given that the materials might be used by a single trainee, or a trainer who was more used to working with a very structured set of materials, it was considered necessary to develop a slightly more structured resource through which the required learning outcomes were more likely to be achieved.

The different expectations placed on training materials by business and education users and the different value put on the whole training process is another area raised earlier in the paper which resulted in some adaptation to the original learning framework. Such differences are partly a matter of context and personal relevance, but also a reflection of real cultural differences between educational and corporate training environments and their objectives (Weller and Dillon, 1999).

Whilst it is easy to focus on the differences between education and business, and necessary to recognize and understand these, there is much common ground; indeed this is the starting point for this paper. The common ground perhaps stems from the shared intellectual background based on theories of learning (applicable across contexts) on which the integrative learning framework is built. The constructivist base is noted earlier in the paper, together with some evidence of behaviourist approaches, but was also influenced by other learning theories. These included

conversation theory (Laurillard, 1995), Kolb’s theory of experiential learning (Sadler-Smith, 1996), reflective practice (Schön, 1993), situated cognition (Brown *et al.*, 1989) and anchored instruction (Bransford *et al.*, 1990). There is in this case, therefore, a very strong underpinning generic framework, providing the basis for transferability between professions.

CONCLUSION

The experience described here shows that a multimedia resource developed for one profession may provide the basis of learning materials for another profession and associated target audience. The process of building on a proven framework has many benefits from starting afresh each time. Each time the framework is re-visited for application and adaptation, implementing evaluative feedback can provide a new layer of refinement and improvement. It is noted, however, that to use a previously developed framework without careful further consideration and adaptation to the new context would almost certainly prove to be a false economy, and would be unlikely to yield the desired learning outcomes.

The academic/business collaborative partnership is, in itself, likely to be rewarding, providing fertile ground for the emergence of new ideas and perspectives, leaving all parties with a better understanding of different aspects of workplace learning and the potential role of multimedia.

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BIOGRAPHICAL NOTES

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