# Researching the Participatory Design Process for e-Tutor Training Material Design

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## Abstract

The role of the tutor in online learning can be complex due to the wide range of media and pedagogies that can potentially be used. As a result, there is a need for effective training materials that recognise this and the Sino-UK e-Educator project aims to meet this need. This paper reports research into the participatory design process adopted within the project. Ten potential users of the final e-Educator training module were involved in the design process. Reflective journals and interviews have been used to collect data regarding the ways they worked with other academic designers and technologists. The paper describes the process, the issues shared by the participants and the problems they confronted in this project.

## Abstrak

Peranan tutor di dalam pembelajaran atas talian adalah kompleks kerana pelbagai media dan pedagogi yang boleh digunakan. Oleh itu terdapat keperluan untuk mengenal pasti aspek ini di dalam bahan latihan projek Sino-UK yang bertujuan untuk memenuhi keperluan ini. Artikel ini melaporkan kajian dalam mereka bentuk proses penglibatan yang digunakan dalam projek ini. Seramai 10 pengguna terakhir modul latihan *e-Educator* terlibat di dalam proses reka bentuk. Jurnal refleksi dan temuduga telah digunakan untuk mengumpul data berkaitan dengan cara mereka bekerja dengan reka bentuk akademik yang lain dan juga ahli teknologi. Artikel ini menjelaskan proses, isu yang dikongsikan oleh peserta dan masalah yang dihadapi di dalam projek ini.

## Background

The context for this article is the e-Educator project within the e-learning International Sino-UK programme funded by the Higher Education Funding Council for England. This involved collaboration between The University of Nottingham, UK and Beijing Foreign Studies University, China to develop a module for training tutors of online learners – one that could be adapted for use in a variety of contexts. The module was piloted at the School of Distance Education, Universiti Sains Malaysia, Penang. A fully functional demonstrator is provided as part of the e-Educator project case study on the eChina-UK programme website www.echinauk.org. This article appears in the second of two Special Issue of the Malaysian Journal of Distance Education that provides a comprehensive overview of this project.

## Introduction

Learner-centred approaches play an important role in teaching and learning. These approaches are central to China's Curriculum Reform in Basic Education (2001–2010), which aims to meet learner needs, consider learner differences and support learners in taking a responsibility for their own learning. One would imagine then in teacher training that teacher differences and needs would be considered, learner-centred approaches would be adopted and learner autonomy would be promoted. However, often these issues are not considered. Diaz-Maggioli (2004) points out that globally there are constraints in current professional development practices. Teacher training often adopts a top-down model with a few experts deciding what teachers need to know and how the training should be delivered. As a result the most common form of teacher training is the short or longer-term course in which trainers pass on information or teaching methods which they believe will change classroom practice (Clark, 1989). This is especially true in both mainland China and Hong Kong. Teachers have little if any ownership of the training process and are likely to be passive recipients of this. Teachers are not given a chance to take a participatory role in making decisions related to the content of their studies or of the ways their training is delivered. There is a need for involving teachers more fully in the design process; after all they will have an important perspective and in some cases a real understanding of what their

needs are and of the practicalities of the proposed learning experiences in relation to its impact on their practice.

This paper reports research into the participatory design process of the Sino-UK e-Educator project and begins with a review of the process itself and the context in which the research was conducted – the development of an online tutor training module for use in China. This is followed by a description of the research approach taken to illuminate the participatory design process. The last section discusses the major findings of the research and its implications for future developments.

**The Participatory Design Approach**

Participatory design (PD) originated in Scandinavia (Schuler & Namioka, 1993) in the 1970s. It started in the field of computer software design where the participation of users in decisions that were made to improve their working was involved. "An important aspect of this approach is that users act as fully empowered participants in the design process. User participation provides the opportunity to affect decisions about systems that will later impact on users' work lives" (ibid: 212). Once the end users have been invited to participate in the design or production process, they need to be considered equal and their ideas need to be fully valued. Understanding users' needs, their preferences, their problems and confusions can only be achieved by frequent and profound communication between designers and users. The role of the expert "is changed from that of an expert to that of an equal participant who happens to have expertise" (Carmel, Whitaker & George's research, in Silva & Breuleux, 1994: 103). They need to listen to the users' voice and not just take for granted what users may like and have to know. There is a need "for designers to take work practice seriously – to see the current ways that work is done as an evolved solution to a complex work situation that the designer only partially understands" (Winograd & Kuhn, 2006).

Although similar approaches have been used in other fields as well (Silva & Breuleux, 1994), the literature about PD is still dominated by computer system development (Kautz, 1996) leaving education a domain that is relatively under-researched for PD. Among the limited number of research projects conducted in the educational domain, Zaphiris and Zacharia's (2007) study was an important one as they allowed full participation of

learners in the design of an online Greek language course. The learners collaborated on the content and functionality development of the course by contributing materials that they thought were useful for learning Greek. The contribution of this study was that it summarised a four-step process in implementing PD: (1) building bridges with the intended users; (2) mapping user needs and suggestions to the system; (3) developing a prototype; (4) integrating feedback and continuing the cycle. Another important piece of research was a five-year longitudinal study carried out by Caroll and his colleagues (2000) in the US, which aimed to facilitate research group work with four public school teachers to design high-quality network-based support for collaborative science learning. These two cases and a few others (Williams, 1994; Danielsson, et al., 2004) touched upon the importance of PD and how to conduct it, but left the question of what happens during the PD process and what factors influence people involved in that process unanswered. This needs to be researched if the process is to be more fully understood and any benefits for learning design maximised. This paper reports on such research.

## Research Background

Within the eChina-UK program there was recognition of the importance of the online tutor within e-learning and of the need for effective training. This training needed to engage tutors in understanding their roles in the complex online learning environments in which they would be supporting students. This resulted in the e-Educator project, funded by HEFCE. The aim was to develop a generic module that would meet this need. This involved a collaboration between the University of Nottingham (UoN) and Beijing Foreign Studies University (BFSU). A PD approach was adopted within the project which involved academics from UoN, academics from BFSU (the potential tutors), learning designers and technologists from UoN in the collaborative design of the module and the training materials. The hope was that the PD process would ensure that the 'voices' of future users, the tutors, would be 'heard' and their working experiences respected.

## Research Design

*Research Questions*

As a member of the design group, the author of this paper participated in the process of designing online materials for the tutor training module. During the process, the author experienced dilemmas as did her colleagues. The research set out to explore these and their influence on module design. The main research question was: What are the factors that influence e-learning design in the participatory design process?

This can be broken down into the following sub-questions:

- How do the different professional groups work together in e-learning design?
- What cultural differences (i.e. social culture subject/professional culture etc.), if any, affect online learning design?
- How do people's beliefs about teaching and learning influence their design of the online teacher training course?
- What kind of roles do people play in the team work?
- What is the benefit or influence in involving future users of the course in the design process?

**Subjects**

There were three groups of participants involved in this research:

Group 1 — seven academics from UoN
Group 2 — three technologists
Group 3 — ten academics from BFSU (potential users of the course)

In selecting these participants, the UoN project team requested the BFSU team to involve people who would be potential e-tutors for an MA in English Language Teaching (ELT) online course developed by UoN-BFSU within the eChina-UK program. This course intentionally includes a variety of self study, cooperative and collaborative activities, and as such represents a challenging learning environment for both students and the tutors. Those selected as project tutors were a representative sample of those who would be acting as tutors on the MA ELT. The ten volunteer

tutors had at least an MA degree and were from four regions of China: four from Beijing (Northern China), two from Guang Zhou (Southern China), two from Xi'an (Western China) and two from Shanghai (Eastern China).

The project tutors were involved in:

- A four week orientation program working as online learners as a means of introducing them to the project and to some online examples from the MA ELT course.
- Online collaboration with academics and learning technologists to develop the e-Educator materials (from March to December 2006).
- Face-to-face collaborative materials development at two four-day residential workshops in Beijing (March and August 2006).
- Supporting research into the participatory process of developing the materials through providing data by taking part in interviews and keeping reflective journals.

During the participatory design process, the 17 academics were divided into five theme groups, each containing one or two UoN academics and two BFSU academics. One group contained only Chinese academics and tutors, the others were mixed British and Chinese – where the communication language was English. Technical design support was shared amongst groups. The groups began their work at a face-to-face workshop in March in Beijing, using rapid prototyping tools to demonstrate and discuss their pedagogic ideas. A prototype is "a concrete representation of part or all of an interactive system" (Beaudouin-Lafon, 2008: 1018). Rapid prototyping is an approach that helps to quickly produce mock-ups of ideas before these are developed into fully functioning materials. After the workshop, the design groups collaborated at a distance to produce further materials for the module. In August, another face-to-face workshop was organised in order to share and evaluate the materials developed thus far and to explore ways of working to illuminate the benefits and challenges of PD. Group members continued to collaborate till November.

**Research Methods and Data Collection Methods**

This research began with the collection of biographical/background information from all participants. In addition their beliefs about teaching, learning and e-learning were elicited through the use of individual interviews and a questionnaire. Because the participants in China were from different regions, they were asked to complete a questionnaire before the first face-to-face workshop. Issues that needed further explanation were identified from the questionnaire and participants were interviewed at the first workshop.

Secondly, many of the small group discussions in the first and second face-to-face workshop in Beijing were audio recorded for research purposes. Every person who was involved in the module design provided a post-workshop reflection to identify critical moments during the workshop. The recordings were transcribed and used to triangulate any critical moments mentioned by group members and identify more critical moments by the researcher.

Thirdly, every member of the design team (including the UoN team and BFSU tutors) was asked to keep a monthly reflective journal to identify critical moments that happened each month – events that were significant in relation to ways of working, developing understanding etc. The researcher followed up any ambiguous information via face-to-face interview and email to clarify issues. The researcher identified factors that influenced the design process and the materials within each home group from the reflective journals. Each home group was interviewed at the second face-to-face workshop in order to provide opportunities to verify the earlier data and stimulate more reflections from the participants.

**Data Analysis**

Activity theory (AT) (Leontjev, 1978; Vygotsky, 1978) has been used as a framework to analyse the ways individuals work within the project as part of the PD process to design the tutor training module materials.

AT is increasingly being applied to aspects of technology-supported learning because of its emphasis on the mediation of tools and social factors on human activity. It has been used in the study of Human- Computer Interactions in research into online collaborative behaviour and distributed

learning and for supporting the e-learning design process (Jonassen & Rohrer-Murphy,1999).

AT argues that an activity is composed of a subject (a person or a group) engaged in the activity, and an object (the objective of the activity), mediated by a tool. The mediation can occur through the use of many different types of tools, e.g. material tools as well as psychological tools, including culture, ways of thinking and language. E-learning tools might be an online discussion forum, an online or paper notebook or the study approaches that support effective learning. An activity system (Engeström 1987) shown in Figure 1 is a way of visualising the total configuration of an activity. It has been argued that e-learning activities that involve collaborative learning can be seen as types of learning support and can be represented as an activity system.
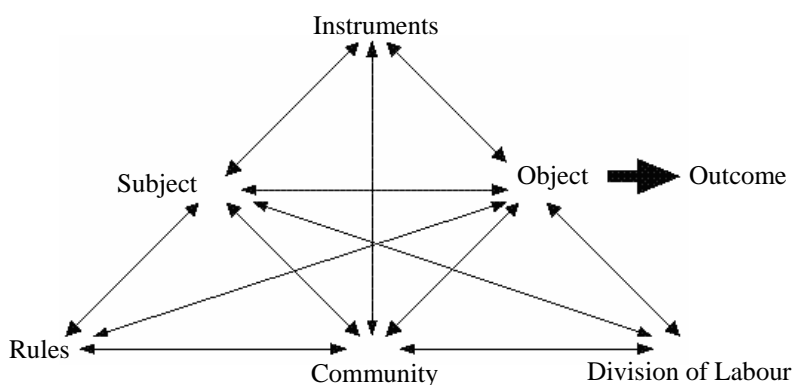


**Figure 1**   Model of a human activity system
(Adapted from Engeström, 1987)

Consider the model applied to the development of the e-tutor training module: The object of this work is to facilitate the project tutor with necessary skills and awareness so that they can collaborate in the development of the materials. The outcomes include the intended ones for the tutors such as ownership of the learning process and successful activity completion i.e. development of materials as well as knowledge, understanding and skills and associated ones such as skills development. Unintended outcomes such as possible dissatisfaction, non-engagement can

have a negative impact on the process. The instruments may include communication tools such as email and discussion forum, which may be used to support the development of understanding and encourage engagement. The community consists of the academics from UoN and BFSU and the technologists who supported them in developing the materials. The division of labour describes the roles taken on by the individuals in the PD process. Finally, the rules such as cultural and social norms will affect the PD process and the ways community develops.

When analysing the data, the five groups were compared for each of the elements. The following figure illustrates "subject" being compared across groups.
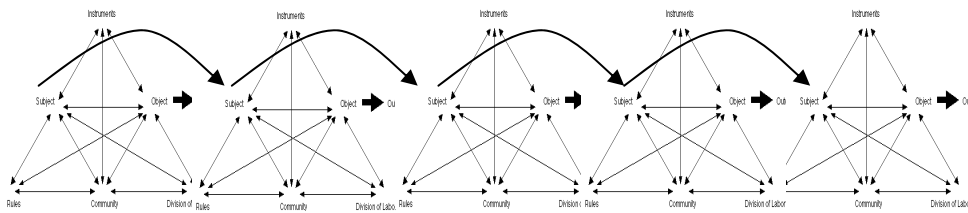


**Figure 2**   Cross group comparison

By comparing each element, common factors that influenced the PD process have emerged and these will be reported in the next section.

**Major Findings**

A detailed analysis of each group using the AT framework revealed a number of issues emerging from the participatory design process. These are summarised in Table 1.

**Table 1**   Summary of issues that emerged

| Elements | Factors that influence the PD process |
|---|---|
| Subject | Expertise and status |
|  | Motivation |
|  | Pedagogy and belief |
|  | Personality and culture |
| Instruments | Communication methods |
|  | Media and platform |
| Objectives | Understanding project objectives |
|  | Understanding target users |
|  | Understanding reason for involvement |
| Rules | Rule/regulations of culture |
|  | Ground rules |
| Community | Working mode |
|  | Atmosphere |
| Division of labour | Defining roles |
|  | Team roles |
|  | Role of technologists |

## Subject

Difference in expertise and status did influence the way subjects worked together. For the purpose of this discussion the five groups will be called Groups A to E. Group A had to give up the idea of collaboratively developing the materials and the UoN member ended up producing materials and receiving comments and feedback provided by BFSU members. Groups B and D ended up by adopting the strategy of valuing and accepting these differences and finding ways of using this in practice. Group E stuck to the original plan, which was to ensure equal participation and made each member in the group be responsible for one sub-topic of their theme, and as a result materials were produced but BFSU members had no confidence in the materials they produced. Group C had no difference in this aspect and the group coordinator used the strategy of learning by doing and learning from each other to ensure equal effort and contribution.

Most of the BFSU tutors' motivation was rather instrumental and they were rather passive at the beginning. As the project went on, their motivation changed. Their personal motivation rose as they started to have a sense of responsibility for the work and wanted to make it perfect and they felt they were learning from others about online teaching. They were encouraged

when they saw the rapid prototypes of the first designs as much of the design was fresh and innovative and this motivated them to produce more high quality materials. What's more, they also saw the potential benefit for their careers as they were invited as part of the project to publish papers and give presentations at an international conference.

As far as participants' beliefs about teaching and learning are concerned, it was found that UoN participants had a preference for tasks that would encourage learner autonomy, empower learners, give learners choices and establish a more equal relationship between learner and teacher, while BFSU participants seemed to prefer designs that would emphasize the teacher's role more in terms of directing, supporting and telling. What was shared by both equally was a preference for experiential learning, reflective and shared learning.

Culture also influenced the participants' contribution and participation in the discussion during the participatory design process. The most obvious difference was people's expectation and attitude towards feedback and contribution. The British participant in group B reported in his reflection that one of the Chinese members in his group praised others too much and did not offer his real thoughts. One of the Chinese participants in group E reported in the group interview that one of the British participants in his group gave comments and suggestions too directly and he found this uncomfortable. These two incidents indicate differences in the ways communication was used and comprehended within the project and these can be attributed to subtle cultural differences. As for contribution, the UoN side emphasised equality and they welcomed the BFSU's ideas. However, humbleness and respecting seniority and more knowledgeable people led the BFSU participants to talk less but listen more attentively to the UoN participants. The recordings of the two workshops showed that most of the BFSU participants in groups A, B, D and E talked less than the UoN participants.

**Instruments**

The use of rapid prototyping as a design instrument enabled the academic designers to visualise their ideas quickly and helped to make the dialogue between them and the technologists more effective. Technologists did have problems contributing in discussions, whereas a specialist learning

technologist within the participants did not have this difficulty. This perhaps indicates the importance of this particular skill set within PD for developing e-learning. The major instrument that was used for communication between group members when at a distance was email. The analysis of data showed that synchronous communication was more effective than asynchronous communication when collaborating at a distance but this needed training and encouragement and was only used extensively with one group.

**Objectives**

Making sure that participants understand the objectives of the project is one of the most important factors for success. In a cross-cultural collaboration, neither side should rely solely on their partner to make this happen. (1) Joint effort is needed to help participants from both sides to gain a clear and appropriate goal in their mind at the beginning of a project. (2) Within this project there was confusion about target users and this was most probably rooted in the fact that the concepts being introduced within the e-Educator curriculum may have been considered familiar to the target users. The revisiting of these key concepts and reflecting upon them in relation to online working was an essential starting point for rethinking practice, but this was not fully understood by some of the design team participants. (3) The tutors' lack of understanding of the reasons for involving them in the project certainly influenced their motivation and the materials. It was perhaps because PD was so novel in this project that it was going to be difficult to brief anyone and there was clearly misunderstanding and miscommunication about the participants roles.

**Rules**

First of all, the way a project was operated and the relationship between project members was different in the two countries. In the UK, the project director and manager and even the project members were treated as equals and almost all the information was shared except for funding which was the responsibility of the director and the project manager. In China, the project director normally holds the most information including executive and financial power. The manager is usually told what to do and they do not know how much power they have and therefore sometimes find it difficult to make a decision. This was the situation in the e-Educator project, but this

was not fully understood as it appeared that Chinese participants could make decisions when they apparently could not.

No obvious ground rules could be observed in each group in terms of how to communicate, how to handle the work and how to give feedback. Problems emerged as a result and this suggests the importance of setting up these. Cultural norms were different so people's expectation of each others' behaviours may be different and mutually agreed rules might have helped to reduce misunderstandings and served as a guide for the roles people played and the ways they behaved.

## Community

The general atmosphere was friendly and supportive. This indicated that participants had put much effort in this. (1) Four different working modes for the design groups were identified when working at a distance. However, it is difficult to judge which one worked best. Perhaps what can be drawn from this is the need to recognise the differences within the teams and consciously adopt these models. In this project only group C adopted the expected model (members contributing actively and equally) but the other groups ended up working in the ways they did because that was practically possible. The approaches adopted were actually productive, but the expectation of working collaboratively led to frustration when this did not happen. (2) Due to the mutual effort from both sides, the atmosphere in the big community, the project team, was positive.

## Division of Labour

Defining roles is an important issue in PD and this needs careful consideration especially in an intercultural setting. Effective communication channels need to be set up so that participants can raise issues freely and find the appropriate person to clear their confusion. The research data indicates that the role of coordinators from both sides is a very important one as they are the bridge between the project director and the project members.

Five different approaches to collaboration were identified for the five groups and they indicate the need to choose the right group structure and roles that are sensitive to the differences between group members - not to

expect the same for all groups. A leader is needed but this leader does not simply mean that there is a hierarchy within the group; instead, he/she acts as an organiser and a facilitator to support the group members and ensure equal participation.

The research found that the academics expected technologists to be involved as early and much as possible in the design process so that they could explore the possibilities of technology as deeply as possible. It was found that technologists, on the other hand, generally do not have the confidence to make suggestions in relation to the content and prefered to be involved at a later stage when ideas had been formed. As a result, an e-learning pedagogist (learning technologist) who not only understands content and pedagogy, but also understands technology, is needed and should play an important role during the design process.

**Conclusion**

This research was triggered by interest in the PD process and aimed at exploring the experience of those involved in relation to developing an understanding of the key factors that are operating in relation to decisions about the design. A major question was whether the BFSU tutors really had an influence which was constructive in the design. The research findings suggest that BFSU participants in different groups had different feelings about their experience and the level of participation varied from group to group. This investigation found that the difference between academics, technologists and future users' expertise, beliefs, motivation, and ability should be recognised, accepted, and valued. It is unrealistic to expect equal participation or contribution from everyone in the PD process due to the differences. Equally important for a project is to ensure a relaxing atmosphere so that everyone has equal opportunities to contribute if they wish and they can. The key issue is not about whose ideas are necessarily right or better but that everyone's ideas are fully expressed and their voices are heard and the end product is something for which they all have a sense of ownership. The research also indicates that such a design approach is very time-consuming and requires a lot of resource. The implication is that PD may only be cost effective when new and novel learning designs are required – where the context for learning cannot be well understood without involvement of potential users.

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