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Scaling up an Online Course to Deal with 12 000 Students

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ABSTRACT *A web-based course with tutorial support provided via computer conferencing was developed at the UK Open University and piloted with 850 students. The following year, the course was scaled up to accept a student cohort of over 12,000. This article addresses the issues that operating on such a large scale raises for educators. The course team aimed to maintain an intimate, personal experience for students and tutors, whilst establishing industrial scale support systems. The issues identified are categorised as tutor, student and course team ones. The nature of the support for the 600 tutors on the course and the new roles required of them are described. The conferencing structure necessary to provide a valuable learning environment for students is also detailed. In addition, the new roles, responsibilities and working methods that the course team needed to develop are outlined. The authors suggest that although there is much talk about the 'massification' of knowledge in education, there is considerable time, effort and resource required in providing large-scale online courses. If the student experience is to be meaningful and satisfactory, then the cost of implementing the necessary support structures may well negate any savings made elsewhere, such as in the distribution and reproducibility of material.*

Introduction

At the Open University in the UK (OU), a level one course, T171, *You, Your Computer and the Net*, has been developed. The authors are the joint chairs of the course, dealing with issues relating to the presentation of each version of the course, and changes to the course for subsequent presentations. The course is an introduction to computers and the Internet. It is

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based largely on a website which contains specifically authored material. The tuition of the course is conducted online via asynchronous computer conferencing. The course was piloted in 1999 with 850 students. Once publicised, student uptake of the course was considerable, and by September 1999, there were 9000 students registered for the 2000 presentation of the course, with some 73% of students new to the OU.

As with most OU courses, T171 begins its presentation in February, and is studied for 32 weeks. Students study on a part-time basis. The course is worth 30 Credit Accumulation and Transfer (CAT) points and it is estimated that on such a course the average study time is 6–7 hours per week. The development and structure of the course has been detailed elsewhere (Weller, 2000). This article is concerned with the issues that arose when the course was scaled from its pilot year to its full presentation in 2000.

OU Teaching Context

As this course is totally online, it represents a different model of working for the UKOU, which has developed an approach based on distance learning supported with regular face-to-face contact. The traditional OU course materials comprise specifically written printed units, along with additional components such as audio or video cassettes, CD-ROM, television programmes and so forth. This course material embodies the core teaching method, is designed for independent learning and as such, aims to be unambiguous, interactive and incorporate a clear developmental path for knowledge and study skills. In addition, students are supported by a part-time tutor, or Associate Lecturer, who is in the same geographical region as the student. The tutor will mark the students' assignments (called TMAs, for Tutor Marked Assignments), providing extensive teaching feedback. The tutor will also devise and run tutorials regularly throughout the course, held at a local study centre. These tutorials are not compulsory, since many students are studying part-time and have commitments that make tutorial attendance problematic. Their aim is to help students engage with the course content, explain and reinforce difficult aspects of the course, help in the preparation of TMAs and support the development of study skills. The tutor also provides support on demand throughout the course via telephone or e-mail contact.

Tutor Support on T171

On T171, students are similarly assigned a part-time tutor, with 15–20 students allocated to each tutor group. Apart from an initial introductory meeting, however, no face-to-face tutorials were planned; tutoring and support of students was provided primarily by means of conferencing and

telephone contact. Although computer conferencing has been widely used in the OU (e.g. Mason, 1988), and use of the Web has been incorporated (mainly as an adjunct to printed materials) into many courses, T171 was the first undergraduate course to utilise the Internet as its sole delivery and tuition medium.

The course thus required different skills from tutors, and often a different approach to the course as a whole. The course could not, therefore, rely on an existing body of tutors, and many new tutors needed to be recruited. The first impact of the scaling up, therefore, was the pressure created on the OU to recruit and employ sufficient tutors. Each appointment required an application and interview process, so employing the large number of tutors required represented a considerable drain on time and resources. For this reason, a quota was placed on the number of students on the February 2000 presentation, of 9000. However, in order to meet student demand, a second presentation was scheduled, starting in May 2000, with a quota of 3500 students.

Impact of T171 on OU Systems

In OU terms, 12,500 is a very large course, but not unknown. The social science foundation course, DD100, for instance, has approximately 13,000 students registered in 2000. However, most OU courses have student numbers in the hundreds, or low thousands. Being delivered online, T171 created new and different demands on the OU systems from that of any of the other large-scale courses delivered in the conventional OU way. This generated some tensions, since many of the existing support systems for students and tutors have been developed on the basis of a face-to-face tuition model, and with traditional printed course materials.

Large Scale vs. a Personal Experience for Students

As a level 1 course, T171 may be the first experience of higher education, or distance education, for many of its students. Many students are in fact returning to education after a break of many years. It is thus important to provide students with adequate support and a good experience, not only of the course, but of higher education as a whole. There was thus an inherent tension in the presentation of T171 for the course team. On the one hand, they had to implement large-scale efficient systems for the delivery of material, administering of computer conferences, dealing with assessment and putting in place support systems for students and tutors. They also had to ensure that the course accommodated students' individual needs and provided an intimate, personal experience. In this article, we will detail how the course team set about meeting this challenge, and dealt with the issues relating to scale.

Wider Educational Context

The increased use of the Internet in distance education has led to observations that it offers a potential benefit in terms of resources, with more students for each member of academic staff. For instance, Rayburn & Ramaprasad (2000) classify the strategies for usage of the Internet in universities and one of their categories is the 'Large Lecture Hall', of which they say:

> *The Large Lecture Hall strategy reveals itself in concerns to deliver instruction more productively* at less cost *or to more students for greater revenue.* (p. 55)

Reproducibility of digital media is almost cost-free, so web-based courses are often seen as a means of massifying knowledge. However, the reality of the wider costs of shifting from print-based to online (web-based) delivery is explored by Inglis (1999) and he concludes that it is difficult to justify the shift in terms of cost savings alone.

Others see computer-mediated communication (CMC) as a technological panacea that can uniquely support the move towards a 'post-industrial' approach to education. Garrison (1997) argues that computer conferencing is the most feasible and effective technology for achieving the ideals of a collaborative constructivist approach to distance education.

Annand, (1999) warns, however, that the use of computer conferencing to deindustrialise the distance education process is not as cost-effective as the present industrialised models, and that this will constrain the adoption of these technologies in distance-based universities. He argues that:

> *although relatively fixed production costs may decrease as reliance on the technology needed to produce print-based materials declines, the increased interactivity afforded by new technologies like computer conferencing means that instructional costs—for example, payments to conference moderators—will increase in relatively direct proportion to the number of students enrolled.* (p. 48)

So, although the technologies the OU has commonly employed have high fixed costs, they have low variable costs. Good quality television or video programmes are expensive to produce but then relatively cheap to deliver as the number of students increases. CMC-rich teaching has low fixed costs but high variable costs; that is, the cost increases with the numbers of students (Bates, 1995). This represents a fundamental challenge to the OU model, which is based on economies of scale.

This matches closely with our experience and, in this article, we hope to indicate the areas in which the use of the Internet generated a greater resource requirement and increased expenditure compared with the conven-

tional model for delivery of OU courses. The issues discussed have been categorised as tutor, student and course team issues.

Tutor Issues

Recruitment and Induction

T171 utilised the existing OU model for the recruitment and administration of tutors. This is based on a regional model, with the UK being divided into 13 separate geographical regions, each with its own administrative office. Each of these has associated Staff Tutors, faculty academics who recruit, select, appoint and act as line managers for the part-time tutors. So, although an online course does not have a requirement for students and tutors to be allocated geographically, the existing regional administrative structures made this an ideal method for coping with the scale of recruitment and conventional support. Advertisements and a mailshot were sent out from the OU centre in Milton Keynes and in the order of 400 new tutors were appointed nationally for the February presentation. Subsequently, an additional 180 tutors were appointed for the May presentation.

The recruitment process itself was also more demanding than normal. As educators in higher education, we have a well-developed consensus of what we are looking for in terms of attitude, approach and teaching skills required for face-to-face teaching. Teaching and learning online is, however, relatively new—we are still forming our opinions of what is good and bad practice in this environment. Relatively few people have had experience of teaching online; certainly, the majority of applicants had little direct experience of using CMC for teaching though many had supported material delivered via the Web in conventional campus-based universities. Our basic requirements related to familiarity with online technology and systems and some teaching experience. On top of this, we were looking for something less tangible: a positive attitude towards teaching online, a flexible approach and sensitive awareness of the needs of students new to information technology (IT). These are difficult things to gauge from an application form and require a fairly lengthy interview to assess. Thus, the selection and appointment of tutors for T171 was a demanding process for Technology Staff Tutors and other regional staff involved.

Most of the appointed tutors were new to teaching for the OU and received the normal induction process for new tutors. This includes a briefing on the OU approach to conducting distance education, providing effective student support and acquaintance with the OU structure and practices. The briefing also covers academic counselling or student support, since level one tutors are recruited as 'tutor-counsellors', which means they have a wider support role to help new students in their development of study skills and adjustment to the demands of study at a higher education level. This induction is performed in the regions, and is conducted by Staff

Tutors. However, as T171 was different from many OU courses in its specific requirements from tutors, demanding new skills and approaches as a result of teaching online, the course team had to take on additional support and development tasks in order to brief and support the Staff Tutors and other regional support staff in this process.

Management of Tutors

Managing the volume of tutors appointed required the appointment of 10 new Technology Staff Tutors; this represented a 30% increase on the existing complement. This was needed to assure the quality of student support and tutoring, and provide feedback to otherwise experienced and competent teachers learning how to adjust to operating in a completely different way. It has been suggested that online delivery of courses results in the learning becoming more student centred, with the educator taking a more facilitative role (Harasim *et al.*, 1995): what has commonly been termed a shift from being a 'sage on the stage' to a 'guide on the side'. This shift is less dramatic for OU tutors, whose role has always been one of supporting the course materials. Even so, it was still evident that in the shift from face-to-face to online tutorials, many experienced OU tutors found the experience required them to take an even more facilitative role than they had done previously. They needed extensive feedback and support as they worked through this change in role. They also had to cope with the pragmatic need for managing the expectations of students with unlimited access to their tutor and the high expectations generated by the potential for instantaneous responses that working online brings.

Tutor Training and Development

It is customary in the OU to have a face-to-face tutor briefing before the start of a new course. This gives the course team an opportunity to meet tutors and explain the content, approach and philosophy of the course. Such a briefing had occurred for the pilot presentation of T171, and the initial intention was to have a similar briefing for the first full presentation. However, as the scale of the course grew, it became apparent that a single face-to-face briefing meeting would be inadequate and impractical for the 450 February tutors. The decision was thus made to use a multimedia approach to briefing, incorporating a video, a text resource pack and time-scheduled online activities. The video performed the function of the traditional briefing, with separate course team members detailing the content of the course, a demonstration of the system used for submitting and marking electronic assignments, an explanation of the online tutor support structure and an interview with tutors from the previous presentation, talking about their experiences. The tutor resource pack contained an overview of the course, including sample assignments, a timetable of

events and skills maps. It also contained guidance (derived from the experience of adjunct use of CMC on other OU courses) on facilitating online tutorials and dealt with certain issues of concern to new tutors, such as introductory messages, strategies for dealing with non-contributing students, dealing with flaming, etc. Online activities included exercises to familiarise tutors with the technical aspects of the computer conferencing system (T171 uses Centricity's FirstClass system, as does the rest of the OU), and also online moderator issues, building on the material in the tutor resource pack. There was also a period of self-paced online training for the OU's electronic assignments system and the marking tool associated with it. This activity happened prior to the start of the course, and occurred in conjunction with the previously mentioned 'traditional' staff development practices that take place in the regions.

Ongoing Tutor Support

During the presentation of the course, an ongoing online support structure was put in place for tutors. Implemented mainly via computer conferencing, its aim was to provide answers to any course-related or technical questions they had as they familiarised themselves with the course and its systems, and also to provide a forum for tutors to meet each other and share their experiences of tutoring the course.

In the pilot presentation of the course, the course team provided the support through one national conference. The scale of the presentation in 2000 meant that one single conference for all 450 tutors would not be viable, and would represent a considerable workload for the course team. Therefore, a hierarchical conference structure was implemented. Tutors were grouped in four pan-regions. In each of these pan-regions, two conferences were created: Course Help, where all queries relating to course material and tutorial issues could be directed; and Technical Help, in which tutors could seek a response to queries relating to technical issues surrounding the website, FirstClass, the electronic assignment system, and student technical queries which the tutor could not answer. Each of these conferences had two experienced tutors appointed as co-moderators, to deal with queries. In addition, there was a read-only national tutors' notice board, which the course team used for stop-press type course announcements to all tutors. This was also where resources such as marking guides and support materials for online tutorial activities were posted.

Each tutor is the 'controller' for their own tutor group conference, to which only they and the 15–20 students allocated to them have access. This is the focus for most of the students' interaction with the tutor and each other. It is also the place where specific 'tutor group activities' designed to help students engage with the course content are run at intervals throughout the course. It is thus important to develop both the tutor's technical proficiency in using the FirstClass software to perform maintenance tasks

such as creating new conferences, and also the moderating skills necessary to make the tutor group conference a welcoming environment for students. The support conferences were therefore an important means of staff development, as they provided tutors themselves with a direct experience of learning and operating in a conferencing environment. They provided a model and practical examples that tutors could use in designing and moderating their own conferences.

There was also a top-level conference called Support Team, to which only the moderators and the course team had access. This is where moderators could seek responses to queries they were unable to answer or ask for clarification on issues as they arose. It also enabled the course team to brief the moderators on any last minute developments or adjustments in the course. In this way, the moderators had a key role as gatekeepers in the flow of information and advice from course team to tutors, and in the reverse direction providing invaluable immediate feedback on the practical implementation of the course.

For the second presentation of the course, there were 181 tutors, and compared to the first presentation, an even greater proportion of these were new to the OU. The same tutor briefing and development approach was employed, but a different conference structure was used. The smaller numbers meant that the need for dividing tutors into pan-regions was no longer present, so national Course Help and Technical Help conferences were created, again with experienced tutors appointed as moderators.

Quality Assurance of Teaching

As with all OU courses, quality assurance is an issue of prime importance. In the production of the course, this is primarily concerned with the quality of the learning material. During the presentation phase, the student experience as it relates to their tutor and the university as a whole is the focus. This is both a monitoring and a staff development function, particularly for new tutors. For traditional OU courses, tutors are monitored by examining samples of the feedback they provide to students on their assignments, and by pre-arranged Staff Tutor visits to face-to-face tutorials.

On T171, the tutorial visit was implemented by Staff Tutors, who joined each tutor group conference. As with face-to-face visits, the Staff Tutor requested permission to visit the conference, and usually had access for a specific period. The way in which the visit was introduced and the degree of visibility of the Staff Tutor in the conference was agreed between tutor and Staff Tutor. During the period of the visit, the Staff Tutor could read all messages and replies—although in practice a selection was covered rather than all. At the end of the visit, a report giving feedback and raising any issues for discussion or staff development was provided. This fed in to the normal staff development processes during the 2-year probation period for any new tutors.

Once the tutor has marked assignments, a sample of these is copied and monitored by course team members, Staff Tutors or experienced tutors. Feedback is then given to the tutor on their marking. This forms part of the staff development process for tutors. On T171, all assignments were submitted electronically, usually as HTML documents. Thus, the traditional systems for copying, distributing and monitoring paper-based assignments had to be modified. The existing electronic assignment handling system had no provision for electronic monitoring, so a system was devised by the course team, whereby the students' files and tutor's comments were sent as zip attachments to appropriate monitors. An electronic version of the 'monitoring report form' was completed by the monitor and returned by e-mail to the faculty and the relevant Staff Tutor. The system worked but was cumbersome given the size of files transferred (typically 0.5–1 Mbyte). It also represented a considerable change in working practice from the manner in which much of the OU has operated over the past 30 years. It was thus a considerable workload to find, and brief, people who were willing to work in this manner, and felt comfortable in doing so. The OU is currently looking at how the electronic assignments system and the monitoring system can be redesigned to work more smoothly and efficiently.

Student Issues

As with tutors, the student support environment was largely delivered in terms of online conferences. In the pilot presentation of the course, in addition to their tutor group conference, there had been six national conferences relating to different aspects of the course, plus a social 'Café' area. One element of the feedback from the pilot presentation was that students found the numbers of messages in these conferences sometimes overwhelming (Mason & Weller, 2000). With 10 times as many students on the February presentation, it was felt that single instances of each conference would contain too many messages for students to make meaningful use of. The conference structure was thus based on the 13 geographical regions, with students allocated accordingly. The numbers of participants ranged from over 1000 in the biggest regions to about a third of this in the smallest. These conferences were implemented across two servers. In each regional set-up, there were four support conferences—HTML, FirstClass, Office Applications and Windows. Two experts, appointed from the tutor body, moderated each of these in all but the smallest regions. Students could raise queries about particular problems they had concerning software in these conferences.

Links to these conferences are embedded in the website; a Cold Fusion database engine uses the login user-id and handles the routing of individual students to the appropriate regional or pan-regional copy of

the conference. Obviously, the change from one national conference to several regional conferences on two servers complicated this process; this resulted in substantial time required to reprogram the engine for each presentation.

There was also a Café conference in each region, moderated by former T171 students, and a national student notice board where the course team could post announcements. On the May presentation, the lower student numbers meant that a regional structure was not appropriate, so a pan-regional structure was implemented, with the same conferences created across four distinct pan-regions. There were, therefore, 75 tutor-moderators in total across the two presentations, and around 20 student moderators. All of these received payment for the work, the rate being proportionally linked to the numbers of students in the region, or pan-region, covered by the conference and required support from the course team.

Access to the Wider Student Group

The support conference structure had been designed to give conferences of a manageable size so that students would not feel overwhelmed by the level of activity. However, for some of the more confident students, they proved too pedestrian. One of the early exercises in the course material involved students practising using the FirstClass software to send messages to a Practice conference. This was a national conference, which was simply intended to be an area where students could test their proficiency in sending messages, without filling up the support or discussion conferences. However, after 2 months, the practice conference had in effect been subverted in its role by some students, and had become a national discussion conference. Messages were being posted at the rate of hundreds per day although the message expiry time was short (a few days). Students who posted here were clearly attracted by the fact that the large population (around 4000 users) meant that at peak times there was always someone somewhere in the country online, resulting in a rapid reply time—almost, in fact, real-time. It quickly transpired that whilst the technical support conferences worked well with the number of students allocated to each region, in the case of the Café, some students wanted to mix with the whole course cohort. This was partly as a consequence of our decision to have a national 'early bird' conference for those students who were eager to participate in conferencing before the course start. At the course start date, this conference had been closed and students directed to their regional conferences, which, of course, included a Café. However many students had made friendships across the regional boundaries during this time and sought whatever means they could to maintain these links. To meet this demand, a national Café was created on both presentations, with four of the student moderators appointed to oversee it.

Reducing Isolation

The scale of the course meant that it was relatively easy for students to create a large social area online, and the Cafés were very busy. However, this can be intimidating for some students, and although it generates lengthy discussions, it is not very conducive for focused collaboration. The tutor group conferences were therefore intended to be a more intimate area where students could discuss issues if they felt the larger conferences were intimidating, and where they could experience working closely as a group. They were intended as a 'safe' environment where students could get to know each other (and their tutor) and thus feel less exposed when making mistakes as they learned how to operate in the online environment. To this end, the course material contained a number of activities which were conducted within the tutor group conference. These included reaching consensus on group working principles and developing a 'web channel'. Both of these were linked to assessment, so there was some compulsion to use the tutor group conference. The details for conducting these activities were e-mailed to all tutors from the course team, with sample messages to set up the activity.

Thus, the course team approach was to try to establish the student–tutor relationship by making the tutor the primary facilitator for the interactive elements of the course. As has been noted elsewhere (e.g. Wolcott, 1996), studying at a distance can be a lonely pursuit, and in an online environment with no face-to-face contact, this sense of isolation can be increased if the course material or environment itself does not actively encourage interaction. As has been previously reported (Mason & Weller, 2000), the group work element was one of the most contentious for many students in the 1999 presentation—for some, it represented the key component of the course, and they would have liked more, whilst others resented it. This was still largely true for the presentations of the course in 2000, although the activities had been modified slightly. In some respects, this represents a fundamental shift from traditional OU courses in that students become more dependent on others, and lose some of the time independence and flexibility that studying more independently affords. However, the very existence of group activities meant that many students logged in to the conferences. Often, the group activities formed the centre of debates in the Café areas, so in this respect they fulfilled their function of overcoming isolation and encouraging interaction, even if students did not always find them to their preference. One student's comment from the end of course evaluation sums this up:

> *Distance learning can be tough at times and having a peer group to get advice from and have a laugh with can make a big difference. Many students in the café have provided an unofficial support system and have, I believe, stopped many others from giving up.*

Student Success and Satisfaction

Despite the enormous challenges presented by scaling up the number of students by a factor of 10 in a single year, there is evidence to show that we did in the main get it right. Analysis of the pass rates across all OU courses in 2000 [1] shows that T171 performed better than expected when compared with other Technology faculty courses. End of course surveys carried out by the OU's Institute of Educational Technology show that the level of satisfaction with the course for T171 students in 2000 was nearly identical to that of students on a comparable level 1 technology course (T172) taught in the conventional OU mode [2].

Impact of T171 on Wider OU Student Services

In addition to the course conferences, there was also support for students and tutors from university-wide systems, for example, a Helpdesk to deal with software problems or access to university systems. The Helpdesk could be contacted by conference, e-mail, telephone or fax. Students and tutors found this facility played an important function, particularly if they encountered problems with the electronic assignment system. The scale of the course, however, represented a considerable workload for the Helpdesk, and additional staff had to be recruited.

The OU has developed a model of supported open learning, which involves providing an extensive support network for students beyond their allocated tutor. This is realised through regional facilities such as regional advisers to answer queries, central facilities such as course registration and fees, and the Helpdesk. Much of this larger support network has been recently reworked for Internet provision, so, for example, students can submit enquiries via e-mail and have access to their own personal records online. However, students on a large, web-based course place an increased emphasis on the pace of such change. Having studied and been supported entirely online, they have an expectation for this type of support across the university in all areas. A large-scale university-wide system to allow greater Internet provision of student services online is currently being implemented. The knock-on effects of these changes are the need for training and staff development for the administrative and academic staff involved, the development of new codes of practice, the definition of expected service levels and practices relating to enquiry response time, record-keeping and archiving of communications, and so on.

Course Team Issues

New Course Team Roles

As has been mentioned elsewhere (Weller, 2000), the production of T171 involved changes and flexibility in the traditional roles of an OU course

team, including new methods of working and responsibilities for authors, editors, designers and course managers. A similar change in working patterns was seen in the presentation of the course, with new roles being taken on by the team. The first change was the increased workload represented by presentation. Traditional OU courses have an intensive production phase, but for the central course, team presentation has a lower workload, with much of the running of the course, including dealing with student and tutor issues, being devolved to the regions. The large scale and unconventional approach of the course meant that while regional support for students and tutors was still extensive, the course team had to supplement much of this in an online context. For example, the 95 student and tutor support conference moderators mentioned previously all had to be recruited, briefed, supported and monitored by the course team.

The technical infrastructure necessary for delivering the web material and conference structure was implemented by the technical support unit of the OU (known as LTS), but to the specification of the course team, and in conjunction with them. This involved the course team in very detailed technical issues. It also required an ongoing commitment since different events or tasks were required during the year. For example, in liaison with LTS, the course team had to devise an appropriate structure and timing for over 1000 conferences, with varying access permissions, and occurring at different times during the course. Since conferences had never been specified on this scale before, there were no formal procedures in place for ensuring that LTS received the full and correct details for creating them (e.g. who should have access, when they should open, who the moderators were etc.) The course team therefore devised systems for communicating this information to LTS in an accurate and efficient manner.

Increased Direct Contact with Students

The nature of the medium also carries with it expectations of interaction, support and presence from the course team. Although a hierarchical structure was implemented for dealing with student and tutor queries through the conference structure outlined earlier, the course team also dealt with many individual queries. They posted a great deal of direct information to students and tutors via notice boards. Such notices included information which is better delivered in a timely fashion rather than on the static website; for example, further information regarding assignment submission. In addition, students and tutors are apprised of any changes to material, and technical issues which arise, such as server downtimes. Easy access to the extended course team via conferencing also meant that more of the questions raised by students came directly through to the course team than on a normal OU course. For example, if the student felt they were not getting a quick enough response from their tutor on a query about a TMA, they might send a message to the course team. In fact, all the members of

the course team had personal accounts on all three servers so a student or tutor could e-mail any one of them direct. It is difficult to ignore such a direct request for information even if it is subsequently passed on to be dealt with by someone else in the organisation. Inevitably, some communication takes place in acknowledging the message and routing it to the right person. Thankfully, the structures put in place worked well and these kinds of requests did not get to unmanageable proportions. However, all of this means the course team needs to be involved much more on a day-to-day basis, and team members are always aware of any problems or issues which arise, allowing them to respond in a timely fashion. This results in a higher presentation workload than was previously the case on more static, print-based courses.

Amendments for 2001

As a result of our experiences in 2000, and taking account of feedback from students, tutors and Staff Tutors, we have made several changes for the 2001 presentation, for which similar numbers of students have enrolled (over 11,500 at course start on a single presentation).

The structure of the tutor support conferences was streamlined in response to feedback from the tutors that it was too complex, and in recognition of the reduced level of support needed a second time around. There is now only one national conference gatewayed across the two servers. This acts as the tutors' notice board and contains two interactive (Course Help and Technical Help) and several read-only subconferences (one for each of the types of resources provided by the course team, marking guides, tutor guides etc.) A conference creator tool has also been developed to make the setting up of subconferences in their tutor group conferences easier for tutors.

The student conferences are grouped in pan-regions; the feedback was that some of the smaller regions had not generated a sufficiently high level of activity. The regions are grouped to give around 2000 participants in each pan-region. Teams of six moderators have been appointed to share the load across the six student conferences in each pan-region—36 moderators in total. There is also a Café conference in each pan-region. Again, these subconferences are placed within a top-level conference that is read-only and acts as the course notice board. This was in response to the feedback that students were not looking at the notice board when it was a separate national conference in the old structure. However, as a consequence, we now have six separate notice boards to update each time we post a course team announcement. FAQs (Frequently Asked Questions) are used much more extensively; they are generated centrally by the moderators then posted to a national read-only conference that is gatewayed to each of the pan-regions.

The 'early bird' conferences were also created in each of these

pan-regions from the start, so students have never been in direct contact with students outside their pan-region, though they can e-mail direct to anyone on their server. The lifetime of messages in the practice conference has been reduced and the conference will be made read-only at the end of the first module, in an attempt to discourage its use as a meeting area.

A new post of 'Conference Coordinator' has been created and his/her role is to support the moderators at an operational level, encourage and manage the collection of FAQs and liaise between the course team and LTS, especially with respect to the Helpdesk. This is proving very successful and has helped relieve the day-to-day demands on the course team considerably.

Ongoing tutor support and staff development has always been the remit of Staff Tutors and the other regional services rather than course teams. While we continue to provide the national tutor support conferences and post resources for tutors, we have now handed back responsibility for longer term, in-depth staff development to Staff Tutors. Most regions now have their own tutor support conference run by the Staff Tutors or their delegate.

We remain in touch with the regional perspective through several Staff Tutor colleagues who have joined the extended course team, and by the invitation of all Technology Staff Tutors to course team away days. There are also members of the course team and Staff Tutors active in a national conference covering pedagogic issues, which was set up during 2000 in response to tutor demand. All tutors have access to this on a subscription basis and many have taken up this opportunity for discussion of wider issues.

Student Services are now much more aware of the kinds of queries T171 students have and are better placed to respond to them. A pilot project was run last year to provide real-time course choice information online. Several research projects are now under way in the regions to explore the support needs of different groups of T171 students. Channels of communication with the central administrative systems, e.g. with respect to the electronic assignments system, are now much clearer and routine. Thus, less of these types of enquiries are coming through to the course team.

We have streamlined and semi-automated some of the more routine course procedures, for example, regular mailing of study guides and tutors' guides are now handled by LTS from a designated mailbox. Offline versions of sections of the website are routinely created by LTS and provided via a link on the website instead of being posted on the notice boards. This has led to less work on a day-to-day basis by the course team but more time in discussion with LTS to agree procedures and timings.

Conclusion

In this article, we have looked at a number of issues relating to large-scale presentation of an online course. In order to provide a meaningful educational environment for students on such a course, a great deal of effort has to be expended in creating a rich support environment and structured

activity. Whilst use of Internet technologies may result in more efficient course production, through the use of pre-existing templates, re-versioning and reduction in print costs, the presentation load of such courses is increased from traditional distance education courses. The workload for academics delivering large-scale online courses may involve inventing new procedures and taking on new roles, especially in terms of managerial and administrative functions. This is particularly true for the first of such courses in a university. The idea that use of the Web therefore affords large student uptake at relatively low cost is in many ways misguided. If the student experience is to be a meaningful one, then considerable time and resource needs to be expended in areas which may have previously not been necessary; for example, the payment of conference moderators. The need for such additional roles is combined with the need for a greater involvement from the course team. T171 was unusual in that its course team actually increased in members when moving from production to presentation; this is a reversal of the standard OU course model. This increase in numbers was required to deal with the technical and ongoing support issues outlined in this article. This represents a fundamental shift in the economics of distance education courses. The increased time and involvement of the course team is a significant cost factor which organisations considering large scale online delivery need to take into account.

Some of this workload can be seen as an 'innovation tax', in that as the first undergraduate course to go fully online, the course team had to invent many procedures and adapt existing working methods. These approaches can be used or modified by other course teams. Similarly, the development of staff to be familiar with such methods of working now means that some of the functions, which initially had to be absorbed by the course team, can now be passed back to other units. The innovation tax can be seen as the cost of inducing cultural change within an organisation. As with any such change, the time and effort involved should not be underestimated.

NOTES

1. Internal OU Report: Course Results 2000: are they what you would expect? G. J. Birt. Mathematical Social Science Note 15. IET. 17 May 2001.
2. Confidential internal report from OU Institute of Education Technology.

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