Collaborative Multimedia Development Teams in Higher Education

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ABSTRACT
This paper investigates the ways in which the expectations and beliefs of academic staff about computer-based learning impact the design of learning media and their integration into the student learning experience. Moreover, it aims to ascertain how these expectations and beliefs have to be negotiated in a collaborative process between academics, educational advisors and multimedia producers, so that, ultimately, effective learning media, which can be successfully integrated into the student learning experience, are produced.

Keywords
Change, Cultures, Development Teams, Multimedia

Introduction
At the beginning of 2001, the University of Sheffield funded several innovative Information and Communication Technology (ICT) projects as part of its Learning and Teaching Strategy. Support for these projects is provided mainly by the Learning Media Unit (LeMU), a central multimedia development unit within the university. The unit is relatively new, being formed from the combination of Sheffield University Television, the Distance Learning Unit and the Teaching and Learning Development Group. Although the core of this new unit is still video production staff, other staff have a background in staff development/learning technologies, distance learning, and evaluation. Thus, there are different cultures within the unit and some of the tensions described in this article are due to this combination of staffing.

Halfway through the first round of projects, an internal formative evaluation was undertaken. The aim was to inform LeMU about the quality of its service to academic staff and the effectiveness of its internal processes for multimedia production. It was decided to interview all members of staff of LeMU (most individually) and those members of the academic staff who were project leaders. Loosely structured interviews lasting approximately an hour, were used in an attempt to elucidate the concerns of all those involved.

Since work had begun on the institutionally funded multimedia projects, concerns were expressed about the new demands and greater complexity of multimedia production when compared with the creation of educational video. Staff from LeMU also felt that working on multimedia required a change in role and in the relationships with academics. What seemed different in multimedia production was the greater dependency on academic involvement and the time that academics took in deciding what they actually wanted. This was especially the case when large academic teams were involved in a project and consensus had to be reached among a range of different pedagogic viewpoints. LeMU staff were also uncertain about the level and nature of support that academics required, as it seemed that academics were much less reliant upon central expertise than they used to be in the case of video production. Some departments possessed their own local technical expertise and facilities. Finally, there were tensions surrounding the role and involvement of educational advisors. It was decided that the evaluation would pay particular attention to the issues surrounding development teams and their varying expectations, beliefs and motivations.

Culture, flexible delivery and change

Academics and other staff in higher education have begun to explore the potential of the new technologies with regard to their professional practice. Each professional group has different understandings, perceptions and expectations of multimedia, based on their particular professional culture. Consequently, understandings of what multimedia learning can and should do may differ quite dramatically. Lakomski (2001) suggests that “there are social variations in meanings, within groups and between groups, because these come about as a result of their different experiences which issue in differences in cognitive networks” (p. 73). Difficulties and clashes of culture
surrounding collaborative teams in course development have been widely reported by the Open University and in the domain of distance learning in particular, although most of these studies pre-date multimedia development (Mason, 1976; Drake, 1979; Crick, 1980; Nicodemus, 1984; Farnes, 1991; Kaye, 1992; Bates 1995; Melton 1997). The findings suggest that team members display cognitive biases and social constraints and are influenced by their academic tradition and their individual beliefs (Riley 1983; see Becher, 1989, for more detail on academic culture).

ICT innovation and the concept of flexible delivery have changed the role of academics in the creation and delivery of learning resources. Teams are required “because there is no one person who can design and deliver the sorts of teaching-learning programs that are epitomised by flexible delivery.” (McDonald & Postle 1999). Producing teaching material as a team is a significant change for many academics. Since the materials will form an important part of their teaching, academics feel it is important to be involved in the production process. They may feel uneasy if they are “merely the ‘suppliers’ of content and not fully participating in the design process” (Torrisi-Steele & Davis 2000, p 288). However, this may lead to difficulties as different groups will have both a different perception as to what is needed and different ways of working. Individuals working together on production are required to learn to speak “multiple languages” and “to translate information into those forms that one’s collaborators will not only use but tolerate” (Pang 1998, p. 8). Meanings and outcomes are negotiated during multimedia development and compromises are made between content and technology. Ultimately, the decisions are based on the moral values of the various players involved. Pang’s notion of ‘moral economies’ by looking at the power relationships between groups and the competing skills and expertise, may explain the form of the multimedia that is produced. (Pang 1998; see also Thompson, 1971, for more on ‘moral economies’).

Data collection

With this framework of understanding of the issues, a qualitative approach to data collection was used and individual, loosely structured interviews were conducted with fifteen academics (covering 14 projects), five producers, one programmer and one graphic designer. In addition, two focus groups were conducted - one with other members of the LeMU production team and administrative support staff, and the second with the five producers in which the role and the effectiveness of the educational advisors was discussed. The same structured interview was used with both the academic and the production staff in order to compare the views expressed by the two groups. Attention was given not only to the views expressed but also to the discourse of the interviewees in order to understand how their views had been formulated.

The study was carried out in a research-focused higher education institution in the United Kingdom. It employs its own approach to the implementation of the Learning and Teaching Strategy, which may differ quite considerably from other institutions. During the interviews, LeMU staff frequently made unprompted comparisons between video and multimedia production in terms of the changed working practices and relationship between the production unit and academic departments. There was not a specific question related to this, but as staff reflected on changes, they drew on previous experiences. This applied to everyone involved, since all staff will use their prior knowledge to deal with new challenges. This study represents work in progress. In the analysis, groups and attitudes are slightly stereotyped in order to emphasise cultural differences, but it is important to note that variations exist within these. Our intention is to repeat this study in a year’s time to see whether development processes, team relationships and the views of the stakeholders have changed.

Product versus process

Our study suggests that the ICT projects at the University of Sheffield can be categorised on a spectrum from product-focused to process-focused. Projects classified as product-focused involved the production of a piece of learning media (video or computer-based) covering a discrete learning activity. Process-focused projects are more often associated with curriculum innovation and the development of ICT systems to support innovation. ICT is more a vehicle rather than a product and supports a holistic concept of the learning environment. These projects integrate a range of learning activities and tend to support constructivist approaches to learning. Content is not fixed but easily modifiable, and so there is less sense of a finished product.

The more experienced academic users of technology at the University of Sheffield tended to be process-focused. They were primarily concerned with changing the curriculum and they perceived ICT as a lever for change. Confident in the use of the technology they could focus on teaching and learning. As process-focused projects required careful planning, and in some cases, the rethinking of the curriculum, it was necessary to involve all key
stakeholders in a collaborative and participative manner. Large teams and large-scale innovation made process-focused projects more difficult to manage. They had a tendency to grow and generally required further funding. By comparison, the product-focused projects were easier to manage, as they generally were limited in scale, involved fewer academics, were more clearly defined and required shorter planning periods.

**Tension in collaborative multimedia teams**

Cause for tensions were primarily:

- a lack of understanding of technical and pedagogical issues in the design of multimedia and ICT systems for flexible delivery; and,
- a struggle for leadership, ownership and consensus in the development process.

These two causes seemed to be based on a mutual lack of understanding of the academic and the production cultures.

**Technical and pedagogical issues**

In multimedia development, providing content is not simply a task of giving information. The way in which the content is organised and presented is as much part of the curriculum as is the detailed information. Producers and academic project leaders needed to be sensitive to colleagues’ and each other’s pedagogic models. By contrast, a video is a self-contained product that is often a supplement to teaching. We found, as a result of an internal survey (Sharratt, 2000), that videos were usually commissioned by a single academic, and covered a specific teaching point or a general introduction. They were not normally an integral part of the actual teaching process.

Some of the tensions with regard to pedagogy arose because the academics thought that they had either an explicit or an implicit knowledge of pedagogy due to their teaching experience and did not require the expertise of the educational advisor. To transfer that pedagogy to different media was not seen as problematic by them, as either they had experienced the problems and dealt with them, or they had not yet experienced them. They considered LeMU’s role was to provide the technical expertise that they lacked. Producers had a similar perception about the role of pedagogy in the design process. They were concerned primarily with the effective realisation of concepts through the media, and often perceived themselves as technical experts. They often thought that the pedagogical expertise would be provided by the academics, rather than the educational advisors. The role of educational advisor sits uncomfortably as a bridge between production and academic content provision.

Differences in approaches to multimedia were clearly expressed when the interviewees were asked to indicate what their perceived outcomes for their project were and how they expected to measure success. A package which students liked and which worked was the most important measure for success for the more product-focused members of staff. The process-focused staff listed strategic issues of IT infrastructure, changes in teaching and learning and the empowerment of the teaching staff and students as their perceived outcomes. The multimedia product itself was considered to be less important. As one academic observed: “Even if the product does not succeed, I would not regard the project as a failure because I would consider the experience worthwhile.” For many, personal development and creative freedom was an important aspect of the development.

**A struggle for leadership, ownership and consensus**

Each project had an academic project leader and a producer. In most projects the academic leader was the main contact for the producer, unless special project staff had been appointed. Multimedia production was heavily based on the former video production process and while roles and responsibilities in the production team were relatively clear, uncertainties arose when new staff with new roles joined the department. The role of the programmer fitted in easily with the production ethos of the department, but the staff developers (who became producers) and the educational advisors caused some difficulties, as their perceptions and working practices were more akin to academia, rather than production.

Leadership was an issue that lead to considerable tensions in teams. The video production process was a linear process in which the producer held the leadership position. Academics were viewed as clients who
commissioned the product. The process was clearly defined with precise roles and responsibilities. With multimedia development, most members of the production team felt uneasy about the amount of time required for project planning. They felt that they were too dependent on the academics whose commitment to the project varied according to the time constraints of teaching, research and examinations. Sometimes, a lack of understanding as to what was involved led to unachievable expectations, with in some cases academics expecting that production could start immediately and in other cases producers expecting content to be provided immediately. It is important not to start production before all questions have been resolved, and not to try to fit complex issues into tight project plans. The issue of who should drive the process could be difficult, particularly, where projects had to fit in with the more pressing day-to-day teaching and research activities of academic staff.

The issues surrounding ownership and responsibility created similar tensions and need to be taken seriously. In video production, producers had creative ownership over the product. As a result of the greater impact of ICT on the curriculum (even more so in the case of the process-focused projects), academic departments are anxious to secure ownership of their ICT resources in order to be able to control the processes of changing, updating and adapting them. Many academics are eager to develop their own technical skills or to create new technical support posts or multimedia facilities in their departments. Some of the production staff felt that this may lead to a reduction in production values. Differences in perceptions of what constitutes quality in teaching materials although not a key issue in the development stage, was alluded to and may be a problem as projects get into the production phase.

Due to the tensions described, consensus was often difficult to achieve. One producer thought that consensus was very nebulous and loose. In multimedia production, achieving consensus is an ongoing process and becomes more difficult the greater the impact of the project on the curriculum and the more people are affected by it. Differences in pedagogical approaches lead to tensions among academics, to the extent that some academics considered pulling out of teams or of not implementing the project in their own teaching. One academic described the collaborative process in the academic team as “an uncomfortable process of development”. In the more successful cases, academics reaching consensus sometimes underwent a considerable change in their approach to teaching.

**Conclusion**

In this case study, we have focussed on the cultural issues which arise from multi-disciplinary collaborative teams. Whilst the data was drawn from internal interviews, comparisons with personal experience and the literature indicate that these issues are neither confined to Sheffield nor indeed to the UK. The conclusions are applicable across a range of institutions and as such it is hoped that Sheffield’s experience will be useful to many of those working in the field.

A greater understanding of the requirements of multimedia production, both from the teaching and the technical perspectives is needed to ensure that team members work effectively together. This will be enhanced in an environment in which all members have an understanding of the culture and expectations of others.

Academics often have clear expectations about what they want their multimedia project to achieve but they often need a long period of time to articulate their vision and to come to a consensus in their department. Project management of multimedia production needs to take into account the long developmental period; otherwise there will be unrealistic time scales and expectations.

Academics are increasingly concerned with the processes of curriculum change through ICT; and rather less concerned with the creation of multimedia products. Multimedia development units need to focus on developing resources for staff to use in their teaching on a much more integrated basis. Those resources can range from fixed teaching materials of varying length to more flexible materials; whatever best fits into the course and its learning environment.

Production teams need to develop appropriate models to work in the changing environment. If the skills in the teams are to be used effectively, then all its members need to have an understanding of the use of learning resources in teaching and learning and the nature of the processes required to develop the curriculum.
References


