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# Bridging Cultures in Designing for Learning: An EChina~uk Project Case Study

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## ABSTRACT

This paper focuses on collaboration across professional cultures within the Sino–UK collaborative eLearning development projects at the University of Nottingham. It examines how technologists and academics developed a common understanding and effective ways of working. At the beginning of the project, the UK academics were unused to writing for online courses, and were unsure how to go about it. The technologists, on the other hand, simply wanted to be told what they needed to do, and this initially resulted in a communication breakdown. Audio and video recordings of key project meetings together with reflective journal entries and interviews with those involved in the collaboration were used to identify and explore a series of critical incidents that reveal key differences in perspective between the team members. The design approach that the team developed to bridge the differing perspectives is described as well as implications for practice.

## Keywords

Professional cultures, learning design, critical incidents, learning technologists, China

## INTRODUCTION

New learning technologies have the potential to transform the ways we learn but they rarely achieve this potential (HEFCE, 2004), often representing a poor online replica of face to face courses. The challenge is to develop creative approaches to learning design that allow for innovation and novel pedagogy so that eLearning becomes enhanced learning. In order to achieve this, participative design approaches that involve a wide range of professionals, i.e. technologists and academics need to be involved that attempt to forge a shared dialogue in relation to the new possibilities. This study explores the problematic nature of designing for enhanced learning.

The context for the study are two projects within the UK government funded eLearning International Sino-UK programme involving the University of Nottingham (UoN), UK, Beijing Foreign Studies University and Beijing Normal University, China. These online English Language Teacher (eELT) training projects sought to develop innovative eLearning in areas of language, culture & methodology to train teachers of English as a Foreign Language at secondary and tertiary levels. In the study, the focus is on the cross cultural interactions between the technologists and academics involved in the process of developing innovation as well as the Sino-UK aspects.

## METHODOLOGY

Figure 1 represents the three different professional cultural contexts for designing for learning within the project. The intersections W, X, Y and Z represent possible areas of shared experience and interactions within the project that have the potential to lead to a shared understanding of what might constitute effective online learning. This study explores some of the challenges in working towards moving to the ideal represented by intersection Z by exploring the professional cultures of the technologists and the academics within the project – the focus of this paper are the cultural interactions at intersection X.

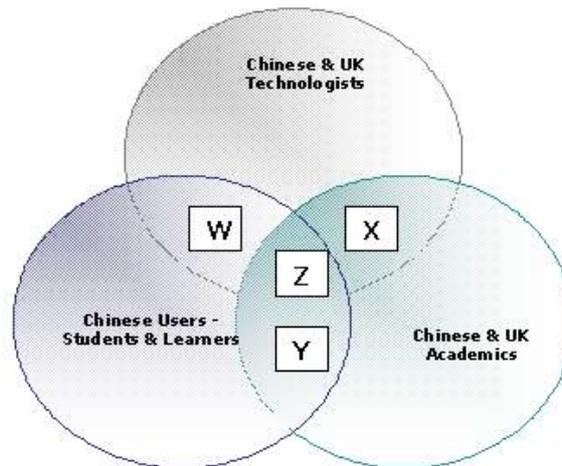


Figure 1: The Sino – UK contexts for designing for learning

The study uses a critical incident approach (Tripp, 1993) to explore the Discourses of practice of these different professional cultures involved in the participative design of the innovative eLearning.

Gee (1996:viii) describes Discourses as:

‘ways of behaving, interacting, valuing, thinking, believing, speaking that are accepted as instantiations of particular roles (or types of people) by specific groups of people.’

## DATA COLLECTION AND ANALYSIS

The idea that any event in professional practice can be treated as a critical incident was explored by Tripp (1993:24-25) who wrote that:

‘The vast majority of critical incidents...are not at all dramatic or obvious: they are mostly straight forward accounts of very commonplace events that occur in routine professional practice which are critical in the rather different sense that they are indicative of underlying trends, motives and structures. These incidents appear to be 'typical' rather than 'critical' at first sight, but are rendered critical through analysis.’

He applied critical incident analysis to the professional development of teachers, but the approach seems particularly useful in this study. The design approach used rapid prototyping tools such as PowerPoint and Photoshop to provide a visualization of the emerging pedagogic ideas; rapid development software, i.e. Flash was used for further development. These visualizations provided key points for critical incident analysis. The author’s role as project and learning design manager meant that he needed to ensure that a common understanding in relation to pedagogy and design was emerging throughout the project and the visualizations were presented at regular meetings to share and explore the differing perspectives. The regular project design meetings were audio and video recorded and they were rich sources of data for exploring differing Discourses as revealed through differing design perspectives. These differing perspectives were explored during these meetings and then analysed as critical incidents by the author, who made entries in a reflective journal. Members of the project teams were also interviewed by a research assistant to explore their understandings of their roles and influences in the design process. The ideas that emerged were discussed further with the project teams, as the insights gained provided a means of moving the project forward.

## FINDINGS

### The professional cultures

The following descriptions of the distinct technologist and academic professional cultures emerged from the interview data and reflections on practice within the project. A technologist subculture emerged within the project – that of the learning technologists employed to work within the project. The participative design approach used in the project meant that the project learning technologists and academics would meet regularly to discuss their ideas. The academics were unused to writing for online courses and to encourage them to move

away from a text dominant approach they were encouraged to focus on developing online interactions. These interactions were to employ rich media and exploit the new technologies in order to provide an effective online student learning experience. The project learning technologist's role (Oliver, 2002) was one of collaborating with technologists and other learning technologists within the University of Nottingham learning support team and with our partners in China and of exploring with the academics effective ways of realizing their ideas and of inducting them into developing online materials. The technologists took on the role of writing code, developing some interactions, designing databases, providing some graphics design support etc., to support the innovative pedagogy that arose.

### *The technologist culture*

Members work within a central expert learning technologist team supported by other technologists. They carry out the specifications set out by academics and are accustomed to working within a linear design process in which academics specify the learning design and they then develop the online materials. They perceive the academic as having the responsibility and expertise in relation to effective pedagogy. However they are in the position of interpreting this in relation to graphic design and functionality. They traditionally have control over the technologies/learning tools that can be used within the learning design and hence have a major influence in the nature of the learning experience. However their perceptions are that they are a service culture. Notions of efficiency in relation to maximizing benefits for time spent on a project are seen as important. Developing a sense of ownership is problematic as they work on several projects at a time and have no involvement in delivery or evaluation of the learning experience and so are distanced from any learner or tutor feedback.

### *The academic culture*

Members work as writers of content, they tend to work as individuals with particular expertise in their own subject areas. Their pedagogic approach tends to be dominated by their subject culture and this is influenced to a lesser extent by their specific national cultures. (The majority of the academics involved in the project were specialist in the Teaching of English as a Second Language and there was a shared understanding in relation to pedagogy, methodology and curriculum. However the involvement of academics who specialized in personal development provided a different pedagogic perspective.) Understanding of the needs of online learners is limited as is an understanding of the potential of eLearning. However they have a high creative potential for developing innovative online practice due to the fact that their individual subject pedagogies make specific demands of online learning. They are willing to share their approaches and are open to influence by others, i.e. other academics and the technologists within the project. However they have a limited amount of time to spend on materials development as their main focus is on research.

### *The project learning technologist subculture*

Members work within a project based expert learning technologist team interacting with other technologists and working closely with the project academics and manager. They are perceived as bridge builders between the academics and the technologists. They need good interpersonal skills.

‘(The project learning designer) is a good influence in terms of team harmony, I guess, the way he works well with so many people has been influential.’ – Central team technologist

They understand and share the vision behind the project, have a sense of ownership even though they are on short term project based contracts. They perceive of the necessity to develop an understanding of the pedagogy involved with the learning materials so that they can offer advice on learning design so that they can help interpret this for technologists.

‘I’ve been described as a bridge between academics and technical people. I have to convert what academics give me as raw materials into something that technical people can understand, or I take academic’s stuff and put what I think is a better way in presenting it, things like putting in activities, putting in animation, then give it to technical people in terms they can understand again, because the two languages they use are entirely different.’ - Project learning technologist

They perceive graphic design, accessibility and effective navigation to be critical elements within the learning experience and take a lead in influencing these aspects. They provide guidance and frameworks for supporting academics in writing the materials. Their role as bridge builders and in influencing design is supported by an iterative rapid prototyping process. They have an involvement in supporting materials evaluation and so are influenced by learner and tutor feedback.

## The critical incidents

### *Interpreting what is meant by 'not technologically possible'.*

An analysis of the context for learning indicated that a key motivator for establishing the 'habit' of online working would be the ways the learners experience was a personalised one. The academics felt that if the learners had a personal online space to work in; one that archived the outcomes of their online activities, their assignments and their key references, then online working would be seen as beneficial to working from text based materials or on a local computer. Initial reaction by technologists both in the UK and in China to early visualisations of these functionalities was that it was not possible to achieve this. However because the Chinese learning platforms were non commercial and bespoke database driven opened up the possibility to consider developing online personalisation in the ways the project academics wished .

Unpacking what was meant by 'not possible' within the technologists Discourse was important and also to realise why the project team considered that this ought to be possible. HEFCE wanted the projects to be involved in innovative eLearning design and this was something that clearly would be demanding for those involved, however it was clearly going to be difficult for those working within the technologists culture to buy into this. Nevertheless the project was influenced by key learning technologists who felt that academics should be asking more of technologists to solve our pedagogical challenges (Neven, 2003). 'Not possible' needed to be interpreted as 'not within our experience' and 'not a priority for us' rather than 'this cannot be achieved'. This was an important realisation. Given the funding made available by HEFCE and the availability of teams of Chinese developers, who had the appropriate programming skills, what was needed was the realisation that what was being proposed by the academics was desirable and therefore definitely possible.

The technologist culture can tend to manage 'problems' in ways that discourage innovation. The academic culture, given the external impetus to innovate, merely perceived the 'problem' as something that could be solved as pedagogically it seemed such an obvious necessity to support effective online learning. The project team, the manager, the academics and the learning technologists used this innovation and others to establish an identity for innovation within the University of Nottingham developments. The key factors driving the development were pedagogy, a sense of ownership, the external impetus to innovate and clear notions of what was possible. The outcome is the Workspace learning tool (Joyes, 2005) which is to be provided as an open source Moodle module. This can be viewed on the eChina~UK disseminator website via link from <http://www.nottingham.ac.uk/education/centres/crsflp/eChina/> .

### *Differing conceptions of learning*

It was agreed early on in the project that the UoN would take responsibility for any interactive learning elements. These were to be developed using Macromedia Flash and the UoN project team had recruited an experienced programmer to lead these developments. However the central UoN learning team of technologists were to provide some support for these developments. They proposed a solution that would speed up the development process one that had the potential for providing reusable interactive Flash objects for use within the project and across the UoN. Early discussions revolved around the user interface that would be common to these reusable interactive Flash objects.

The following is an extract from an interview with the leader of the central team of technologists at the UoN. He was asked to describe any critical point in the project and refers to the meeting between his team and the project team to discuss the user interface. The project team had suggested top navigation as shown in figure 2 and the central team seemed to be ignoring this and had come up with a design that included navigation at the bottom of the screen. The School of Education project team could not understand why this was happening and at first assumed this was due to the power relationships that operated with and between the groups, but this was not in fact the case – the issue was due to the different pedagogic assumptions being made between the two teams. The meeting in the interview extract that is referred to is the one where there was a realisation that each team had differing perceptions of expected online learning strategies and it was these that were leading to differing design solutions.

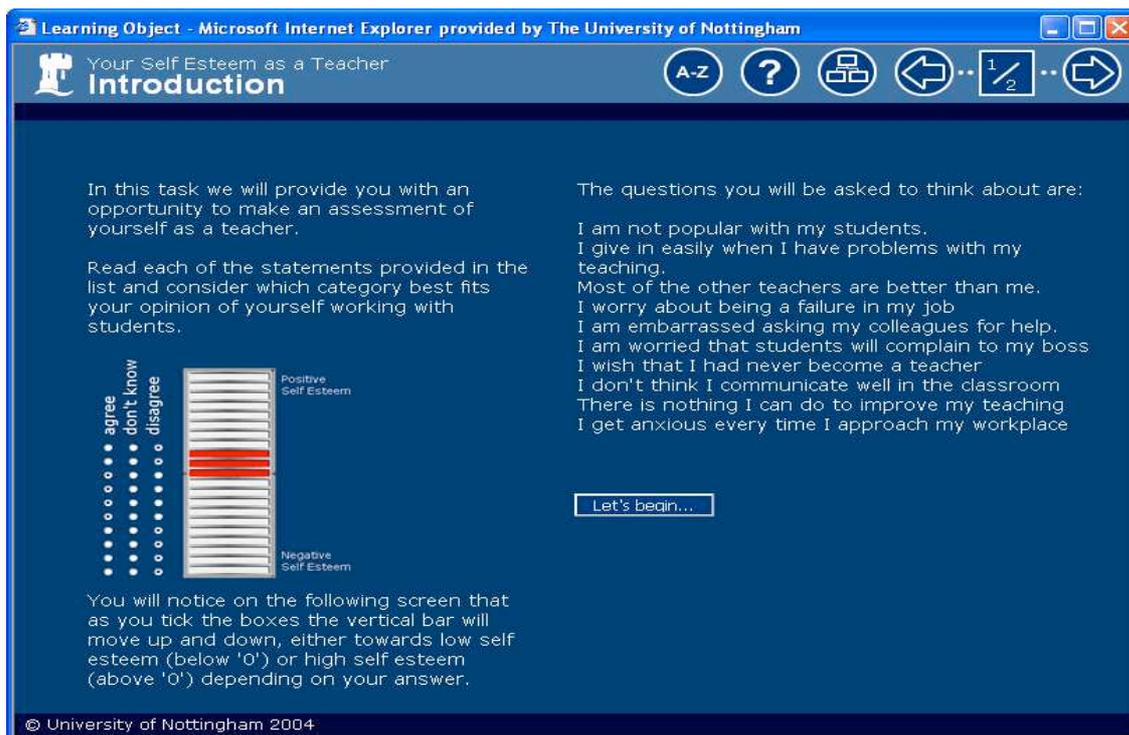


Figure 2: The top navigation

‘A meeting was held to discuss the navigation within the user interface. The project manager and the School of Education learning technologists wanted to have the back and forward arrows in a position that you’d find in a web page, i.e. at the top (this would allow users to browse the materials freely). We wanted the navigation to be at the bottom. ....Reading tradition is top left to bottom right, if you are reading constantly across the screen, your eyes would eventually finish at the bottom right hand part of the corner of the screen, so the most logical place to put a continue button to jump to the next screen is on the bottom right hand corner. So that’s why we have a continue button there. They wanted to have a random search approach whereas we wanted to have logical flow approach.’ - Central team technologist

On the surface the difference between having navigation at the top or the bottom seems quite a trivial matter. However the pedagogic assumptions behind the two approaches are quite different and scaffold the learning experience in different ways. The learning design split the content into a series of screens, scrolling was not a feature of the design, the intention was to provide a visually interesting experience for the learner. Any extended text was to be provided in the form of pdf files that could be navigated and annotated using the sophisticated tools available within Adobe Acrobat reader. The top navigation does not expect the learner to have read all of the content before they move on as the learners are provided with the navigation tools at the top to move at will through the online pages. This allows for flexibility of learning strategy, i.e. the learner can read all of each page in turn, or they can skim through the content/activity pages to orient themselves before studying the content in more detail or they can revisit any content easily if they need to. This approach was chosen by the academics because it encourages learner autonomy. The bottom navigation approach assumes learners will need to read all that is on the page before they continue and so the navigation in the form of a continue button is provided at the end of the text. This assumes that there is only one learning strategy, i.e. move from one page to the next; the one designed in by the writer/developer. The top navigation approach prevailed, however the central technologists team still wanted to keep the continue button at the bottom right. This seemed to be redundant as there was a skip or continue button at the top.

A compromise over this was reached.

‘We needed to marry the two together. The buttons at the top right hand corner, enable the users to skip ahead or move around randomly as they choose. The continue button that appears at the (bottom) right hand corner is different in term of it tells users now to move on. If there is any kind of interaction, the continue button doesn’t appear until they’ve completed it. It works as a visual

cue. It's kind of slightly different role. That's why they appear in both locations. That was a kind of agreement we came to through that collaborative discussion.' - Central team technologist

In effect the continue button worked well as a visual cue for the end of an interaction and the need for the learner to move forward. Other solutions could have involved the skip forward button to be dimmed during an interaction and to be highlighted once the interaction was completed, but the notion of there being a logical flow to the bottom right was a persistent one.

### *The use of text transcripts with video*

eLearning within China incorporates extensive use of online video. The rationale for this use is complex, but in part relates to the perceived need for the distance learner to experience a similar experience to the face to face campus one. In addition, the views of experts in China are highly regarded and the use of video helps provide authenticity and authority for online learners. The academic writers included a variety of video clips within the materials, these included academic experts, teachers discussing classroom practice and issues and an online study support mentor. The only Chinese video player interface available within the project presented the video with audio and all of the text. The project provided an opportunity to further develop this interface and the functionality of an Interactive Movie Player (IMP) began to be discussed early on in the project. From a pedagogic perspective because the online learners were second language English speakers and because some of the terminology might be new to them, it was important for them to be able to read the video transcript. In this context the audio would not provide enough information to support their learning. Hence video and the video transcript were going to be needed to be presented simultaneously.

The central technologist team raised the issue about whether video and text should be presented simultaneously as they had understood that there was a body of research evidence that indicated that this was not desirable. They were referring to the modality principle (Clarke & Mayer, 2003) the practice of presenting to-be-learned graphical information visually supported by any textual information through an auditory mode. This principle is based on cognitive research that indicates that people process pictorial information and thus video in a separate channel from auditory/ verbal information. The theory is that since the capacity of each channel is limited, graphics and supporting onscreen text compete for limited visual bandwidth as the learner cannot look at graphics and supporting text simultaneously. Conversely, when verbal information is presented in audible form it enters the cognitive system in a different channel where it can be comfortably processed simultaneously. One issue is whether video is likely to compete with a text transcript in a similar way to a graphic and its related text.

Analysis of the context for learning within the project including user needs information indicated the importance of the video clips to the learners, but that they would also need to be able to see the transcript. Recent literature about these modality effects (Ginns, 2005) reveals that much of the research was carried out with novice learners and that as learners become more expert effects on learning vary and are also dependent on subject domain and pacing of the materials.

'Clarifying the effects of element interactivity and pacing across sufficiently wide range of materials, age groups and media will allow instructional designers to make unambiguous decisions regarding the use of audio-visual or visual-only materials.' (Ginns, 2005 p 328)

On closer inspection some of the 'truths' related to learning design are not well supported by experimental evidence. More importantly what needs to be recognised is that the pedagogy involved within these research contexts tends to be behaviourist in approach, i.e. information is presented to be learnt over a fixed period of time and learning gains over this period are measured. This is quite distinct from the situation within this project in which it is seen as important that the learners explore the multi modal materials at their own pace and one in which actual engagement with the materials is dependant on how well they are motivated and not on payment for doing so as is the case in the research studies.

The IMP that was developed is shown in figure 3.



Figure 3: The Interactive Movie Player

In the IMP the learner is presented with the video/audio to play and can select to reveal the transcript underneath the video; presented as short clips shown synchronously with the audio. Full transcripts are made available as pdf files. In depth piloting of the online materials in China that made extensive use of this IMP found that the video presence of the ‘author’ was an important motivator for these learners (Joyes & Zehang, 2005) without them they would be less likely to study the materials in depth. Thus consideration of modality effects becomes less important when the whole context for learning is considered and the technologists have to rely upon the academics to interpret this for them. Notions of ‘rules’ for learning design suggested by Ginns, (2005) in the quote above need to be questioned in the light of the need to consider the wider pedagogic context in which learning is to occur.

## CONCLUSIONS

The three critical incidents described provide an insight into the challenges faced by cross cultural teams when designing eLearning activities. The rapid prototyping design approach allowed for early visualisation of ideas which enabled academics and technologists to engage in a dialogue around the learning design. Without this what tended to happen within the project was that the technologists would re-interpret the learning design in ways that reflected their needs and understandings of design rather than the pedagogic imperatives as perceived by the academics. This was true for both the UK and Chinese technologists. The cultures of the technologists and the academics within the project were quite different and the influences on pedagogic decisions would therefore be different. This difference in terms of skills, experiences and understandings had the potential for enabling truly innovative learning design, but in order for this to happen a means of sharing understandings and exploring these differences was necessary. It was important to critically analyse the difference in design suggested by the two cultures before any design decisions could be finally made and agreed. In effect each team’s ideas had value and needed to be valued and what resulted was an informed and well justified design, see figure 2 and 3 above. The project team of learning technologists was critical in supporting this process. The fact that they identified with the project and developed an understanding of the pedagogic principles behind this enabled them to present technological solutions that were sympathetic to these pedagogic needs. They formed the much needed bridge between the academics and technologists and managed the pedo-technology interface within the project. Reflection on the process provides the following suggestions for a more effective collaborative design process:

- Discussion with all involved in the project (academics and technologists) to share the vision;
- Early discussion about the design process and the nature and expectation of the roles of the technologists and academics within this - exploration of the difference between cooperation and collaboration;
- Ongoing rapid prototyping/visualisation of pedagogic ideas;
- Analysis of critical incidents in the design process;

- At least one dedicated learning technologist who works closely with the project – the aim is to develop a sense of ownership and act as a bridge between the project academics and the other technologists involved;
- Involvement of both technologists and academics in the evaluation process and any subsequent redesign.

This research revealed the need to understand the context for design, i.e. the professional cultures involved, ways of working, infrastructure etc. in order for a successful participative design process to be utilised, one which results in innovative and effective learning design. This is the focus of further research within the *eChina~UK* eEducator training project at the University of Nottingham and Beijing Foreign Studies University. In addition, this rapid prototyping design process revealed interesting pedagogic differences between the Chinese and UK cultures in relation to the nature of portfolios, assessment, the role of the tutor etc. and this will be the subject of a future paper.

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