

# The Value of New Technology and Collaboration in Extending Capacity and Widening Participation

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## 1. INTRODUCTION

How does one bring about major change in a university? Traditionally the best universities have depended on individual creativity, often working within a relatively autonomous institution. Modern economies and state funding put change that comes in this kind of structure under strain, and the increasing use of modern technologies can have the same effect. Economies of scale and adherence to Government plans can lead to change which is of a unitary kind and very much driven from the top, with the risk that individual creativity is stifled.

The drivers for the project we are describing and discussing in this paper are the commitment in two universities in different continents – the UK Open University and the University of Delhi - to excellence in teaching and to a desire to widen effective participation in Higher Education. These commitments go alongside a belief that technology can empower the learner and the teacher. The need in both the countries in which the universities operate is significant as the nature of business, industry and communications changes, but is comparatively greater in India. As India further modernises its economy the government aims to raise participation in Higher Education from around 11% to 15%, requiring in headline terms the creation of 84 lakh of students. Much of this growth is envisaged as coming from the private sector, but through this project and – for example – the partnership struck earlier this year with the Confederation of Indian Industries Delhi University has shown its eagerness as an already large Central University to play a leading part.

The project is one of the embodiments of the UK-India Educational Research Initiative (UKIERI), project supported at Prime Minister level in the UK and India and designed to strengthen partnerships between the UK and India. We come before you then as perhaps the only paper that acknowledges UKIERI Project funded by the British Council, the UK Department for Education and Skills (DfES), Office of Science and Innovation, the FCO, Scotland, Northern Ireland, Wales, GSK, BP, Shell and BAE for the benefit of the India Higher Education Sector and the UK Higher Education Sector. The views expressed are not necessarily those of the funding bodies. As importantly the project has support from staff at all levels of the two universities, and we want here to acknowledge particularly the commitment of our two Vice-Chancellors, Professors Brenda Gourley and Deepak Pental. In all this we want to emphasise the value of 'exchange' in the partnership – there has been an exchange of staff but most importantly there has been an exchange of ideas and an exchange in intellectual challenges.

Finally, and to return to the theme of the opening paragraph, the 'method' of the project has involved piloting a process which facilitates and engages those who will be most effected by the change in the design of that change. In a parallel way the project has been developed within the ethos of 'open source' and more specifically to take advantage of The Open University's 'OpenLearn' (See <http://www.open.ac.uk/openlearn/home.php>) and the use in both The Open University and the University of Delhi of Moodle based virtual learning environments.

## 2. THE PROJECT IN MORE DETAIL

This project operates across a range of subjects and a range of areas of Delhi University; through pilot projects it aims to lay the foundations for changes in teaching methods (and particularly the use of new technology) in Delhi University which will enable the University to play its part in bringing about the changes in Higher Education to which we have already referred. The pilots focus on

*Commerce*

*Science (especially Physics)*

*English Communication*

*Professional Development for Academic Staff*

*and*

### *School Teacher Education*

With the exception of this last, the pilot projects are geared to undergraduate teaching generally in Delhi University but the particular priority is to modernise the teaching and support for the approximately 200,000 students in the School of Open Learning – a very significant widening participation constituency. The University of Delhi has a federal structure in which undergraduate teaching – to a common University syllabus and tested by centrally organised examinations - takes place in the 80 or so constituent colleges, plus the School of Open Learning, while central University Departments focus on postgraduate teaching and research.

The project began in June, 2007 aiming at developing a new learning culture that is Supported Blended Learning. This can be defined as Learning which supports and enables students to achieve their highest aspirations and achieve their full potential by exploiting the strengths of all 'technologies' as they are most appropriate. New technology (in a variety of forms) plays usually the central role in the process but face to face teaching, books etc. all also play a key part.

Three supported blended workshops were organized in the newly configured computer lab in the Delhi University Conference Centre having seventy participants from various Colleges of Delhi University. There was a real buzz in the Workshops, and a huge amount of sharing of knowledge. The OU staff was all experts in the OU's Blended Learning methods but novices so far as educational practices and Delhi University structures are concerned. The DU staff was experts in their own area of teaching in Delhi, but generally did not have hands on experience of Supported Blended Learning or eLearning. As indicated above, the aim was to facilitate the learning and creativity of the Delhi University college teaching staff in devising new and more effective teaching methods.

After this broad orientation stage, a core group of around 30 set to work on the Commerce, Physics, and English Communication strands of the project. The tasks set for the Commerce, Physics, and English Communication groups are intentionally different to test a range of possibilities.

*Commerce:* Creation of a complete module from the B.Com. syllabus to be taught through Blended Learning.

(This will create a prototype which will increase the effectiveness of teaching -particularly in the School of Open Learning, but also across the University as whole. This will allow an immediate increase in capacity both to accommodate new students but also to free up staff time to develop further the use of Blended Learning in other modules.)

*Physics:* Creation of blended learning materials to support Laboratory based work. (Identifying activities currently carried out in laboratory sessions which can be transformed into primarily eLearning based exercises to be done outside the laboratory frees up laboratory capacity to accommodate more students. Equally the potential of eLearning (particularly in terms of simulations and animations) leads to more effective pre-laboratory sessions, and greater consolidation of learning in post-laboratory sessions. Again the gain lies in the increased capacity that can be accommodated because Labs are used more efficiently, and a gain in the quality of learning.)

*English Communication:* Creation of a 'service' module for the School of Open Learning. (Typically in the School of Open Learning there is a wider range of abilities than in colleges teaching by traditional methods. The nature of 'distance' teaching as presently practiced is that students have much less opportunities to engage with teachers in the development of skills. This module - designed as an online module but also able to be presented by conventional means – is designed to enable students to develop stronger skills in the use of correct and appropriate English. The outcome should be stronger academic work, better retention, and longer term better levels of vocational skills.)

The majority of each group is made up of those teaching the subject in a DU College, but in each there are also Computer Science specialists particularly able to provide technical advice and support.

### **3. OUTCOMES AND IMPLEMENTATION**

At the time of writing all the projects are still in process of development; completion is due in July 2008, so that by the time we present this paper we are confident that we will be able to report that the groups have achieved their aims, and explain in more detail how this has come about.

### **4. FEEDBACK, REFLECTION AND SUSTAINABILITY**

#### **4.1 Feedback**

[This section will be updated before the conference to reflect feedback to be collected in May and June]

Feedback is being collected at a number of points, both so as to improve the development process as it happens and also to collect some more final synoptic judgements. Thus, for example, participants in the workshops described above responded very favourably to the content and style of the Workshops. Feedback from the first workshop however indicated that participants did not fully understand the context of the workshops and subsequent workshops were modified to take account of this. All workshops have been designed to feature active involvement and this naturally enables feedback from the participants in dialogue with OU staff leading the workshops. OU staff have worked as a team with a regular sharing of knowledge. [Further comment will be included in the final version of the paper to report.]

As materials reach a near final form, Delhi College participants are also using their own networks to test the materials and gain feedback. These include, for example, a video discussion among pilot users of the Physics material. [Again further details of this will be included in the final version of the paper. Together with feedback referred to in the previous paragraph, this should enable a preliminary assessment of the effect the materials will have on students and as importantly in Colleges..]

#### **4.2 Reflections**

As the project has developed a number of issues have been raised. Many if not all of these may seem familiar to those engaged in the theory of organisational, educational and technological change but each takes a particular form because of the particular structures of the University of Delhi and the context of Indian Higher Education.

- Creating capacity means having capacity

As indicated in the Introduction the Project focuses squarely on increasing capacity, directly within Delhi University but by implication in other universities too. Our aim has been to draw on the strengths of those already teaching within the University (rather than adopting a 'consultancy' approach); these plainly are those in the undergraduate colleges who have the drive and creativity to develop such projects. The University has requested 'duty leave' for staff but it has still been the case that as the Project has developed members of each group have had to withdraw because of the pressures of commitments in the college etc. As student numbers increase and the demands on staff grow this is likely to become more of a problem. Particular issues arise here because of the structure of Delhi University which is unified in a number of key respects but where at undergraduate level teaching takes place in a variety of colleges which are in many respects relatively autonomous.

- Educational technological infrastructure

Open University staff have contributed substantially in terms of technical support to the groups, training them in the use of the various features of Moodle. In this they had support from the Open University's own infrastructure support systems – the pilots have been developed in fact on Open University servers, and Delhi University participants have become visiting members of The Open University for the duration of the project. The University of Delhi has provided 40 state of art computers and free networking to all its Colleges and has been organizing training programmes for computer literacy through its Computer Centre, free of cost for faculty and the non-teaching staff. However as the groups have pursued their work in an increasingly independent manner, it has become clear that the University of Delhi either does not yet have strong enough educational technological support to enable work of the kind piloted in the Project and usability of websites, or that the support it is able to provide is focussed in specialist areas and cannot easily be mobilised for activities across the University.

- Interweaving pedagogic and technical change

It will hardly be surprising that the Project has raised issues here – the history of the introduction of technology into education provides many examples of people seeking a technological solution to a pedagogic problem. The problem is exacerbated when – as here – there are time pressures and real needs to be addressed. Differences in culture have also been a subsidiary issue here. That is, the models of active learning ('learning by doing') are more developed at undergraduate level in the UK than in India where there is still a strong commitment to an 'instruction' model. This arises as much as anything in English medium undergraduate teaching such as is provided in Delhi University many school leavers

- Specificity of the syllabus

Those developing the project had the idea that a key element in the success of the would be to engage Delhi College staff in the open source ethos mentioned in Section 1. There has been no difficulty with this in theory, but the actual use of existing materials has been less than was anticipated because of the specifics of the syllabi of the University of Delhi. These syllabi are a key representation of the autonomy of the University; they do change but that change is a measured process subject to formal governance procedures. That said, OpenLearn has contributed at certain selected points to the design of the BComm. course, and more substantially to the English Communication course – there has been more scope in this latter strand because the course is a ‘service’ course, lying outside the syllabus.

- Infiltrating a large organisation

The design of the Project showed proper ambition in establishing projects - and envisaging change - across a wide range of subjects areas. Linked then to the previous point, in the course of the project we have been continuously concerned to understand how the different strands of the Project can be linked so that learning and creativity are spread. As importantly we have been concerned to understand how these – in practice – relatively small projects can have an effect across the 68 or so colleges of the University. At this stage of the project we see this happening in three ways, each of which is essential to reinforce the others.

- 1) *Cascade* The Project takes great strength from the support of the Vice Chancellor and his team. This indicates that the project is a serious venture for the University and helped no doubt to draw participants to the Workshops. One of the aims of the Project is the creation of a staff development module, and our aim is that this be blended learning based on the Workshops delivered in June 2007. By rerunning the Workshops in Autumn 2008 we will aim not only to increase the number of College staff directly trained but to identify people who can act as trainers for further presentations of staff.
- 2) *Spread like a virus* To reinforce this cascade we are aiming strongly to identify the value to College staff that comes from acquiring the skills of developing blended learning – these should be enviable skills. Again by the example of those who are trained and the recognition they have, we want College staff to increase their skills from self interest. These processes will require stimulus from College Principals and the University and may take time but it is possible to see a momentum developing in future years which will lead to a wide increase in skills and creativity across the University.
- 3) *Beacon Colleges* Our aim is also to develop something similar at College level through identifying certain Colleges as ‘Beacon Colleges’ that is Colleges known for their ready take up of modern pedagogy and the effective use of new technology. These qualities – we believe – will stand a College in good stead in the annual competition for students.

#### 4.3 Sustainability

The factors mentioned in the previous paragraph are explicitly designed to secure the sustainability of the Project. That is, our aim is that it should lead to ways of working which are desirable for College staff because they make their teaching more satisfying and more effective – something that will be very important as numbers rise. Equally we want College staff to feel they can be creative in the process, and this should both be in an academic and a technical sense. We advocate a use of technology which is user-driven rather than being unduly dependent on expert systems.

We seek through the pilots to ensure that College Principals see the changes as being in the interests of their colleges, enabling them to achieve different goals (including expansion of numbers, efficiency, and acknowledged excellence). The goal of creating sustainable change is also intrinsic to the UKIERI scheme.

Finally sustainability is enabled by the strategic aims of The Open University and Delhi University itself. The Open University’s Mission Statement includes, ‘Through academic research, pedagogic innovation and collaborative partnership it seeks to be a world leader in the design, content and delivery of supported open and distance learning’ (<http://www.open.ac.uk/ou-futures/index.shtml>, accessed March 2008). Delhi University in turn has been recently recognised as Centre of Excellence in the Budget, 2008. In Delhi University, a key force will be the Institute for LifeLong Learning initiated by the present Vice-Chancellor, Professor Deepak Pental which was being planned when the UKIERI

Project was formulated, now the UKIERI Project can make a significant contribution to the work of this Institute, providing resources and piloting ways of working which will be significant in the long term.