

JISC e-Learning Programme

Curriculum innovation: pragmatic approaches to transforming learning and teaching through technologies

Transforming Curriculum Delivery through Technology Programme Synthesis Report

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EXECUTIVE SUMMARY

This report draws together outcomes from the JISC Curriculum Delivery Programme on behalf of JISC and includes recommendations for further investigation.

In 2008 the e-Learning Team of the Joint Information Systems Committee (JISC) launched two parallel programmes of activity. One was a four year programme focusing on curriculum design processes – [Institutional approaches to Curriculum Design](#) - and the other was a two year programme focusing on the processes that take place when learners engage with a designed curriculum - [Transforming Curriculum Delivery Through Technology](#). This report will focus on the latter programme which came to an end in December 2010. The two programmes have been closely related and funded projects have had the benefit of shared activities through joint Programme Meetings. One of the most significant joint activities has been project input to a shared resource – the JISC [Curriculum Design Studio](#) a toolkit which draws together existing and emerging resources around both curriculum design and curriculum delivery. This resource provides a range of routes into these resources and offers a well managed access point for project outputs and outcomes. It has also highlighted existing resources for projects during their two years of activity.

The Transforming Curriculum Delivery Through Technology programme has, at its core, the aim to examine how specific curriculum developments impact on learning and teaching experiences. Curriculum Delivery in this context is used as shorthand to embrace the many ways in which learners are enabled to achieve the outcomes offered to them by a curriculum. This includes teaching, learning support, advice and guidance, coaching, mentorship, peer and collaborative learning, feedback and assessment, personal development planning and tutoring, skills development and practice and access to curriculum resources. The programme did not intend the term ‘delivery’ to mean the delivery of information to learners or to suggest that this would be an appropriate way of enabling learners to achieve curriculum goals.

The programme was conceived when the sector was increasingly focusing on graduate attributes and the need to ensure and support ongoing learning and professional development ([Leitch Review of Skills](#) and [Government’s World Class Skills implementation plan](#)). The 15 funded projects aimed to investigate how the appropriate integration of technology can help institutions deliver a more engaging and flexible learning experience in response to changing learner and employer needs. Projects identified the challenges that were specific to their own context and spent considerable time examining existing practice before embarking on a wide range of initiatives to address these challenges. It could be argued that the activities of these projects provide a broad picture of current approaches to supporting learning through technology in the UK at the present time, reflecting the diverse drivers and approaches of a range of institutions and subject discipline areas.

Three of the fifteen projects had a further education focus (**Making the New Diploma a Success**, **KUBE**, **Springboard TV**), two had a distance learner focus (**Atelier-D**, **Duckling**), one focused on continuing education students (**CASCADE**) and the remaining projects had a higher education focus (**COWL**, **Dynamic Learning Maps**, **eBiolabs**, **ESCAPE**, **Generation 4**, **INTEGRATE**, **ISCC**, **MAC**, **MoRSE**). These different focus areas naturally had an impact on the challenges, focus areas, interventions and approaches taken by projects. The projects adopted a range of methods, from research-based investigations involving small numbers of students (**ATELIER-D**, **Duckling**), department/subject-based approaches (**CASCADE**, **Dynamic Learning Maps**, **eBiolabs**, **ESCAPE**, **Generation 4**, **INTEGRATE**, **ISCC**, **KUBE**, **MAC**, **MoRSE**, **Springboard TV**) to large scale practical whole institutional approaches impacting on large numbers of staff and learners (**COWL**, **Making the New Diploma a Success**). This has resulted in a wide range of outcomes and outputs which offer the wider community some excellent resources to inform and support their own activities.

CHALLENGES

During the bidding process projects were asked to articulate how they hoped to transform the way they deliver and support learning across a curriculum area through the effective use of technology, in response to a particular challenge faced by the discipline(s), department(s) or institution(s). This focus on challenges proved important in relation to sustainability and embedding, as projects demonstrated significant institutional commitment to their visions.

Many of the challenges identified by projects reflected broad sector-wide issues, often influenced by external factors such as growing student numbers, changing employer needs and diversifying student demographics. Significant institutional and departmental level challenges included the need to balance efficiencies and effectiveness and the need for effective stakeholder engagement to facilitate change at an institutional level. Student engagement, retention and progression proved to be a major driver for many interventions focused on enhancing the learner experience. The need to offer a curriculum that reflects the changing needs of learners, and provide flexible access to it, was a challenge that all of the projects sought to address through utilising both existing and new technologies. What has been exciting about the work and outcomes of these projects is the emerging evidence that strategic and pragmatic use of technologies has, in many cases, offered significant positive impact on institutional practices and on the stakeholders involved, particularly learners.

TECHNOLOGIES

Curriculum innovation does not have to be about using new technology - this programme has focused on responding to real challenges articulated by the stake holders involved. Sometimes small changes in existing practice can have the most far reaching impacts and projects have demonstrated that these changes can be supported as effectively by existing technologies as well as some newer and more challenging ones. There has been some interesting work with technologies that are familiar to most institutions and with lightweight low-cost solutions. A pragmatic approach to technologies has meant that projects have responded to staff and student feedback and adapted or even abandoned the use of those that failed to engage, proved too complex to support (particularly at a distance), or could be replaced by a simpler more usable technology. These approaches were supported by the understanding that curriculum delivery is impacted by a range of other things and is only part of the wider student experiences. Projects had clear and well articulated reasons for trying out these different technological approaches - this was not a programme where technologies were implemented for their own sake but because the technologies had particular affordances that support curriculum and learner support goals.

No technologies or standards were mandated in the programme, and in fact nearly 60 different technologies and standards were recorded as being used throughout the programme lifecycle. Technologies used include virtual learning environments (VLEs), content management systems, learning design tools, assessment technologies, media enhanced learning technologies, social networking and web 2.0 technologies, syndication technologies, mobile technologies, e-portfolios, immersive worlds and semantic web technologies. These projects demonstrate some interesting combinations of old and newer technologies and innovative ways of integrating them into institution-wide practice.

EVIDENCING BENEFITS: EFFICIENCIES, ENHANCEMENTS AND TRANSFORMATION

The successful outcomes of these projects are expressed the words of projects themselves, in the benefits table (Appendix 2) which provides tangible evidence of positive impact in three areas:

- Efficiencies and effectiveness

- Learning and teaching enhancement
- Transformation

Within each of these broad areas the table identifies benefits for students, staff and institutions. There is also early evidence of benefits to wider communities (employers, local communities, other further and higher education institutions) and it is anticipated that this will increase as these communities engage with the programme outputs, through effective project dissemination and the Design Studio. The interventions appear to be highly transferrable to similar contexts, to those working within the same subject disciplines, within similar institutions or those adopting similar pedagogic approaches (for example problem-based learning).

It is excellent to see so much evidence of benefits to learners through this work, both to learner outcomes and satisfaction. Projects also provide strong indications that the transformations they have begun with this funding are sustainable and highly likely to be rolled out further within their own and external institutions. The evidence of significant cost benefits is going to be of particular interest to the wider community at a time of severe economic constraints and the approaches adopted reflect the need to make best use of existing institutional investment in technology, as well as using open web solutions. The programme has delivered a series of diverse models for implementing enhancements that respond to challenges affecting all educational institutions.

SUMMARY AND RECOMMENDATIONS

This programme has produced some compelling evidence that pragmatic interventions which aim to address specific and well articulated challenges can have **significant impact** on the ways institutions support learners. The technologies used by projects were not necessarily new or 'cutting edge' –most of them have been around for quite a while now and have been used in educational contexts (VLEs, virtual worlds, social networking technologies, mobile technologies, podcasts, video, etc.). What many of the projects highlighted during early base-lining activities was that these technologies were not used effectively or consistently across the institution, or in a way that provided compelling evidence of impact. This programme offers a very diverse range of 'technology enhanced learning' approaches in terms of technologies used, subject disciplines covered, institutional types, teaching models, learning approaches and types of learners.

One of the most outstanding features of this programme was the extent to which projects engaged learners, from participation in base-lining activities to actually being involved in designing, implementing and championing the transformations. The notion of '**students as change agents**' was embraced by several projects and the '**learner voice**' featured in many project outputs, and promises to support ongoing embedding and sustainability. Another programme feature is the range of imaginative approaches to generating and supporting conversations between staff, and several of these are worth investigation by other institutions as they have been vital in gaining 'buy-in' and support for implementing new approaches, from strategic managers to frontline teaching staff. Nearly all projects had some activity relating to feedback and assessment which reflects the importance of this in engaging students and enhancing their learning experience.

Some people in the further and higher education communities have long been looking for evidence that technology enhanced learning can save money. Many projects engaged deeply with issues around balancing the need for efficiencies with the desire for increased effectiveness. There is clear evidence of cost savings from projects that focused on practical administrative interventions, with savings in staff and student time, as well as savings on printing and duplication of content. Ultimately this programme is about enhancing the experience when and where learners interact with their curriculum and it is refreshing to see this section on the benefits table includes evidence **of improvement in outcomes and achievement** as well as improved **student satisfaction**. It appears that these outcomes will be

replicable in other institutions and it should also be noted that these figures are the initial results of early interventions. Ongoing measurement is likely to add to this evidence, although there is no obligation on projects to do so. Clearly there is an opportunity for institutions to continue using base-lining data and project end data as a means to chart progress and improvement in the future.

Flexibility has featured as an important concept throughout this programme. Curricula need to serve the changing needs of all stakeholders, particularly the diverse needs of learners. We need to present and represent the curricula in a transparent and open way to facilitate choice and negotiation for potential and registered students and to encourage conversations and connections across institutions. Curricula also need to be competence-based, which is reflected by the subject disciplines covered by this programme. This is also in response to funder and employer needs following the call for 'higher level skills' and the need to demonstrate c21st graduate outcomes. To achieve this more 'open' transparent and flexible curricula learners have to become creative participants and active players in partnership with other learners and their tutors and institutions. Learners are no longer just recipients of institutional content and guidance, but they may not yet be ready for such responsibility or even want this. Providing flexible access and support to learners at this time of transition requires adaptive and responsive institutions. This programme offers several excellent examples of making the curricula make sense to students and of supporting them in becoming self regulated and reflective learners.

RECOMMENDATIONS TO FUNDERS

Some of these recommendations come directly from projects.

1. There were a considerable range of approaches within this programme - from research-based interventions with small numbers of students and staff to large scale departmental or institutional practical approaches affecting significant numbers of staff and students. This can have an impact on how projects relate to each other in cluster groups, and during programme activities and meetings. These different approaches need to be clearly acknowledged and articulated to projects from the beginning, and expectations about outputs should also reflect these differences.
2. This range of approaches has also had a significant impact on the kind of evidence presented at the end of the projects with research-based projects offering some compelling evidence, but with impact on much smaller numbers of students, whilst impact on the whole institution is harder to measure and present as evidence, but has much more significance in terms of sustainability and embedding. Funders should continue to value this 'softer' evidence.
3. Some of the projects started with fairly vague visions of how they would achieve their goals, but given the opportunity to be flexible and respond to their base-lining activities eventually proved to be very successful. Funding complex and open ended outcomes has been rewarded in this programme, and is a result of flexible and responsive programme management. It is likely that there will be more projects of this open ended type in coming years and that support and project management approaches will need to be flexible to adapt to this.
4. Evidence indicates that funding practical interventions that enhance the general student and staff experience (such as course payment, timetabling, assignment handling) can have an impact on enrolment, retention and student satisfaction. These also lead to increased integration of institutional IT and administration systems.
5. The evidence of benefits (Appendix 2) for this programme is considerable but this only reflects early indications for some projects. It might be worth re-visiting these institutions at some (or even several) points in the future to see if there is additional evidence of student retention or progression (often only measurable over a longer period) or long term cost benefits. It would also be of interest to find out how projects have embedded these interventions in other contexts within their own institutions.

6. Universities must improve how they measure the costs and benefits of their activities, and to do this, staff require training, tools and frameworks to help them make the case for their decisions. This may be an area for future investment by funders.
7. As universities look to new ways to deliver learning to their students, it is clear that these will only work if underpinned with the systems, processes and technology that make this a seamless experience. Examining what is required for this is a process that has already been started by bodies such as the HEFCE Online Learning Task Force¹ and the wider work of JISC; however, this will need to be continued to ensure UK HE is able to exploit the opportunities that technology offers for teaching and learning.
8. Projects require time to set up and get started, particularly in recruiting new members of staff. It may be helpful if funders consider allowing more time from notification of the grant award to the start date of the project to allow institutions sufficient time to make the necessary arrangements to set up the project infrastructure and have a complete project team in place at the start of the project. Alternatively flexibility in relation to project finish times can be helpful but impact on planned synthesis and dissemination activities.

RECOMMENDATIONS TO INSTITUTIONS

ORGANISATIONAL

1. Approaches to managing change are fairly well documented and there are some useful resources available to support this process. This programme has developed some useful outputs around stakeholder engagement, and sustainability² which provide information and resources to suit a range of different contexts.
2. Central support teams featured in most projects as a crucial hub to support academic teams to engage with the possibilities offered by different technologies, providing support to implement them, and offering troubleshooting during pilots. The knowledge and experience residing in these teams take pressure away from frontline teaching staff and can be the important link to institutional systems and structures.
3. Change does not happen at a constant pace: there can be quiet times and sudden leaps forward.
4. Understanding organisational processes and the cost benefit implications of decisions enables focus on services offering the greatest impact. Improvements to the administrative areas of curriculum delivery can deliver the greatest efficiency gains.
5. Small, but crucial interventions can be leveraged to achieve large effects.
6. Embedding activities in the wider system of processes, resources, and support, enhances sustainability.
7. Commitment from senior management is a key factor in sustainability of services.
8. Engaging with stakeholder needs and expectations at the right time facilitates implementation of innovation. Influencing, involving and engaging the right people is one of the most important factors in success or failure.
9. Staff are more open to using technology than ever before, but need support to capitalise on this
10. In order to realise all the potential benefits of using technology to support curriculum delivery, it is important to look beyond pedagogy and to consider the full experience of a student's relationship with the institution from initial contact to course completion. In terms of efficiency savings, it is often in the areas of administration where real improvements can be made that both save money and improve the student experience and service quality.

¹ <http://www.hefce.ac.uk/learning/enhance/taskforce>

² <http://www.jisc.ac.uk/sustainabilitytoolkit>

LEARNERS

1. Involving students as agents of change and champions of new approaches is a very powerful approach which engages learners, generates dialogue and feedback, and supports other learners through the process of change.
2. Learners should be offered multiple pathways and access routes into their curriculum to reflect their diverse circumstances, but they may not be ready or interested in becoming self-regulated or independent. Supporting students to make choices and interact with a flexible, technology enhanced curriculum requires investment and possible staff training.
3. Learners are developing public reputations in open personal and academic contexts and are likely to want to link this with formal accreditation to present to employers

TECHNOLOGIES

1. Outsourcing some activities, such as hosting services, can be more cost effective.
2. Technology can support more active approaches to learning and teaching which reflect authentic 'real-world' experiences and incorporate opportunities for collaboration, creativity and production.
3. The wide range of technologies available to learners provides opportunities to augment institutional technologies and in some instances they may chose to use their own personal technologies in a formal or informal learning context. These choices should be supported and understood which may necessitate staff training.
4. Students may still need a lot of support in using fairly simple technologies and services in a learning context.
5. Joined-up information systems support more agile development processes at institutional and curriculum team level, especially when 'light touch' quality processes are used alongside an assumption of continuous improvement
6. Identifying where technology does not add value is as important as identifying where it does
7. Working with open source software, and balancing project requirements against that of the larger community, creates challenges as well as opportunities
8. Allow sufficient time for testing, evaluation and development before launching into the curriculum for maximum effectiveness.
9. Curriculum staff need to adopt an open minded approach to the ways technologies are incorporated and used within the curriculum. There is no single right approach.

CURRICULA

1. Curricula need to respond to the changing needs of the various stakeholders and require flexible structures which are open to change whilst retaining the core philosophy
 - a. Learner (and potential learner) choice needs to be reflected within curricula, open to negotiation and visible/transparent
 - b. Funder and employer needs demand competence-based curricula
2. Curricula need to become more 'open' in structure, more transparent and less content-based as technologies support new and diverse ways of supporting learning and as learners access and create their own content
3. E-portfolios allow for more open curricula in providing a place for learners to aggregate resources for reflection, assessment and showcasing
4. In a more open curriculum, feedback becomes critical - that dialogue between learners' own activities/productions and developmental feedback on them from peers, tutors and possibly employers.

5. Digital media (for curriculum representation and communication) support better ongoing dialogues e.g. with employers, between different players in the curriculum design and delivery process, with learners and potential learners allowing continuous improvement to be well-informed.
6. Curriculum staff need to recognise that curriculum delivery models and, sometimes, curriculum design must change in order to allow for a greater integration of technology.
7. The engagement of curriculum staff in this change process is essential. Furthermore, engagement will not be successful without their full involvement in the process from the outset.
8. Sufficient development and preparation time must be allocated and ring-fenced before the curriculum changes are instituted. (Consider off-site locations for major planning events to minimize distractions and maintain focus.)
9. Curriculum managers need to lead and drive the change. This will involve challenging existing practice, providing vision and direction, understanding the implications of the change and providing supporting. They must also be able to provide the necessary resource in staff time/remission and facilities.
10. It can be helpful to work with curriculum teams in an 'Appreciative Inquiry' way as this has an emphasis on current good practice and encourages reflection on strengths and pedagogic values.

RECOMMENDATIONS TO PROJECT TEAMS

1. Use research informed principles to help guide the discussions.
2. Work with departments that can help spread the work and grow the legacy of the project.
3. When running a long term project the organisation needs to be clear about what it is attempting to achieve and ensure the structure is in place to enable this to happen. Limit the intended aims and objectives.
4. When in partnership with other organisations ensure their strategic plans, aims and objectives align with those of your own organisation; this will ensure maximum buy-in and thus co-operation throughout the term of the project.
5. Ensure appropriate communication takes place with all stakeholders, particularly those who will be required to provide support during the project.
6. Benchmark other organisations both in and out of the sector.

1. INTRODUCTION

In 2008 the e-Learning Team of the Joint Information Systems Committee (JISC) launched two parallel programmes of activity. One was a four year programme focusing on curriculum design processes – [Institutional approaches to Curriculum Design](#) - and the other was a two year programme focusing on the processes that take place when learners engage with a designed curriculum - [Transforming Curriculum Delivery Through Technology](#). This report will focus on the latter programme which came to an end in December 2010. The two programmes have been closely related and funded projects have had the benefit of shared activities through joint Programme Meetings. One of the most significant joint activities has been project input to a shared resource – the JISC [Curriculum Design Studio](#) a toolkit which draws together existing and emerging resources around both curriculum design and curriculum delivery. This resource provides a range of routes into these resources and offers a well managed access point for project outputs and outcomes. It has also highlighted existing resources for projects during their two years of activity.

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Projects enjoyed the benefit of support from Critical Friends who offered strategic advice and guidance, insight, mentoring and coaching, identified synergies and relationships, and who acted as ambassadors through their own professional networks. This support was provided through the creation of four cluster groups of 3 or 4 projects. Critical friends led cluster group meetings and encouraged dialogue through mechanisms-based on the CAMEL approach (Collaborative Approaches to the Management of e-Learning)³, and most projects enjoyed these interactions which fostered sharing and collaboration.

‘I think it is very important to be clear about the role of the CF as neither an agent of the ‘management’ nor a consultant or content expert. Its power lies in the ability to ‘befriend’ the project staff, be an advocate and bring an external dimension (informed by their experience of the JISC) to each project. I think the role is also very useful in facilitating CAMEL meetings and fostering the sensitive implementation of the model.

‘I believe the CAMEL model may be applied in a wide range of contexts and that it has the potential to facilitate greater shared values and understanding and provide support to groups of people engaged in any sort of development or review activity.’ Malcolm Ryan, Critical Friend

The programme was conceived when the sector was increasingly focusing on graduate attributes and the need to ensure and support ongoing learning and professional development ([Leitch Review of Skills](#) and [Government’s World Class Skills implementation plan](#)). The 15 funded projects aimed to investigate how the appropriate integration of technology can help institutions deliver a more engaging and flexible learning experience in response to changing learner and employer needs. Projects identified the challenges that were specific to their own context and spent considerable time examining existing practice before embarking on a wide range of initiatives to address these challenges. It could be argued that the activities of these projects provide a broad picture of current approaches to supporting learning through technology in the UK at the present time, reflecting the diverse drivers and approaches of a range of institutions and subject discipline areas.

<http://www.jiscinfonet.ac.uk/camel>

Three of the fifteen projects had a further education focus (**Making the New Diploma a Success**, **KUBE**, **Springboard TV**), two had a distance learner focus (**Atelier-D**, **Duckling**), one focused on continuing education students (**CASCADE**) and the remaining projects had a higher education focus (**COWL**, **Dynamic Learning Maps**, **eBiolabs**, **ESCAPE**, **Generation 4**, **INTEGRATE**, **ISCC**, **MAC**, **MoRSE**). These different focus areas naturally had an impact on the challenges, focus areas, interventions and approaches taken by projects.

The projects adopted a range of methods, from research-based investigations with small numbers of students (**ATELIER-D**, **Duckling**), department/subject-based approaches (**CASCADE**, **Dynamic Learning Maps**, **eBiolabs**, **ESCAPE**, **Generation 4**, **INTEGRATE**, **ISCC**, **KUBE**, **MAC**, **MoRSE**, **Springboard TV**) to large scale practical whole institutional approaches having impact on large numbers of staff and learners (**COWL**, **Making the New Diploma a Success**,). This has resulted in a similarly wide range of outcomes and outputs which offer the wider community some excellent resources to inform and support their own activities.

The structure of this report reflects, to some extent, the structure of the Curriculum Design Studio, to facilitate different views on the programme outcomes and outputs. Appendix 1 provides a list all projects with links to their websites.

2. CHALLENGES THAT PROJECTS SOUGHT TO ADDRESS



During the bidding process projects were asked to articulate how they hoped to transform the way they deliver and support learning across a curriculum area through the effective use of technology, in response to a particular challenge faced by the discipline(s), department(s) or institution(s). This focus on challenges proved important in relation to sustainability and embedding, as projects demonstrated significant institutional commitment to their visions. It is useful to distinguish between the high level challenges that the projects themselves identified in formulating their project proposals and plans, and the challenges that emerged during the period of the programme. Major political and economic changes have occurred during the life of this two year programme and institutions began to experience the

consequences of this as they speculated about future budgets, staffing and even the possibility of courses being discontinued.

Many of the challenges originally identified by projects reflected broad sector-wide issues, often influenced by external factors such as growing student numbers, changing employer needs and diversifying student demographics. Significant institutional and departmental level challenges included the need to balance efficiencies and effectiveness and the need for effective stakeholder engagement to facilitate change at an institutional level. Student engagement, retention and progression proved to be a major driver for many interventions focused on enhancing the learner experience. The need to offer a curriculum that reflects the changing needs of learners, and provide flexible access to it, was a challenge that all of the projects sought to address through utilising both existing and new technologies. What has been exciting about the work and outcomes of these projects is the emerging evidence that strategic and pragmatic use of technologies has, in many cases, offered significant positive impact on institutional practices and on the stakeholders involved, particularly learners.

'A mix of curriculum development activities and change management processes were used to investigate, formulate, pilot and embed technology supported solutions in order to bring about pedagogic change. The overarching objective of the project being to improve the educational effectiveness and the resource efficiency of assessment practices.' (**ESCAPE**)

2A ORGANISATIONAL CHALLENGES

National and local drivers present significant organisational challenges as educational institutions strive to achieve their broad visions with increasingly limited resources.

- Widening participation and the diversifying student demographic
- Ensuring students can access learning opportunities
- Dealing with rising student numbers
- Meeting employability demands
- Enhancing business processes and organisational efficiency

2A I WIDENING PARTICIPATION AND THE DIVERSIFYING STUDENT DEMOGRAPHIC

Although not a new concept the notion of widening participation in further and higher education, through increased opportunities and access, remains a high priority for institutions in the post-compulsory sector – indeed it is one of the HEFCE strategic aims⁴. Widening participation in a practical sense involves ensuring equality of opportunity for disabled students, mature students, women and men, and students from all economic, social and ethnic groups. It inevitably leads to diverse student cohorts and the need for institutions to provide both flexible access to the curriculum and appropriate support to ensure engagement from learners who may not have the skills or experience of learning that traditional undergraduates might be expected to have.

Within the widening participation challenge, projects addressed the use of digital technologies to support access and accessibility, raising attainment and aspiration, retention and progression, engaging non-traditional learners, dealing with rising student numbers, and digital and other inclusion. Several projects identified and focused on specific sections of their student body, many of which relate specifically to the widening participation agenda:

⁴ <http://www.hefce.ac.uk/widen/>

International students	Atelier-D, ESCAPE, INTEGRATE
Distance learners (remote learners)	Atelier-D, COWL, Duckling
Work-based learners and CPD (remote learners)	COWL, Duckling, MoRSE
Students on field trips (remote learners)	MoRSE
Students on placement/clinical attachment (remote learners)	MoRSE, Making the New Diploma a Success, Generation 4
'Non-traditional' learners	Atelier-D
Part-time and 'in-employment' learners	Atelier-D, CASCADE

Project activities relating to the widening participation challenge included:

- helping students to evidence and present their range of skills and achievements – either within their course context or for the purpose of employment and continuing professional development through the use of e-portfolios and other technologies. (COWL, Generation 4, Atelier-D, INTEGRATE, ebiolabs, Making the New Diploma a Success, Springboard TV, KUBE,)
- improving feedback and assessment to improve engagement, achievement and retention (eBiolabs, ESCAPE, Duckling, MAC, Generation 4, MoRSE, ISCC, Springboard TV, INTEGRATE, KUBE, Making the New Diploma a Success)
- supporting isolated learners through networks and opportunities for dialogue (Atelier-D, MoRSE, KUBE, INTEGRATE)
- improving student engagement to improve achievement and retention (Atelier-D, KUBE, Springboard TV, Duckling, Making the New Diploma a Success, ISCC, INTEGRATE)
- making learning resources fun, interactive, engaging (Duckling, Atelier-D, Making the New Diploma a Success)
- improving administrative support mechanisms (such as timetabling, assignment handling, attendance data, online enrolment and payment) to enhance the broader student experience (Making the New Diploma a Success, CASCADE, eBiolabs, INTEGRATE Springboard TV)
- providing flexible delivery mechanisms for time poor learners (Duckling, MAC, Making the New Diploma a Success, MoRSE, Springboard TV)
- focusing on efficiencies and effectiveness of mechanisms and provision to deal with increasing student numbers and increasingly diverse student body (INTEGRATE, ESCAPE, COWL)
- supporting personalised learning that can provide more choice in how, where and when learners study (COWL providing online access to enhance f2f services) (Making the New Diploma a Success, Duckling)

'We set out to build upon our work on Personalisation to include the 'Learner Voice', student autonomy and ownership via the development of a 'Learner Portal' and the use of mobile technology to add flexibility, adaptability and extend access to learning.' (Making the New Diploma a Success)

2A II ENSURING STUDENTS CAN ACCESS LEARNING OPPORTUNITIES

Accessibility can be seen as part of the widening participation challenge, where access to opportunities for learning presents challenges for 'non-traditional' learners and for institutions attempting to provide an equitable educational experience. One aspect of accessibility addressed by projects was in the area of providing options to facilitate student choice in where, when and how they accessed learning (Making the New Diploma a Success, Duckling, COWL). Atelier-D identified 'a widening digital divide' amongst their very diverse student body and felt that using metaphors that were meaningful to the students, such

as ‘the studio’ *‘play a vital role in making new technologies transparent and attractive, particularly for those who are apprehensive or lack ICT skills.’* This project, in particular, faced significant challenges in implementing, sometimes complex, technologies with distance learners who faced problems both accessing and with usability of web services such as Flickr or online virtual environments such as Second Life (SL), where the base technical requirements and learning curve for new users can be high. The main focus for **COWL** was in developing an online writing laboratory to support students, many of whom came from backgrounds that had not permitted them to develop the specific skill of academic writing.

Some projects aimed to give learners more control, and were interested in developing independent and reflective learners

- Portal solutions, and choices re technologies including web 2.0 opportunities (**Making the New Diploma a Success, Springboard TV, KUBE**)
- How far students use technologies of their own volition (**ISCC**)
- Reflective and self aware learners through community building and peer review (**Atelier-D, Making the New Diploma a Success**)
- Mapping the design process (**Atelier-D**)

2A III DEALING WITH RISING STUDENT NUMBERS

Several projects identified rising student numbers as a challenge (**INTEGRATE, COWL, ESCAPE**) resulting in students feeling unknown and overwhelmed in large classes. Some projects focused on assessment and feedback to improve engagement and attainment and others focused on helping the learners feel engaged and ‘known’ in a large group. Rising student numbers and challenges in supporting large cohorts often present scalability issues for existing face to face services. **COWL** dealt with this issue through empowering academics to offer academic writing support through an online writing environment in Moodle, which expanded their original limited central service and reached many more students. Other projects chose to adopt peer support mechanisms and student community building to create more supported student experiences. (**KUBE, Atelier-D, Springboard TV, COWL, Making the New Diploma a Success, ISCC, INTEGRATE**)

2A IV MEETING EMPLOYABILITY DEMANDS

Employability challenges link to the national widening participation agenda and increasing access to work-based learning. It links strongly, and to a large extent drives, the skills agenda with the need to embed skills required by employers into the curriculum. It also relates to the need for learners to record and share their achievements and qualifications, and to support their progression through personal development portfolios, continuing professional development and portable e-portfolios. The need to provide authentic professional and work-based learning was a focus for several projects (**MoRSE, Springboard TV, Atelier-D, Duckling, Making the New Diploma a Success, Generation 4, eBiolabs**). Employers were a significant stakeholder for some projects and were included in base-lining activities, curriculum delivery and evaluation of project activities (**MoRSE, Duckling, Springboard TV**).

‘Engaging with external clients and developing briefs helped learners to concentrate on the need to deliver to the client’s requirements.’ (**Springboard TV**)

Projects identified the following challenges:

- Providing access to content through VLEs and portfolios (**Springboard TV, MoRSE, Making the New Diploma a Success**)
- Finding opportunities to collaborate with employers as an institutional agenda (**Springboard TV**)
- Using projects as a way of developing sustainable relationships (**Making the New Diploma a Success**)

2A V ENHANCING BUSINESS PROCESSES AND ORGANISATIONAL EFFICIENCY

At an institutional level, in the current economic climate, there is an increasing emphasis on efficiencies. This has become more apparent towards the end of the programme and makes those outcomes and approaches focused on business processes and efficiencies even more relevant to other institutions.

'Following the Comprehensive Spending Review 2010, the focus of the CASCADE project on how technology could help the Department respond to a reduction in funding has relevance to all UK HE institutions. By working on only those areas which offered clear benefits in terms of efficiencies, innovation or improved services, our activities targeted improvements in many of the areas that other institutions will be examining.' **CASCADE**

Many of the projects introduced changes to administrative processes that had a significant impact on staff time and resources (see benefits table in Appendix 2). Even projects that did not explicitly identify this as a challenge used efficiencies as a way to persuade stakeholders of the value of some of their proposed activities.

A few projects addressed issues of improving access to, and links between, course-related information processes and systems. As well as saving time and simplifying systems for staff and students, this also enabled the production of evidence of cost savings for institutional managers. **Dynamic Learning Maps** focused on pulling together disparate course information and presenting this in a range of transparent ways to enhance student and staff understanding of how the curricula related and linked to each other. This has had a significant impact on how students experience and make connections within their learning experience, and is strengthened by the capacity to add their own resources and information to these maps. Staff benefitted from being able to see where their contribution to the course fits in to the whole and the maps also highlighted duplication and inconsistencies in the whole curricula. Making services and structures transparent and open has influenced timing of some sessions and enhanced the experiences of staff and students.

Using technologies to bring together information and data normally scattered across institutional departments can prevent duplication and inconsistencies in areas such as timetabling (**Making the New Diploma a Success**) and improve vital frontline systems such as online enrolment and payment for courses (**CASCADE**). Projects offer strong evidence that changes to these systems not only save money but significantly enhance the overall student experience.

'For students the most popular and motivating tool has been the instantaneous access to their timetables, attendance and punctuality reports. As a result Registry no longer provides students printouts but instead points them to them on eME. This has also resulted in significant cost savings.' **Making the New Diploma a Success**

Whilst nearly all projects addressed issues around assessment and feedback to enhance the learning experience, some made changes to the systems which support these processes to deliver significant efficiencies. Assignment handling proved to offer time-saving benefits as well as reducing paper use and storage. (**CASCADE, ESCAPE, Making the New Diploma a Success, eBiolabs**)

'Students can now submit assignments much more easily at any time from anywhere in the world. It is also possible to predict significant efficiencies in assignment handling time for the Registry staff who deal with student submissions for approximately 260 course assignments across 48 course cohorts a year: a saving of 30 minutes per assignment or more soon cumulates savings in the order of half a day per week. Other advantages of the new online system are the reduction in paper handling and photocopying, as well as better auditing and control. Reduction in paper storage is a further advantage both in terms of less physical space being required and also in terms of less staff time being required to retrieve data from the archive.' **CASCADE**

A few projects considered challenges around the duplication of effort in producing learning materials, particularly generic content that had the potential to be used across an institution, or even outside the institution (**CASCADE, COWL, Duckling, Making the New Diploma a Success**).

2AVI STAFF CHALLENGES

Transforming curriculum delivery is not possible without engaging with, developing and changing staff practice and attitudes. Projects developed some excellent staff engagement mechanisms which are described further in section 4C. Below are some areas where projects reported challenges:

- Staff perceptions not reflected by actual student feedback/information (**MAC**)
- Negative perceptions re new/ different technologies, time implications and to 'more' change (**Generation 4**)
- Training, workshops, winning hearts and minds, linking to existing institutional initiatives, activities (**CASCADE, MAC, ebiolabs, Making the New Diploma a Success, Springboard TV, MoRSE, KUBE**)
 - Brainstorming likely resistance in advance (**COWL**)
 - Battlefield approach (**Generation 4**)
- Engagement and managing expectations (**all projects**)
- Clarity re project outcomes/outputs Articulating/demonstrating benefits eg - Not about project but achieving institutional objectives (**Making the New Diploma a Success, CASCADE, KUBE, Springboard TV, Ebiolabs, Generation 4, INTEGRATE, Dynamic Learning Maps, COWL**)
- Time allocation for engagement (**MAC**)
- Time developing content and new skills needed through training and, support (**Generation 4, Duckling, MoRSE**)
- Identifying who can make a difference can be tricky
 - Index of influence – which individuals most likely to impact change in assessment practice (**ESCAPE**)
- Fostering collaborative responses across teams
- Coaching support & guidance (**INTEGRATE**)

2B CURRICULUM ISSUES

Subject area	Project
Generic skills/literacies	CASCADE, Making the New Diploma a Success, eBiolabs
Academic writing/scholarly writing	COWL
Business	KUBE, ESCAPE, INTEGRATE
Biosciences	eBiolabs
Design	ISCC, Atelier-D
Media	Making the New Diploma a Success, Springboard TV
Medicine	Generation 4, Dynamic Learning Maps
Pharmaceutical & Cosmetic Science	MoRSE, eBiolabs
Life Sciences	ESCAPE, MAC,
Psychology	Duckling, Dynamic Learning Maps
Language teaching	Duckling
Geography	MoRSE
Hospitality	Making the New Diploma a Success
Music technology	Making the New Diploma a Success
Health Sciences	Dynamic Learning Maps

Most of the subject areas/disciplines covered in this programmes activities were of a professional or work-based nature, which reflects the kinds of learners being focused on - 'non-traditional', remote,

international, and ultimately reflects the nature of challenges faced when these diverse groups of students engage with the curricula. Many of the approaches and activities carried out by the projects reflect the kinds of approaches used to provide students with work-related skills and situated or 'authentic learning experiences'.

Many of these are of value to the wider community and transferrable to other subject areas. So whilst **Atelier-D** and **ISCC** were focused on design curricula their work is of value to other subjects that offer collaborative, conversational and artefact producing approaches. **Atelier-D** identified a challenge in providing traditional spaces for designers to interact and share when they were all distance learning students, so provided a range of technology supported spaces for their learners to network, share and gain feedback on their work. **ISCC** wanted to make sure that technologies supported creative conversations between design students rather than distract from them. They also used technologies to help students record and conserve these conversations for later reflection. Similarly **Generation 4** work within a medicine curriculum would be of interest to subjects that need to offer authentic practice-based learning scenarios and **eBiolabs** work in Biosciences is of relevance to subjects with a practical laboratory experience. **eBiolabs** acknowledged the value of practical laboratory sessions but identified a range of challenges with their structure resulting in learners turning up un-prepared and not achieving their learning outcomes. By providing pre and post lab support online this project managed to ensure that learners focused on important learning opportunities within the laboratory and reported significant improvements in student engagement, attainment and satisfaction, whilst taking pressure off those supporting the sessions. These examples have been used to illustrate that whilst projects identified challenges of relevance to their specific curricula they were often challenges related to their approach to delivering those curricula.

Those projects that focused on a particular subject discipline have already engaged their wider subject community networks through early dissemination activities and academic papers. The challenge lies in producing outputs that engage people from other disciplines where their approaches may be relevant, although discipline specific languages may make this harder (a good example being scenario-based learning, project-based learning, practice-based learning and problem-based learning – which may have specific discipline meanings but have similar affordances). It is anticipated that the Design Studio will be able to have some impact on that.

2B | FLEXIBLE CURRICULA

Developing and delivering a flexible curriculum was a central focus for many projects as a means to increase access to, and opportunities to engage with, the curriculum for a range of diverse student groups. A flexible curriculum is also seen as a way to support other stakeholders such as employers. For most projects increasing flexibility through choice over where and when to study was seen as a solution to challenges. Flexibility is also vital to support open and responsive curricula, where feedback and conversations are shared and help to shape future curricula.

Whilst modularisation of the curricula has been one response to the need for flexibility one project identified this as a challenge. Modularisation effectively splits courses into self contained units which are assessed independently and which can then be aggregated according to learner preferences. Whilst offering flexibility for students, **Dynamic Learning Maps** identified a problem for their medical students and diverse (and often occasional) clinical teaching staff in being able to see the bigger picture and experiencing challenges in contextualising their complex 5 year curriculum. Their approach to map the curriculum and providing alternative views to this, using semantic and web 2.0 web technologies offers a powerful and personalised mechanism for sense making.

'DLM is a flexible and interactive tool, which can be readily aligned with an institution's Teaching and Learning Strategy, whilst at the same time support a diverse range of specific programme requirements. It can be used to increase transparency in the curriculum in an interactive and participative way that more closely matches the

changing experience and expectation of many modern learners. It also has potential to help address sector-wide drivers for PDP, employability, greater personalisation and student involvement in the curriculum.' (**Dynamic Learning Maps**)

2B II REPRESENTING THE CURRICULUM

Several projects worked towards presenting the curriculum in a coherent way for students. For **Dynamic Learning Maps** this was the main focus as described above. As well as providing a representation of the curriculum for students they helped staff identify duplication within the curriculum, inconsistent language across courses and unhelpful timings and order of modules.

'It took a long time to gain common understanding of the Learning Maps concept – even within the project team. There is a great diversity of opinions between stakeholders; e.g. very strong and differing opinions on curriculum mapping, even between staff on the same programme. Therefore, we recommend programmes wanting to develop curriculum maps to build in time for dialogue to help establish a common understanding of curriculum maps and DLMS. It is advantageous to include learner perspectives at an early stage. Stakeholders may use maps for different purposes than anticipated; in focus groups for example Psychology students identified potential to inform choice of optional modules for their final year; and Medical students saw benefits as a revision aid.' (**Dynamic Learning Maps**)

For others mapping the curriculum was a part of wider activities to personalise the learner experience. **CASCADE** changed the way their courses were presented to potential customers to clarify choices. **Making the New Diploma a Success** used their portal to present a personal view of their courses and their pathways through the curriculum.

'The work done by Lewisham College to develop a fully integrated Learner Portal using open source technologies is radically changing the way students are taught and able to access information and support. The Portal provides students and tutors with a range of tools from a single login. Whilst learner portals are not new per se, Lewisham have used theirs very effectively to introduce new learning, teaching and assessment methods which, when coupled with timely online feedback from tutors, is enabling the development of learning objectives and learning activities, customised to individual learning needs. Through this work, Lewisham is showing the Sector how learning can be customised efficiently and when coupled with improved online access to timetable, attendance, and progress information, is impacting positively on student motivation and achievement.' (Andrew Comrie, JISC Critical Friend)

2B III CURRICULUM DESIGN

Whilst primarily concerned with transforming the learner experience of, and engagement with, the curriculum, many projects became deeply immersed in course development and curriculum design. Not all projects changed existing pedagogical approaches but many used stakeholder engagement and base-lining activities to get curriculum teams to both articulate their approaches and re-consider them.

'The success of any curriculum technology implementation stems from the design stage. In order for this to succeed a review of the curriculum design and implementation must take place as a first step towards technology adoption. It is important that teams come together to identify and agree new ways of delivery, assessment, and communication systems. We recommend that traditional methods of delivery are challenged to ensure that technology is not perceived as an add-on but is integral to the teaching and learning process.' **Making the New Diploma a Success**

Several projects seized opportunities when existing courses were being designed or re-validated. This was particularly true for **KUBE** who focused on courses accredited by another institution.

'The redesign of curriculum delivery is inextricably linked to curriculum design and I don't believe there was a realisation of how difficult it would be separate these two elements without creating conflicts. It was therefore most fortuitous that we could align the changes in curriculum delivery associated with the KUBE project with those which were already underway regarding timetabling of modules.' **KUBE**

'as the project progressed it became clear that academics are only able to find time to engage with these issues when they are actually designing courses; at any one point this was rarely more than one or two individuals, making a workshop less valuable than one-on-one sessions. With this in mind, our approach evolved to the creation of a reference resource, the Course Design Moodle (see Figure 5), which academics could access at a time that suited them, and by making individual support sessions available to staff at the relevant part of the development process.'

CASCADE

'I think far too often colleges are accused of not thinking creatively or innovatively about the curriculum, they just do what they've always done. This is a clear example of a college doing something very innovative, very creative and it needs to tell the rest of the sector about it.' **Springboard TV JISC Critical Friend**

COWL worked to move towards more collaborative group teaching approaches, both in face-to-face environments and online and developed a new pedagogic model for academic writing.

Some projects focused on assessment (**ESCAPE**, **INTEGRATE**, **MAC**) which required close examination of pedagogy and curriculum design.

'The project was about changing the culture of a large group, and it was this that took considerable time and effort. Similarly, using the technologies to respond to the three key project themes was less a question of the technology per se, but more to do with the ways in which it was used within the particular environment, that is, with the pedagogy and the surrounding curriculum design.' (**INTEGRATE**)

The Transforming Curriculum Delivery Through Technologies Programme was always intended to work in parallel with the Institutional Approaches to Curriculum Design Programme. The projects may have started by focusing on curriculum delivery but this has led to considerable engagement with and desire to change/re-design curricula. It may be useful for the Design focused projects to engage with the outcomes of this programme, particularly with **Dynamic Learning Maps**.

'The process of developing a curriculum map may itself be a valuable process, which may potentially reveal consistency issues, 'gaps' and unintended duplication. We found that there were sometimes very strong and differing opinions, about the definition and role of curriculum maps, even between staff on the same programme. As well as different drivers between subjects, perceptions about how DLM would be used also varied by educational philosophy e.g. use to support a constructivist/exploratory learning model, which is coupled to but not restricted to formal curricula, or for a positivistic/behavioural model with a more prescribed and controlled map. As such it is wise to invest time to develop a common understanding and agreed purpose before embarking on the curriculum mapping process.' (**Dynamic Learning Maps**)

2C LEARNER-CENTRED ISSUES

Most projects identified challenges relating to the student experience. Sometimes these challenges were specifically related to the nature of the students, such as remote learners, disaffected learners, or offering an authentic experience for work-based students. The majority of projects were concerned with enhancing the learning experience and the diverse approaches to achieving this are discussed to some extent in section 2A I. Approaches included:

- enhancing the role of feedback and assessment was seen by many projects as having a direct impact on student engagement and ultimately on retention (**COWL**, **ESCAPE**, **Duckling**, **Making the New Diploma a Success**, **Atelier-D**, **Springboard TV**, **MAC**, **ISCC**, **eBiolabs**)
- the work of projects and the conversations they started across the institution have fostered a culture of providing a responsive flexible curriculum and of listening to the learner voice and responding to/challenging learner expectations (**MAC**, **INTEGRATE**, **Springboard TV**, **Making the New Diploma a Success**, **KUBE**, **Atelier-D**)
- several projects focused on issues around 21st century graduate attributes and competencies (**ISCC**, **Making the New Diploma a Success**, **Atelier-D**, **Springboard TV**, **COWL**, **eBiolabs**)

- while others focused on enhancing student literacies that would improve their lifelong learning opportunities (**Making the New Diploma a Success**)
- some projects focused on developing and improving access to materials to support learners (**KUBE, Generation 4, COWL, Duckling ISCC, Springboard TV, CASCADE, eBiolabs**) including learners producing content for other learners (**KUBE, Springboard TV**) and learners pointing to and reviewing content for other learners (**Dynamic Learning Maps. ISCC, Atelier-D**)
 - being sensitive to issues around learner-owned and personal technologies and flexible in course delivery to integrate the use of these (**MoRSE**)
 - methods and approaches for enhancing retention and attendance (and measuring the impact of these) (**KUBE. Making the New Diploma a Success, Springboard TV, Duckling**)
 - practical approaches in using technologies to enhance engagement and interaction (**KUBE, ISCC, Making the New Diploma a Success, Springboard TV, eBiolabs**)
 - mechanisms for enhancing attainment and progression (and ways to measure this) (**Making the New Diploma a Success, Springboard TV**)
 - developing ways to resolve issues around learner time on tasks (**Duckling, ISCC**)
 - developing learner networks and communities (**Making the New Diploma a Success, KUBE, Atelier-D, Springboard TV**)
 - peer involvement – mentoring, feedback, support (**ISCC, Making the New Diploma a Success, KUBE, Atelier-D, Springboard TV, MoRSE**)
 - students accessing learning off campus (**COWL, Making the New Diploma a Success, MoRSE, Atelier-D, KUBE**)
 - personalised learning approaches emphasising choice (**COWL, Making the New Diploma a Success, Dynamic Learning Maps**)
 - improving administrative and support mechanisms to save student time and present information in a more accessible way, such as assignment handling (**CASCADE, COWL, Making the New Diploma a Success, ESCAPE, Springboard TV, eBiolabs**), timetabling and attendance data (**Making the New Diploma a Success**), online enrolment and payment (**CASCADE**)
 - supporting new students (**KUBE, Making the New Diploma a Success**)

2CI PRACTICING SKILLS IN AUTHENTIC SITUATIONS

For courses with a professional or vocational focus, providing access to authentic learning activities that mirror the kinds of experiences in a work scenario present considerable challenges. Sometimes labeled competency-based learning, practice-based learning or scenario-based learning this type of activity was often centered on problems which required situated collaborative approaches. **Generation 4** offered opportunities for students to work with each other on a virtual patient problem where they could see the impact of their decisions, without damaging a real person. **Duckling** utilised and adapted an existing oil rig in Second Life for occupational psychology students to use.

*‘The purpose of integrating SECOND LIFE into the MA TESOL programme was threefold: to generate more interaction amongst the distance learners, to engage learners by using to use a variety of teaching approaches, and to enable students to transfer theories into practice by exposing them to a virtual world which they could adopt in their own teaching contexts’ **Duckling***

A common need for design students across a range of disciplines is to experience the reality of working collaboratively in teams to tight deadlines and to a fairly well established design process. Two projects attempted to replicate this experience through a range of technologies. **ISCC** concentrated on ‘creative conversations’ and the range of artifacts that emerge during this part of the design process – such as sketches, photographs, recorded conversations, and later reflections that inform the next stages of

design work. **Atelier-D** also wanted to stimulate creative conversations in a virtual design studio for their distance learning students to share content, and provide feedback and a supportive networked environment.

'We hypothesised that Facebook plays a role in supporting two kinds of learners in design – „Content-focused learners“, who discuss concrete examples, artefacts or methods for designing, and „Context-oriented socialisers“, who post updates about their progress in relation to the design course without mentioning explicit activities or results.' **Atelier-D**

The **ISCC** were interested in finding the right balance between structure and flexibility in sessions and found that students wanted the structure as it led to more effective use of time and more engagement at key points in the process. Both projects were interested in the differences between personal and private space dynamics.

MoRSE worked with two different groups of learners using mobile technologies to provide practice-based curricula.

'The delivery of a situated curriculum for students working beyond the institution in practice-based environments is critical along with the ability to be active contributors in real world problem solving. The ability of both institutional and personal technologies to effectively and appropriately enhance this situated curriculum and experience is crucial. For example fieldwork experience in real problem environments for students has been crucial to student understanding to all aspects of real world scenarios from the collection of primary data through its processing, interpretation and analysis to the completion of an output. This experience can be lessened through the student having to split work on a project between the field and institutional laboratories because of time and access to technologies and resources. In addition basic data processing tasks can take a significant period of limited fieldtrip time that could otherwise be spent on analysis and interpretation, and increases the time between data collection and its analysis.' (**MoRSE**)

This type of approach required quite a lot of learner support and **MoRSE** used student mentors, which provided useful experience for mentor's CVs or portfolios, and provided low cost field and placement support.

The **Springboard TV** focused on providing an experience that offered an opportunity to state of the art technologies to develop their own internet tv station.

'Creating an identity and branding has been a very powerful agent in developing a 'learner centred approach', where learners now respond as professionals, working in a 'real life' production company.' Jayne Walpole Head of Faculty Creative Arts' **Springboard TV**

Wikis were used by **INTEGRATE** to provide an authentic international group experience for very large cohort (465 students from 40 countries) to stimulate international co-operation and international management skills. As well as providing an opportunity to practice a professional role it also provided a small group setting where students with a wide range of language and cultural differences could support each other, creating a collegiate environment and culture.

2CII. PEER INTERACTION AND LEARNER COMMUNITIES

Many projects focused on increasing opportunities for dialogue, peer interaction, mentoring and feedback. (**Springboard TV**, **Atelier-D**, **Duckling**, **ESCAPE**, **Making the New Diploma a Success**, **ISCC**, **INTEGRATE**) as a mechanism to improve engagement and create a sense of community for students, particularly those who are not on the physical campus. Sometimes this approach was an attempt to deal with rising student numbers and for other projects it is about efficiency.

KUBE took a novel approach to engage new students by providing a wiki before they started attending the college, with existing students providing information and providing an early sense of community.

Social networking sites were used by many to develop student networks (and often included tutor interaction too).

INTEGRATE found that when students themselves designed and asked questions in focus groups with peers using clicker technology they gained valuable feedback for the project team.

2CIII. FEEDBACK AND ASSESSMENT

Feedback and assessment were identified by some projects as central and by most projects as significant approaches to enhance engagement and improve retention. During baseline activities staff and learners were encouraged to examine existing practices, and most projects looked for opportunities to enhance formal feedback practice. (**ESCAPE**, **MAC**, **ebiolabs**, **INTEGRATE**, **Atelier-D**). Several projects were concerned with providing assessment and feedback to large student numbers (**INTEGRATE**, **COWL**, **Atelier-D**) and providing appropriate assessment opportunities for diverse learners and international students (**INTEGRATE**, **Making the New Diploma a Success**, **Atelier-D**, **COWL**)

*'We are seeing transformative changes to assessment practices in the modules that the **ESCAPE** team have worked with. There is a much greater emphasis on the application of assessment-for-learning approaches. The pedagogy is supported by the use of appropriate aligned technologies such as; use of student-produced videos, Podcasts, Blogs, electronic submission of coursework, use of StudyNet to support group work and the use of wikis.'*
ESCAPE

Significant findings during project base-lining activities in this area were:

- Lack of assessment for learning and/or assessment is learning – still skewed towards summative exam-based assessment (**ESCAPE**)
- Staff perceptions around the way students use feedback and the impact on learning were not reflected by student base-lining information. There was a need to identify and understand what learners do with feedback (**MAC**, **ESCAPE**)
- Small changes in one module can have significant impact on another one in relation to assessment and there is a need to see the big picture (**ESCAPE**)
- Importance of timing feedback for most impact which may require re arrangement of assessment – ie pre lab not post lab (**eBiolabs**)
- Surfacing the 'real' issues which are often sensitive - needs significant work on existing models, why they are done that way, and taking small steps to improvement (**ESCAPE**, **eBiolabs**)
- Lack of understanding of what actually happens re feedback and assessment across school - Sharing good practice through case studies workshops (**ESCAPE**, **eBiolabs**, **MAC**)
- Students at different stages of their course may need different approaches – **Generation 4** found that linear multiple choice questionnaires were more appropriate for new students whereas complex branched decision making assessment was more appropriate for experienced medical students
- Personalised feedback was recognised as important and several projects utilised audio technologies to produce personal responses for learners (**Duckling**, **COWL**)

2CIV. SELF-REGULATED INDEPENDENT LEARNERS

Projects identified student passivity as a challenge and were concerned to support the development of self-regulated independent learners and reflective learning seemed to be an important method for facilitating this. (**Atelier-D Making the New Diploma a Success**, **COWL**, **ISCC**, **MoRSE**, **MAC**)

'Empower students to become more independent, confident and self-directed by helping them to understand how they are learning, relate their learning to a wider context, articulate their personal goals and evaluate their progress towards them.' **Making the New Diploma a Success**

'Part of the design process is the ability for students to reflect on their own process and identify new and meaningful outcomes while designing. Drawing on educational constructivist theory the use of mind-mapping tools provides an environment for students to construct and reflect on their own learning. In addition these tools provide a medium to record students thinking process and communicate this to a wider audience (peers, tutors etc).'

Atelier-D

Making the New Diploma a Success found that students were clear about which type of support should be available online and which should remain face to face.

'As part of our interim evaluation report students studying for the new Diplomas were asked how they would feel about accessing online support from guidance teams and there was a very strong feeling amongst the students that they do not consider that this is secure and that any issues they may want to raise with a guidance or support officer is better done face to face. They would like the facility to be able to book a session via the Portal and this is being considered for the future.'

Making the New Diploma a Success

Reflective learning is often closely related to the use of e-portfolios⁵ and feedback/assessment and is pertinent to those subject areas with a work-related focus.

It is worth noting that students may not have any desire to become self-regulated independent learners and part of the challenge here is to convince learners of the benefits.

2CV LEARNERS AS CHANGE AGENTS

The notion of independent learners connects to the idea of including learners as change agents. This is not a new concept but has been taken forward throughout the institution at the University of Exeter⁶. The following diagram illustrates how this works within Exeter:

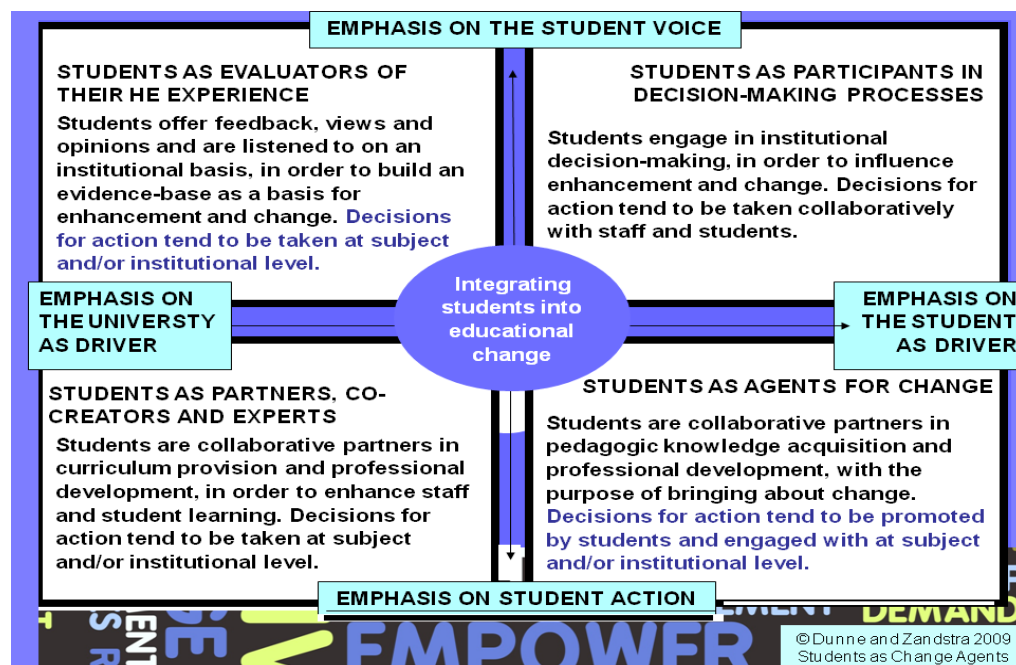


Fig # Students as Change Agents (INTEGRATE Project – University of Exeter)

⁵ <http://www.jiscinfonet.ac.uk/infokits/e-portfolios/reflection>

⁶ <http://www.qaa.ac.uk/students/studentEngagement/StudentsChangeAgents.pdf>

Several projects embraced this approach (**INTEGRATE, MAC, KUBE, Springboard TV**) and felt that this not only increased engagement and ownership in the learning process but helped projects progress their activities and extend their impact.

'Students have been given opportunities to work in partnership with university staff in order to address the challenges of using technology with large and diverse cohorts. They have undertaken research on student views and perceptions, provided recommendations and solutions for practice, and have supported staff in bringing about wide-scale changes in teaching. They have also explored activities to promote a community of learners by developing awareness of the richness and diversity of cultural backgrounds within the Business School.'
(INTEGRATE)

Springboard TV saw the involvement of learners as central to transforming their approach for media students

*'The project implementation group recognised the necessity of engaging the learners in changing the prevailing negative culture. Involving the learners in the development of the name of the channel and its identity went a long way to do this. It was they who came up with the name '**Springboard TV**'. A number of logos were designed by learners on a graphics course in the Faculty, learners on the media courses then selected the one they thought best represented **Springboard TV**. New signage using the selected imagery has been employed throughout the media area. Music students have produced station identity music. Learners had an input in the original website.'*
(Springboard TV)

No technologies or standards were mandated in the programme, and in fact nearly 60 different technologies and standards were recorded as being used throughout the programme lifecycle. In terms of use of standards, the pragmatic approach of the projects is again illustrated. Any standards which were used, were generally those which came as part and parcel of tools and systems e.g. several projects reported using (or having the ability) to implement the SCORM content packaging format. However this was largely due to the fact that the toolset they were implementing, such as Xerte and Moodle have built-in SCORM functionality. The RSS syndication standard was used by a number of projects, again projects were able to utilise in-built functionality to easily create RSS feeds for a variety of purposes ranging from syndication of blog feeds to the more complex integration of feeds from a variety of sources developed by **Dynamic Learning Maps**. The use of podcasting was exemplified by a number of projects and again, the MP3 standard was used as tools automatically generate and use that standard.

This use of standards being driven primarily by the toolset being implemented by projects does reflect a trend being observed in other programmes such as HE Academy/JISC UKOER and Workforce Development/Life Long Learning. Where software/tools implemented a standard, projects used it, they did not try to implement standards which were not supported by a range of easily available and useable tools and of course were integral to delivery of the curriculum.

Projects were not only looking at technologies in terms of software. **ISCC** developed a hybrid of both physical and online resources/environments to support their development around engaging students in design conversations and recording and sharing the conversations through the VLE. **Springboard TV** refurbished their TV studio with a range of state of the art broadcasting equipment to allow students to experience a "real studio", then again integrate that within the wider delivery of courses in both face-to-face and online environments. Again the range of physical and software-based technologies trialled and eventually used, were based on the real needs of users, both staff and students.

Some of the significant issues to emerge relating to technologies included:

- There is a challenge when presenting technologies in development to key stakeholders. **eBiolabs** developed a new online laboratory of integrated tools to help students prepare for practical classes and to help staff track student achievement. They experienced a fine balance between the need to have a finished product, agile testing and development without having a negative impact on stakeholders during the early stages of their project. **CASCADE** found challenges in addressing some stakeholder misunderstandings and had to work to get staff to understand the difference between online submission and online marking. Staff expressed concerns about the latter.
- Technologies that have been available within institutions but not used effectively or routinely. Some projects took advantage of these technologies and the existing support mechanisms (**COWL**, **Making the New Diploma a Success**, **CASCADE**).
- In contrast some projects were concerned with reducing the number of institutional technologies and associated costs by focusing on web-based technologies and student owned technologies (**MoRSE**, **Atelier-D**).
- There is an ongoing debate around student ownership and use of personal technologies for learning purposes which some projects addressed (**MoRSE**, **Duckling**).
- Pilot activities that provide experience with technologies can raise staff and student expectations and are not always scaleable. (**INTEGRATE**, **MAC**).
- Students don't always know which technologies are best for a task and can actually get in the way of learning achievement. **ISCC** identified this as a problem for design students where creative conversations were sometimes stifled by the supporting technologies and found that students saw the value of being told which technologies to use for specific tasks.

- All projects acknowledged the need for awareness raising and training activities for both staff and learners and support mechanisms needed to be in place, particularly for supporting remote students (**Making the New Diploma a Success**, **INTEGRATE**, **Duckling**).
- A whole range of interventions are possible from augmenting physical spaces with technologies (**ISCC**) as well as replacing some class-based provision with web-based approaches (**KUBE**) to a more blended approach (**KUBE**).
- Changing how institutions consider the use of technologies – several projects made this an integral part of curriculum design activities (**CASCADE**, **ESCAPE**, **KUBE**, **Duckling**).
- Managing stakeholder expectations of functionality of technologies and their limitations proved to be significant for some projects (**INTEGRATE**, **CASCADE**).
- There can be a danger in trying to introduce too many new technologies at once so keeping it simple was an emerging message from the programme.
- The speed at which technologies change are significant – illustrated by **Duckling** as new e-book reader models already address many of the issues raised during the project. There can be a danger in changing policies and practice to accommodate shortfalls of technologies which needs to be balanced against waiting for technologies to evolve. Flexible open-source technologies offer opportunities for institutions to make the changes that are relevant to their own contexts, and can also be fed back to the wider community (**CASCADE**).
- The importance of talking to institutional IT support teams to ensure that any new technology will work within the institutional network. IT teams can provide invaluable information and advice about will/won't work. They can also provide insights into scalability issues for future developments. Although web 2.0 technologies can be implemented relatively quickly, there can be issues when trying to increase the scale of trial projects. (**MAC**).
- Technology can support a more active style of learning based around learners producing/creating content (**Springboard TV**, **ISCC**, **Atelier D**, **MoRSE**), openly collaborating (**Atelier-D**, **ISCC**, **Generation 4**, **Springboard TV**, **KUBE**) and engaging in authentic activities in immersive worlds (**Generation 4**, **Atelier-D**, **Duckling**).

3A LEARNING ENVIRONMENTS

Virtual Learning Environments (VLEs) played a significant role in many of the project innovations despite the ongoing debates which question their role and see them as institutional content silos⁸. That the majority of the Curriculum Delivery projects used VLEs creatively, and in a way that integrates with a range of other technologies, is some testament to the fact that both staff and students have embraced them and value them as an institutional support. Seven of the fifteen projects are using Moodle to support their activities, and have reported that the modular and flexible nature of this software has been significant in their choice. **KUBE** and **Making the New Diploma a Success** both have Moodle as the central element of their activities. This also reflects an increasing confidence in using open source solutions that have strong and active communities, and which are widely seen as a very viable option to commercial offerings, although **CASCADE** have documented their challenges in working with open source software, in particular in relation to the staff time required.

'Our modifications to the existing Moodle assignment-handling module proved far more complex than anticipated. This was largely a result of working with open source software which, while it has many advantages, does not always have the most well documented and clean code. This was also exacerbated by unexpected impacts following the modifications we made to the code and resolving this issue was time consuming.' (**CASCADE**)

Projects identified the following reasons for adopting technical solutions which had the VLE as a central component:

⁸ <http://cloudworks.ac.uk/index.php/cloud/view/2162.html> The VLE is Dead ALT-C 2009 Session

- Student familiarity with VLE and strong anchoring to institution for those away from institution (**MoRSE, Making the New Diploma a Success**)
- To support contextualisation and scaffolding (**MoRSE, Making the New Diploma a Success**)
- Seamless integration with other technologies, particularly e-portfolios – (**COWL, KUBE, Making the New Diploma a Success**)

‘Having researched and listened extensively to our staff and students we chose to adopt Moodle as our platform because of its constructivist approach to scaffolding learning and its flexibility to integrate with other open source systems. This coupled with integrated ePDPs and ePortfolio tools enabled staff to provide their students with opportunities for effective interventions leading to increased student satisfaction, achievement and progression. As a result we have seen an increase in excellent practice in teaching, learning and support.’ **Making the New Diploma a Success**

Making the New Diploma a Success reported considerable cost savings in terms of staff time and licencing costs (approx. 50k per year) by using an external University host for their VLE. This provides an excellent example of shared services in the sector and is likely to be the kind of approach that is increasingly attractive as institutions look for cost cutting opportunities.

3B REPOSITORIES

Repositories have not been a major focus of the programme but have been important in supporting the storage and retrieval of some of the learning content. **COWL** used their institutional repository to make project outputs available and have made some these materials available as Open Educational Resources (OERs). Other projects have used lightweight or ‘fauxpository’ online storage facilities such as Flickr to create, store, tag and collaborate around images and videos (**Atelier-D, MoRSE**), Diigo to highlight and tag resources (**MoRSE**) - **Atelier-D** created this function within their Open Design Studio and **Dynamic Learning Maps** also incorporated this function. VLEs have been used widely to store and make learning materials accessible.

3C LEARNING DESIGN TOOLS

The open source Xerte toolkit⁹ developed by the University of Nottingham emerged as a valuable design tool for the **KUBE** which enabled curriculum teams to take responsibility for creating their own interactive learning resources. This project also created a learning object in using Xerte for their Curriculopoly board game¹⁰.

The **Atelier-D** trialled the use of the Compendium LD¹¹ tool developed by the Open University for knowledge mapping in design, but found that it was rather complex for distance students to use without significant support due to the ‘specialised’ language used within the software.

3D ASSESSMENT TECHNOLOGIES

Nearly all projects included elements of assessment and feedback as part of their approaches to enhance the learning experience. Whilst some use specific assessment tools such as Turnitin (**Making the New Diploma a Success, INTEGRATE**) most used a wide range of technologies not specifically designed as assessment tools. The use of audio feedback in the form of podcasts and voice boards to provide feedback proved to be a very efficient and effective method used by some projects (**COWL, Duckling**).

⁹ <http://jiscdesignstudio.pbworks.com/w/page/23169051/Xerte>

¹⁰ <http://jiscdesignstudio.pbworks.com/w/page/24176193/Curriculopoly-board-game>

¹¹ <http://kn.open.ac.uk/public/workspace.cfm?wpid=8690>

MAC were focused on feedback and assessment and developed the 'e-reflect' process which utilised blogging facilities in the VLE for student reflection on tutor feedback, a Google-based form for a student questionnaire and linked to central student records, and an emailed pdf response to students. The project created a SUM (service usage model)¹² which provides an overview and technical description of the e-reflect process. The project team are revising this model to create a more sustainable and flexible self-authoring open-source version aimed to support improved sustainability at Westminster and wider applicability across institutions and subject areas.

ESCAPE were concerned with the effectiveness and efficiencies of their institution-wide assessment practice and processes, and have developed the **ESCAPE Toolkit**¹³ which aims to take academics through the main stages of devising an assessment strategy - the principles of assessment, description of the curriculum and advice. This project utilised a wide range of technologies across a range of courses to provide timely assessment for learning including video capture of lectures which are then made available through the institutional VLE, flipcam recordings of lab work, wikis and an in-house Excel-based programme call WATS (weekly assessed tutorial sheets) which is a webform that students submit, it is marked with feedback and then creates a league table.

As mentioned previously **CASCADE** used Moodle for assignment handling and also to support assessment activities. **ESCAPE** and **eBiolabs** used Excel for online submissions and automatic marking and **eBiolabs** highlighted a few issues around basic computer literacies of students:

'Although we had a few complaints about requiring students to use Excel pro-formas, discussions with the students revealed that their difficulties were more with basic computer literacy problems such as saving and finding files.'

'Students preferred to use their own computers to complete the pro-formas even when they did not have a copy of Excel. The most frequent cause of problems was students uploading their work in an incorrect file format.'
(**eBiolabs**)

Several projects investigated peer review and feedback (**Atelier-D, COWL, Duckling, eBiolabs, ESCAPE, ISCC, Lewisham**) and this proved particularly popular with remote students, as well as supporting economies of scale with large cohorts and staff time efficiencies.

'The COWL Project offered a small taster of the support available and the structured peer writing support activity during the COWL Economics trials encouraged these students to seek additional individualised writing support. As a result of the COWL Project, therefore, there was a ten-fold increase in the number of level one Economics students formally choosing to seek help with their writing.'(**COWL**)

'The Education students preferred being assessed through interactive v-tivities via the Voice Board than through portfolio tasks individually. They liked the fact that they were able to receive more constructive feedback from the e-moderators and peers as opposed to getting limited feedback on the portfolio tasks from the tutor only which they found "didn't give you too much motivation". Students also considered that the v-tivities generated more discussion around the tasks with peers, and enabled them to do more readings recommended by peers. On the whole, students appreciated the interactive element of the v-tivities and were happy about their formative assessment being done this way.' (**Duckling**)

3E MEDIA ENHANCED LEARNING

Springboard TV developed an internet station designed to provide an authentic experience for media students. This development led to a complete revision of the department's curricula and also linked in to several courses as students participated in developing the station. The project team enhanced their TV production technologies to reflect current industry standards and the Springboard site was also expanded to include still images and is clearly contributing to an institution wide community network that also

¹² <http://wikis.e-framework.org/community/wiki/eReflect>

¹³ Can't find a damn link to the toolkit – insert later

enables learners to exhibit their work to wider audiences. This has had a significant impact on student engagement, retentions and enrolments.

The **ISCC** used technologies to support meaningful conversations between design students during collaborative design processes, and allow these to be referred to in retrospect in a way to support reflection. Their focus was on providing a range of technologies that did not interfere with the process or conversations, such as podcasts, video, projectable writing surfaces, webcams, wikis, still images. Developing trust in the recording technologies left more time to focus on 'conversations' but some of the technologies proved to be too distracting.

'Some experiments with more sophisticated digital tools (including touch sensitive table surfaces, digital pens, and tablets) appeared to suggest such tools provide more sources of distraction and interrupt the conversation. Furthermore, in many settings a move to a more digital environment would make more difficult the mix of digital and physical objects, media and content that is important in many exploratory design conversations. Some tools (such as the eBeam pens) are usable, robust, and highly developed. However, in some situations, such technologies appear to offer less flexibility and expressiveness than traditional pens.' (**ISCC**)

Atelier-D aimed to develop an online studio for distance learning students and tutors (also working from a distance) to create a sense of community and encourage interaction and engagement. They identified several approaches and trialled openly available social networking and web 2.0 tools (such as Flickr and Facebook) as well as developing a tailored Open Design Studio.

3F SOCIAL NETWORKING AND WEB-BASED TECHNOLOGIES

Web-based technologies allow learners to develop their capabilities, identities and communication skills in a way that is highly relevant to C21st living and working - and these encourage and support open and public practice and can support authentic and challenging learning experiences. They support showcasing and interaction directly with employers as well as the development of an academic profile and reputation. These technologies support choice for learners who are digitally aware and who understand the potential for formal and informal learning. The use of web-based technologies and social networking tools has been widespread across the projects, reflecting their ubiquitous nature. Issues around ownership and control have emerged as important, both in terms of control over their formats or continued existence and in relation to using them in formal educational contexts. In trialling this kind of software projects adopted flexible approaches and had to use alternatives if their first choices did not deliver as expected. Integration of these with institutional technologies was an important aspect as projects felt the need to present seamless experiences for their learners and also wanted to maintain the links to the institution that VLEs offered.

'For those students working remotely from the institution, the use of social media and personal and mobile technologies that have been effectively contextualised and scaffolded have demonstrated the potential to enhance both student learning and the student experience of learning.' (**MoRSE**)

technology	uses	projects
Facebook	Content sharing, community building	Atelier-D, INTEGRATE
Ning	Networking spaces	KUBE, Atelier-D
Wikis	Community building, sharing content, peer interaction	KUBE, MoRSE, INTEGRATE
Blogs	Reflection	ISCC, MoRSE, INTEGRATE
Elluminate	Videoconferencing	Atelier-D
Megameeting	Videoconferencing	COWL
Skype	Videoconferencing	COWL
Twitter	Micro-blogging	MoRSE
Geo		MoRSE
Compendium	Knowledge mapping	Atelier-D
Flickr	Image sharing, tagging, peer interaction	Atelier-D, MoRSE

Googledocs	Document sharing, collaborative work	Atelier-D
Voice boards, riffly audio hosting	Assessment feedback	Duckling, COWL
Cloudworks	Community building, networking	Atelier-D
Googlewave	Communication for distant tutors	Atelier-D
Googlemaps	Twitter map mashups for GIS data	MoRSE, INTEGRATE

3G SYNDICATION

Syndication technologies have been used for a number of purposes within this programme including syndication and aggregation of content, reading lists, and as part of data-mashups. (**CASCADE**, **Dynamic Learning Maps**, **MORSE**, **MAC**, **KUBE**).

The main syndication technology in use is RSS (Really Simple Syndication). For some projects it offered a lightweight approach to drawing feeds from a variety of sources such as **MoRSE** who used it to draw information from remote students on fieldtrips into the VLE. **Dynamic Learning Maps** used RSS in quite a sophisticated way to pull in a number of data streams from various parts of the University. Syndication has also proved useful for overall dissemination via project blogs.

3H MOBILE TECHNOLOGIES

Mobile technologies can take the curriculum to learners wherever they are, and bring learners' own experiences into the curriculum. They present powerful opportunities for personalization, flexibility and choice. A range of mobile technologies from have been used by a number of projects within this programme including:

- Mobile phones (**MoRSE**)
- SMS (**INTEGRATE**, **MoRSE**)
- Tablet PCs (**ESCAPE**)
- EEE PCs (**Making the New Diploma a Success**)
- E-books (**Duckling**)
- **KUBE** – podcasting used on ipod touches

MoRSE investigated the use of mobile technologies to support students on fieldtrips and on placements, with a particular focus on balancing institutional and student owned technologies. They identified several issues specific to mobile technologies¹⁴:

- Mobile phone network costs on international field trips
- Rapidly changing market – needs watching
- Students positive about the use of mobile technologies in the field – including using own technologies and their own text credits for educational purposes
- Students having clear lines of which technologies are for learning and which for social activities
- Students low expectations of using technologies for learning

The **MoRSE** baseline study demonstrated diversity in student technologies and concluded that an *'appropriate mix of institutional and widely available third party and personal technologies are considered as appropriate to the learning context with recognition to those technologies that students are already using.'*

Duckling trialled the use of e-book readers containing course content and podcasts of course materials and assessment feedback as a means of increasing flexibility for highly mobile distance learners. Whilst

¹⁴ <http://blogs.kingston.ac.uk/morse/2009/03/12/a-brief-review-of-mobile-phones/>

the provision of e-book readers was cheaper than providing materials on paper, the project team concluded that as students begin to invest in their own readers, the university should concentrate on producing materials for download.

'Evidence from students of both disciplines shows that the technology functioned according to our expectations and the participants were generally satisfied with their readers. The devices enhanced student learning in a number of ways: increasing flexibility and mobility, saving money and resources, making better use of „dead“ time, and optimising study strategies.' **Duckling**

'The use of eBooks will definitely be the way forward for many of students in Higher Education. The Psychology team has now converted all their course materials into ePub format. As new materials become available, they will be made available in e-book format on Blackboard course area for students to drag and drop onto their e-readers. In this way, students are supported to access their course materials in e-book format on whatever device they choose.' **Duckling**

'Ipod Touch devices have been loaned to 37 students on the first year of the two year Foundation Degree. These students study part-time whilst working full-time. They are mature students who are usually highly motivated, experienced but located over a fairly wide geographical area. Thus the use of mobile technology is a great enhancement to their learning. Podcasts have been created specifically for use with this technology as well as students being directed to podcast materials which are freely available on iTunes U.'* **KUBE**

3J E-PORTFOLIOS

An e-portfolio is a learner-created collection of digital items: ideas, evidence, reflections, feedback, which presents a selected audience with evidence of a person's learning and/or ability. 'e-Portfolio-based learning' – the process of planning, compiling, sharing, discussing, reflecting, giving and receiving feedback – is the focus of increasing attention because it is as important as the e-portfolio itself. e-Portfolio tools and systems can support learners in developing these processes as they can be portable and provide evidence of achievement, hence supporting the employability agenda. e-Portfolios support personal development planning (PDP), Continuing Professional Development (CPD), assessment and feedback.¹⁵

Mahara was used by **Making the New Diploma a Success** and **KUBE** as it integrates well with Moodle and both projects see PDP as an important aspect of recording student progression and supporting transition.

'All students on the Higher and Advanced diploma courses have completed their PDPs electronically this year and reported favourably on its use. Many of them state that the ability to access it online means that they do not need to carry around a student planner and over 70% feel that setting targets has helped them to progress and achieve.' **Making the New Diploma a Success**

'The module leader set up student groups in Mahara to work with students on methods of improving grades across the other modules. Using a combination of interactive learning units created in Xerte and deployed via Mahara with students recording progress and submitting work via the 'views' function in the ePortfolio tool.' (**KUBE**)

Dynamic Learning Maps adopted an holistic integrated approach to embedding and reusing personal and institutional information by developed a web-service (based around LEAP2) which links information in portfolio systems and in learning maps, supporting automatic updating across systems.

Some projects adopted web-based technologies to support reflective learning through blogs (**MoRSE**) and wikis (**Generation 4**) but did not take a formal e-portfolio approach. Time was identified as a factor for some although **Generation 4** felt it was inappropriate in their context:

¹⁵ <http://www.jisc.ac.uk/media/documents/publications/effectivepracticeeportfolios.pdf>

'The portfolio approach for student engagement during PBL was abandoned even before the term had started, because the portfolio was perceived as too 'clunky' and attracted student dissatisfaction. Instead more pragmatically, we provided the kind of support which students really wanted, namely somewhere to put their notes, diagrams, and links during PBL.' (Generation 4)

One outcome of the **Springboard TV** activities was the resulting digital showcase for students to take to future employers and that also offered space for peer and tutor feedback and reflection opportunities.

The links between e-portfolio for reflection and assessment was noted by **MAC**

'The MAC process is one ideally suited to the use of e-portfolios and has the potential to markedly influence a significant component (academic development as well as wider skills) of a student's personal development plan (PDP). The School of Life Sciences, unlike other School's at Westminster, does not have a part of its course specifically focused on PDP, preferring instead to embed PDP type activities across all modules. In this School therefore students use a learning journal (blog) for the online reflection part of MAC.' (MAC)

3K IMMERSIVE WORLDS

Immersive worlds can contribute to a wide range of curricula by providing 'authentic' learning experiences that mirror real world situations. They have particular impact on practice-based subjects.¹⁶ **Atelier-D**, **Duckling**, and **Generation 4** have been investigating the use of immersive worlds - in particular Second Life (SL). Whilst all of these projects acknowledge the potential value of SL most identified significant challenges relating to student and staff access, equipment requirements, steep learning curve and costs. **Duckling** made effective use of an existing oil rig created by an individual, thus avoiding costs of developing their own environment from scratch, and after further development they have released this as an OER.

'SL was considered to have many weaknesses in this context, students in the focus group ranking it below paper PBL for clinical reasoning and identified usability; clumsy dialogue; distracting virtual environment; time consuming process; lacking realism, particularly for medical examination and difficult to focus on Learning objectives as significant problems.' **Generation 4**

'staff had difficulties in engaging in the Second Life pilot, since Second Life is not currently supported across the institution, and staff could only use the platform at home or in the University of Leicester's Media Zoo.' **Duckling**

'There are still considerable limitations to the effective use of Second Life for learning and teaching purposes. Access issues, technical problems, demand for support and training, discomfort with SECOND LIFE features and managing students in different time zones together (when required for the task, as in the Psychology pilot) are challenges for the sustainable integration of Second Life into the two disciplines.' (**Duckling**)

'The Second Life pilot helped staff of both disciplines to see the potential of a virtual world as a safe environment for practising skills and realise what was involved in the design and implementation of Second Life teaching activities.' (**Duckling**)

Generation 4 continued the development and use of the Virtual Patient and Open Labyrinth which has been specifically designed for medical education and have enjoyed considerable success with this approach. They found that their discipline specific approach didn't translate well into Second Life.

Integrate highlighted the general caution from academics to the use of Second Life.

'Many staff from the Business School attended an enthusiastic presentation on this, but it failed to capture the interest of any of them for teaching purposes, and also did not support the direction that at that moment in time we were moving towards, and that was the strengthening of face-to-face interactions.' (**INTEGRATE**)

¹⁶ <http://jiscdesignstudio.pbworks.com/w/page/12458509/Serious-Virtual-Worlds-Report-%282008%29>

4. EVIDENCING BENEFITS: EFFICIENCIES, ENHANCEMENTS AND TRANSFORMATION

The successful outcomes of these projects are expressed the words of projects themselves, in the benefits table (Appendix 2) which provides tangible evidence of positive impact in three areas:

- Efficiencies and effectiveness
- Enhancement of learning and teaching
- Transformation

Within each of these broad areas the table identifies benefits for students, staff and institutions. There is also early evidence of benefits to wider communities (employers, local communities, other further and higher education institutions) and it is anticipated that this will increase as these communities engage with the programme outputs, through effective project dissemination and the Design Studio. The interventions appear to be highly transferrable to similar contexts, to those working within the same subject disciplines, within similar institutions or those adopting similar pedagogic approaches (for example problem-based learning).

It is excellent to see so much evidence of benefits to learners through this work, both to learner outcomes and satisfaction. Projects also provide strong indications that the transformations they have begun with this funding are sustainable and highly likely to be rolled out further within their own and external institutions. The evidence of significant cost benefits is going to be of particular interest to the wider community at a time of severe economic constraints and the pragmatic approaches adopted reflect the need to make best use of existing institutional investment in technology, as well as using open web solutions. The programme has delivered a series of diverse models for implementing enhancements that respond to challenges affecting all educational institutions.

4A. EFFICIENCIES AND EFFECTIVENESS

Whether or not projects started out by focusing on efficiencies and effectiveness in an institutional sense, most did end up addressing these issues. The language used here could be described as incongruent to a learning context, coming principally from the world of business and capital. However projects found that identifying cost benefits as well as learner benefits resulted in increased likelihood of sustainability and ongoing support from senior management. Efficiencies and effectiveness are not all about cost benefits and most certainly do not act in opposition to each other. Projects who demonstrated institutional efficiencies could also provide evidence of increased effectiveness.

As illustrated in the benefits table several projects provide real evidence of improved retention, attainment and progression. The following list identifies where projects evidenced transformation in this area:

- Using techs to save time which was identified as the most significant resource
 - using staff and learner time more effectively (**CASCADE, ESCAPE, ebiolabs, Duckling, MAC, Springboard TV**)
- Balancing and measuring efficiencies against effectiveness
 - Gaining understanding of management and frontline staff (**ESCAPE**)
- Identifying which technologies will have the most impact on an institutional level
 - Identifying which technologies affect the most courses, schools, modules, subject disciplines (**CASCADE, ebiolabs, ISCC, INTEGRATE, Making the New Diploma a Success**)
 - Trying to identify new activities not replicating old methods (**KUBE**)
 - Focus on content (**CASCADE, Making the New Diploma a Success, eBiolabs, Duckling** – some generic content made avail as oers)

- Podcasts on general issues (**CASCADE, Duckling**)
- Eliminating duplication of content across schools and experienced by learners
 - Mapping across modules (**Dynamic Learning Maps**)
 - Producing generic content (**CASCADE, COWL, Making the New Diploma a Success**)
- Accessibility and scaleability
 - Extending support through online tutorials. (**Atelier-D, CASCADE, COWL**)
 - Training subject academic teaching 1st year UGs for pilot. (Integrating within curriculum not central service) (**ISCC**)
 - Peer review of students – lessening burden on staff (**Atelier-D, COWL, Duckling, eBiolabs, ESCAPE, ISCC, Lewisham**)

4AI PRAGAMATIC INSTITUTIONAL/POLICY APPROACHES

Many projects took advantage of existing institutional initiatives or related projects which both enhanced what some projects managed to achieve, improved the overall impact and supported sustainability and embedding. Some of these are listed here:

- Problems of reliance on, or negative impact of, wider institutional initiatives
 - Adopting flexible approaches to planning (**Making the New Diploma a Success**)
- Taking advantage of other initiatives
 - Changing modules and curriculum re-design were seen as a major opportunity to engage stakeholders with possibilities of integrating new technologies (**Generation 4, KUBE, INTEGRATE, Atelier-D**)
- Programme linkages
 - Co-working and collaboration (**KUBE, MoRSE, Making the New Diploma a Success**)
- Encouraging collaboration across the institution
 - Links through other initiatives (Students as change agents - **INTEGRATE, TWOLER - MAC,)**
- Focusing on activities which would have the greatest impact on stakeholders and greatest benefit for the wider community (**KUBE**)
- Transforming relationships between students and learning providers central to changing attitudes and behavior (**KUBE**)

4B LEARNING AND TEACHING ENHANCEMENT

The **Transforming Curriculum Delivery Through Technology** Programme was fundamentally about enhancing the learner experience. Whilst it is clear from the work of these projects that changing processes and support mechanisms to enhance the overall student experience can have a significant impact on learners, most project activities were about that crucial interaction where the learners encounter the curriculum. Projects made great efforts to include the ‘learner voice’ and to listen to their needs, expectations and experiences. Inevitably projects also spent considerable time listening to the voices of those people expected to engage with and carry out these changes – the staff. Project accounts of their experiences include all of these different narratives – those around the learning approaches and those describing learning outcomes. These different voices did not ‘speak’ in isolation though and projects report a value in the dialogues that were initiated through their work, both within the institution and outside, and importantly the way their work instigated new connections and understandings.

‘5 members of the course team have experimented with learning technologies in ways they would not otherwise have done, and there is growing interest in the potential value of technology for enhancing curriculum delivery – both for distance students and for campus-based students. This has prompted some academics to begin redesigning their courses to explicitly encourage more peer interaction using the affordances of the available technologies.’ (Duckling)

'Whilst the INTEGRATE project is broad and diverse, we are clear as a team that it is the number and diversity of the conversations which we have that, when added together, create change in the system. We have become very aware of the importance of individual, sometimes incidental, conversation to bring about change on the ground.' (INTEGRATE)

As mentioned earlier most projects were concerned with supporting students in relation to professional and work-based subjects – those courses that aim to prepare learners for their employment. That is not to say that the courses did not offer a broader or richer learning experience that benefitted the students as individuals, but to highlight that this employment focus may have, to a large extent shaped the nature of pedagogical and technological approaches to enhancement. A range of approaches have been described in earlier sections but these activities, in particular, illustrate the commitment to enhancing the learning experience.

- Project base-lining activities involved students
- Creating networks of learners to encourage learner dialogue
- Learners input to design of teaching and assessment mechanisms - Using the learner voice – using base-lining results to engage staff
- Understanding that learners are a large heterogeneous group with many voices - not all expectations can be met
- Base-lining activities difficult with disaffected groups – skewing results as engaged students are the ones caught in surveys, focus groups
- Base-lining through pre-induction surveys provided with opportunity for early dialogue (KUBE)

4C TRANSFORMATION

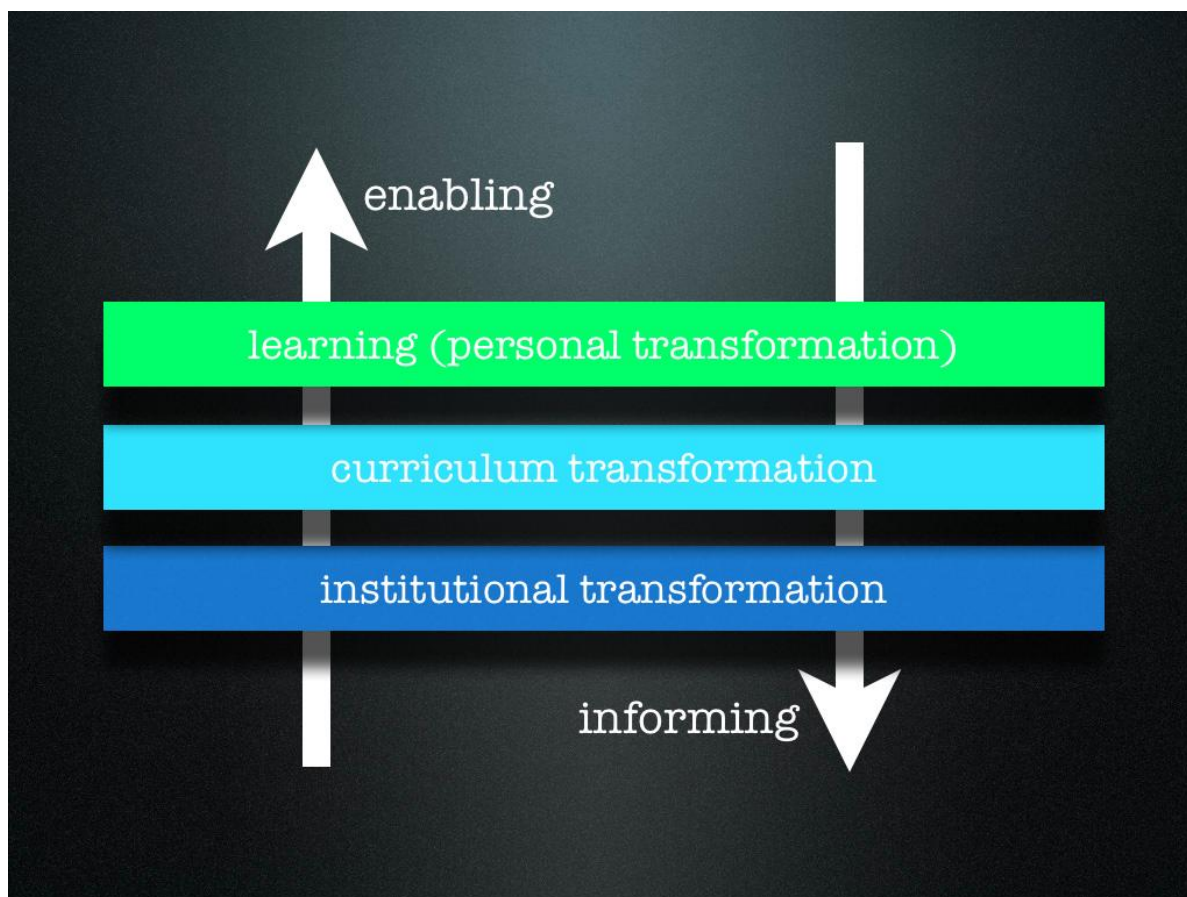


Fig 2. Helen Beetham's Transformation diagram

Helen Beetham, consultant to the JISC e-learning team, developed this diagram to capture the facets of the two parallel programmes and to illustrate the relationships between them. It's fair to say that the [Transforming Curriculum Delivery Through Technology](#) programme has incorporated all of these elements of transformation. The success of the projects has depended on the effective management of these changes, requiring flexibility and balancing of the various facets. Each project has their own rich and varied transformation story, which they tell in their final reports. This section aims to provide a snapshot of those stories and to stimulate further investigation.

4C1 MANAGING CHANGE

With pressure from international competition, the 'globalisation' of education and the need to respond to national agendas, employer needs and student expectations - institutions, and the people working in them, are operating in a continual cycle of change. Many of the institutions involved with the programme were in the process of re-examining strategies and processes to support curriculum development and the funding enabled an institution-wide approach to tackling some of the related challenges. In fact, linking project activities and goals to institutional strategies and policies has been highlighted throughout the programme as being crucial to ensuring sustainability and embedding.

'The Learner Portal model has now become a major focus of one of the College's top ten strategic priorities for 2010-2013 – 'To embed an eCollege ethos in all we do'. An eCollege strategy group, led by the Principal, has been set up and tasked with delivering the eCollege vision: "Through the use of existing and emerging Technologies we will re-model learning, teaching, support and business practices resulting in outstanding, efficient and effective performance"' Making the New Diploma a Success

'In order to deliver efficient institution-wide services it is essential to take an organisational view of how services should operate and identify those that can be developed and used across departments, sections etc. Consultation and analysis at a strategic level is essential when setting high-level aims. Organisational processes needs to be properly interrogated to discover if and how technological interventions offer real benefits, such as using time motion studies to assess the impact of online enrolment and payment and assignment submission. Engaging in this process was key to the identification of the focus areas chosen for the Cascade project and in specifying the details of the implementation solutions developed in each focus area'. CASCADE

4CII STAKEHOLDER ENGAGEMENT

Several projects identified stakeholder engagement as key to ensuring embedding and sustainability of innovative practice and **CASCADE** developed a 'communications and engagement strategy'¹⁷ at an early stage. This project emphasised that utilising existing structures, communication mechanisms and appropriate timing of conversations (ie when people were ready) was crucial to engaging stakeholders.

In contrast, **INTEGRATE** described their experience as 'Change happens one conversation at a time' which reflects their thoughtful and patient approach to transformation and to engaging stakeholders¹⁸. This project team also developed an 'Engaging stakeholders: 10 minute tool to help people apply Exeter's approaches to their own context.'¹⁹ Many of the projects provided some excellent examples of listening to and involving stakeholders in the conversations around transforming practice through technology.

'Embedding of service innovations requires support from appropriate senior managers and decision makers in order that the necessary resources are provided and the required buy-in from key staff across the organisation can be obtained. The involvement of senior managers meant that the implementation of key decisions, in terms of service

¹⁷ <http://cascade.conted.ox.ac.uk/sites/cascade.conted.ox.ac.uk/files/CommunicationsStrategy2010-03-30.doc>

¹⁸ Integrating Technologies Project (University of Exeter) [Engaging stakeholders with new technology for teaching and learning](#)

¹⁹ <http://jiscdesignstudio.pbworks.com/w/page/25994797/Integrate%20-%20engaging%20stakeholders>

structure and funding, was more straight forward than might have been the case, but ultimately it was the value of the project deliverables that made the case for change so strong.’ **CASCADE**

Across the programme senior management engagement was generally achieved at the project inception stage due to the focus on addressing institutional challenges. This meant that projects could focus on other stakeholders throughout the project. Projects engaged in significant base-lining activities²⁰ which presented an opportunity to start conversations with staff and learners right from the beginning. There were a notable range of imaginative approaches to engaging staff and an impressive number of materials on the Design Studio that will be of use to other institutions contemplating institutional transformation of this kind. Many projects felt strongly that stakeholder engagement should make use of existing mechanisms and channels for communication and this had a significant impact on sustainability – getting established groups and committees to endorse and support change was noted as effective.

‘the most effective forms of engagement were those that built on existing activities or communicated the project through existing channels and meetings; for example, updates provided at the Department’s Academic Board meeting, articles in the Departmental newsletter and updates given at University-wide groups, such as OxTALENT’ **CASCADE**

What has become evident is that stakeholder engagement needed to be phased, starting with awareness raising and reviewing existing practice to more detailed conversations focused on specific contexts for each group of stakeholders, leading to wider dissemination using pilot activity outcomes and exemplars.

‘Many hours were spent during the base-lining period working with, and talking to the teachers to attempt to get a better understanding of the problems they faced, relationships with each other and with the students.’ **KUBE**

The notion of ‘important individuals’ or ‘champions’ also emerged as significant, with these people being crucial during times of change fatigue or when encountering strong barriers.

‘Persuasion is an absolutely indispensable component in any form of change management exercise. In KUBE persuasion was needed at all stages and throughout the duration of the project. The project manager for any such enterprise simply must be persuasive. There will be a continuous need to influence, decisions, people, processes. Often the most comfortable option for individuals is to do nothing.’ **KUBE**

Generation 4 actually highlighted ‘change fatigue’ as one of their significant challenges and adopted a slightly unusual approach of what they described as ‘non-engagement’.

‘When the term started, we estimated that more than ¾ of the lecturers were unaware the PBL process had been modified. In PBL, the case is central; clinical science lectures are to a greater degree standalone, so it made no tangible difference to their component of the curriculum.’ **Generation 4**

‘The important issue to be addressed strategically at the start of the project was that staff had made it clear they are exhausted by change. Up until the mid-nineties, the culture in medicine has been to keep the same curriculum for long periods, and since then St George’s has changed its curriculum every 3-4 years. Many staff had not seen the value of these changes (with some justification) and were primed to resist further change. So discussions targeted that self-interest. Once started, staff were then better prepared to enjoy the impact of the new curriculum, and appreciate what it could do for its students. In contrast to all previous curriculum changes, the project objectives have now been fully supported in principle by staff in all sectors; there has only been one instance of opposition. By contrast, the eLU experience is that students almost always recognise a learning style which will improve their learning.’ **Generation 4**

²⁰ INSPIRE evaluation report

Curriculum team engagement

All projects invested significant time and resource into engaging curriculum teams. Some chose to establish practitioner communities to facilitate and support ongoing sustainable conversations (**ESCAPE**). **KUBE** developed a curriculopoly board game²¹ to encourage creative thinking around blending e-learning tools and techniques.

'this device was used to initiate discussion and prompt free thinking. It involved the module leaders playing eLearning cards to race around a track based on an HE Business module scheme of work. This proved a very popular and effective way of getting the team to apply some of the tools they had been introduced too earlier in the day' **KUBE**

Most projects held staff workshops, particularly 'away-day' type events that gave people time and space away from everyday duties to focus on developing new visions and approaches to curriculum delivery. Many projects took advantage of existing staff development/CPD mechanisms both to engage and to identify the kinds of skills development staff needed, and others created new mechanisms.

'It was apparent that staff needed allocated time otherwise they would have no capacity to change. They needed to be given time to develop new skills and new working methods. To this end weekly development sessions called 'Golden Hours' were established and run by the Education Technologies Co-ordinator. 'Springboard TV

Several projects identified a need to manage expectations both in relation to using technologies in general and in what the project could help them achieve.

'An important lesson learnt from testing the tools and pedagogic approaches initially selected for the trials is that the Project Director needs to listen to and manage stakeholders' expectations and reservations and to allow these to help shape developments. Stakeholder perspectives reported in the staff interviews and at Steering Group meetings revealed, for instance, that Academic Writing Tutors felt much more comfortable with the synchronous than asynchronous tutorials and that they were less comfortable with the asynchronous element of the provision and talked about it being faceless and confusing, of drafts coming from nowhere and being sent back into a void.'

COWL

ESCAPE adopted an Appreciative Inquiry (AI) approach where people reflect on current practice, identify strengths and articulate pedagogic values.

'Appreciative Inquiry works well – but takes time. Be prepared for staff to want to tell you all their issues and why things don't work. Be patient, AI might be a new concept for some colleagues. Ensure too (if teams seem focused on issues) that they are pushed to reflect on things that work too.' **ESCAPE**

Duckling established a Teaching Fellow model which proved effective in engaging academic course teams with using new technologies and providing ongoing support for technology-enhanced design. These individuals became an important asset and have been maintained post project. All projects reported a value in taking the time to engage and work with curriculum teams...

'The engagement of curriculum staff in this change process was essential, it would not have been successful without their full involvement from the outset.' **Springboard TV**

Learner engagement

Several projects attained an impressive level of input from the learners and saw the value of listening to the learner voice and engaging learners as change agents. For **KUBE** listening to the learner voice is one of its organisational objectives and they tried several different approaches to get learner input. Like most projects, student surveys and focus groups provided useful input and feedback, but **KUBE** felt that the students who got involved in these activities were already 'on board'. In an attempt to hear from the a

²¹ <https://jiscdesignstudio.pbworks.com/Curriculopoly-board-game>

more diverse section of students they devised an incentivized survey email campaign to new students and also established a wiki to engage students who had registered but not yet arrived in the college. **COWL** responded to student feedback by changing the names of their tutorials from 'synchronous online writing tutorial' and 'asynchronous online writing tutorial' to 'Live Online Writing Tutorial' and 'Email Writing Tutorial' for ease of understanding. **Generation 4** also responded to student feedback by changing their plans to implement e-portfolio technology, instead adopting reflective wiki entries where students could record notes, diagrams, and links.

Springboard TV saw the involvement of learners as central to transforming their approach for media students

*'The project implementation group recognised the necessity of engaging the learners in changing the prevailing negative culture. Involving the learners in the development of the name of the channel and its identity went a long way to do this. It was they who came up with the name **'Springboard TV'**. A number of logos were designed by learners on a graphics course in the Faculty, learners on the media courses then selected the one they thought best represented **Springboard TV**. New signage using the selected imagery has been employed throughout the media area. Music students have produced station identity music. Learners had an input in the original website. '**Springboard TV***

MoRSE were investigating issues around user-owned technologies so they carried out a 'Baseline technology survey'²² with the two groups of remote students - placement students and the fieldtrip students.

The learner voice was central to how projects made decisions, implemented changes and sought feedback:

*'We set out to build upon our work on Personalisation to include the 'Learner Voice', student autonomy and ownership via the development of a 'Learner Portal' and the use of mobile technology to add flexibility, adaptability and extend access to learning.' (**Making the New Diploma a Success**)*

*'At the time of writing this report (the start of the 2010/11 academic year), developments are well underway for the first cohort of student e-learning champions to be established in the school, working at a series of technology-oriented projects.' **INTEGRATE***

Business and community engagement

Projects that focused on work-based learning tried to engage business and community stakeholders. This was often a challenge. **MoRSE**, for example, included industrial supervisors of pharmacy placement students which provided a useful opportunity to engage them in conversations around the curriculum. These supervisors benefitted from support in implementing personal technologies but needed to have a clear understanding of the curriculum. The project team expended considerable effort in engaging them with academic language and requirements, and the project highlighted a number of issues around the complexity to engaging employers.

*'DMU academic supervisors considered whether a separate confidentiality agreement was needed between the students and their placement employer to cover any commercial confidentiality issues arising from the reflective tasks on placement. The conclusion was that the contract signed between student and employer was sufficient to cover both parties and frame the tasks that were undertaken in a public/private sphere. However, it was important that in the development of the UCPD, developments were made in partnership with both employers and the DMU Placement Unit, using established programme-team contacts. A negotiated and shared view was key to successful engagement in reflective learning moving forward' **MoRSE***

²² <http://blogs.kingston.ac.uk/morse/2010/10/31/students-personal-technologies/>

Duckling consulted employers during their baseline study to find out their perceptions of the professional development needs of the employees in their organisations (practicing psychologists and language teachers).

'From the interviews with employers of both disciplines, a need for skills development and transferring theory into practice for work-based learners was identified as another key challenge in curriculum delivery.' **Duckling**

In hindsight they concluded that whilst this had been useful it would have been more effective to gain their input at later stages of the project.

*'Engaging employers to contribute to the enhancement of curriculum delivery process has proved effective and valuable. The outcomes reported here addressed to some extent RQ3: How does employer engagement contribute to improvements in the delivery of the three curricula and in student learning? In **DUCKLING**, we collected the employers' views only at the beginning stage. It would have impacted more if the employers were engaged at different stages throughout the project, for example, we could ask them to give feedback on the outcomes of the interventions.'* **Duckling**

4CIII. SUSTAINABILITY – EMBEDDING CHANGE

Managing change has been a major focus for these projects and the challenge has been in embedding and sustaining this work. Many of the stakeholder engagement activities described above went some way to supporting sustainability, as did linking activities to institutional aims, strategies and policies. This also ties in with evidence of proven cost benefits and efficiencies, as well as articulating the effectiveness of the various interventions.

'The cost impact matrix in Figure 9 represents this process. Each key project output is positioned on the matrix twice: once to represent its development and once to represent its ongoing sustainability. As the matrix demonstrates, some interventions have been expensive to develop, but are relatively cheap to sustain. The positioning of virtually all the project undertakings in the high impact/low cost quadrant in terms of sustainability is indicative of our approach over the course of the project.' **CASCADE**

Powerful messages such as these have resulted in positive responses from institutional and departmental managers and projects have also evidenced long term impact on institutional policies, procedures and systems. These are best illustrated by the projects themselves. The benefits table in Appendix 2 provides a more comprehensive record of these.

'The channel has been adopted by the college as a communication tool and is now central to the college's marketing strategy.' **Springboard TV**

'Sustainability is ensured. eBiolabs has become accepted as the standard way to deliver laboratory teaching in the biomedical sciences at Bristol and there would be an outcry if it were discontinued. Our year-on-year costs are minimal compared with the savings in staff time achieved by electronic submission, marking and feedback. The workflows and methods developed for delivery and content creation ensure that editing of text-based resources can be done by any academic, while the high-value assets can be recontextualised for various lab experiments so to an extent we are future-proofed against changes to the curriculum.' **eBiolabs**

'Moreover, the development work has led to a wider debate about how such technical innovations should be funded to enable them to be more readily adopted. Historically, online assignment-handling was paid for on a programme-by-programme basis, which often resulted in poor take up as programme directors sought to improve the bottom line for their programme. It has now been agreed to fund this service (embedded within the VLE provision outlined below) centrally, and as a result interest in using the system has flourished promising efficiency benefits to all.' **CASCADE**

'The project steering group is now incorporated as a sub-group of the institution's learning and teaching committee and will, through this mechanism, continue to promote the MAC process, and reflection on feedback generally,

across the entire University reaching potentially all staff and students. In addition further development of the e-Reflect component of MAC is part of the ICT infrastructure plan, recently approved by the University's Information Strategy Committee.' **MAC**

Projects identified the following list of measures to ensure sustainability:

- Make yourself indispensable
- Demonstrate clear value for money
- Develop a vision for what embedding will look like
- Align projects benefits to institutional and national strategy
- Focus on mechanisms for "transferring trade craft"
- Liaise with key staff
- Endeavour to move ownership from project staff to institutional staff
- Embed outputs/outcomes into Staff CPD processes and qualifications
- Provide evidence of benefits
- Rewarding and recognising innovation
- challenging and changing the role of senior management
- flexible costing models
- focus on generic changes that have most impact across the institution

Projects took a range of different approaches to their activities with some adopting a research pilot approach, leaving embedding and sustainability until after the funded period. Others took a more active approach and engaged more departments, staff and students from the beginning. The latter approach leads to more compelling stories in relation to sustainability and there are projects that have transformed their institutional approaches to supporting learners. Those projects that integrated new practice into the course, curriculum design and delivery processes can illustrate embedding.

Lessons learned around sustainability and embedding from this programme have been fed into the new Sustaining and embedding innovations - A Good Practice Guide.²³ The guide is intended to support project steering groups/management teams in decision-making in this area and focuses on changing people and culture. The projects stakeholder engagement approaches, in particular have been incorporated into the guide.

²³ <http://www.jisc.ac.uk/sustainabilitytoolkit>

5. SUMMARY AND RECOMMENDATIONS

This programme has produced some compelling evidence that pragmatic interventions which aim to address specific and well articulated challenges can have **significant impact** on the ways institutions support learners. The technologies used by projects were not necessarily new or ‘cutting edge’ –most of them have been around for quite a while now and have been used in educational contexts (VLEs, virtual worlds, social networking technologies, mobile technologies, podcasts, video, etc.). What many of the projects highlighted during early base-lining activities was that these technologies were not used effectively or consistently across the institution, or in a way that provided compelling evidence of impact. This programme offers a very diverse range of ‘technology enhanced learning’ approaches in terms of technologies used, subject disciplines covered, institutional types, teaching models, learning approaches and types of learners.

One of the most outstanding features of this programme was the extent to which projects engaged learners, from participation in base-lining activities to actually being involved in designing, implementing and championing the transformations. The notion of ‘**students as change agents**’ was embraced by several projects and the ‘**learner voice**’ featured in many project outputs, and promises to support ongoing embedding and sustainability. Another programme feature is the range of imaginative approaches to generating and supporting conversations between staff, and several of these are worth investigation by other institutions as they have been vital in gaining ‘buy-in’ and support for implementing new approaches, from strategic managers to frontline teaching staff. Nearly all projects had some activity relating to feedback and assessment which reflects the importance of this in engaging students and enhancing their learning experience.

Some people in the further and higher education communities have long been looking for evidence that technology enhanced learning can save money. Many projects engaged deeply with issues around balancing the need for efficiencies with the desire for increased effectiveness. There is clear evidence of cost savings from projects that focused on practical administrative interventions, with savings in staff and student time, as well as savings on printing and duplication of content. Ultimately this programme is about enhancing the experience when and where learners interact with their curriculum and it is refreshing to see this section on the benefits table includes evidence **of improvement in outcomes and achievement** as well as improved **student satisfaction**. It appears that these outcomes will be replicable in other institutions and it should also be noted that these figures are the initial results of early interventions. Ongoing measurement is likely to add to this evidence, although there is no obligation on projects to do so. Clearly there is an opportunity for institutions to continue using base-lining data and project end data as a means to chart progress and improvement in the future.

Two projects have been funded to further explore benefits by taking their approaches to other institutions to investigate how the work can be transferred to different contexts and different subject areas.

(INTEGRATE and MAC)

Flexibility has featured as an important concept throughout this programme. Curricula need to serve the changing needs of all stakeholders, particularly the diverse needs of learners. We need to present and represent the curricula in a transparent and open way to facilitate choice and negotiation for potential and registered students and to encourage conversations and connections across institutions. Curricula also need to be competence-based, which is reflected by the subject disciplines covered by this programme. This is also in response to funder and employer needs following the call for ‘higher level skills’ and the need to demonstrate c21st graduate outcomes. To achieve this more ‘open’ transparent and flexible curricula learners have to become creative participants and active players in partnership with other learners and their tutors and institutions. Learners are no longer just recipients of institutional content and guidance, but they may not yet be ready for such responsibility or even want this. Providing flexible access and support to learners at this time of transition requires adaptive and responsive institutions.

This programme offers several excellent examples of making the curricula make sense to students and of supporting them in becoming self regulated and reflective learners.

RECOMMENDATIONS TO FUNDERS

Some of these recommendations come directly from projects.

1. There were a considerable range of approaches within this programme - from research based interventions with small numbers of students and staff to large scale departmental or institutional practical approaches affecting significant numbers of staff and students. This can have an impact on how projects relate to each other in cluster groups, and during programme activities and meetings. These different approaches need to be clearly acknowledged and articulated to projects from the beginning, and expectations about outputs should also reflect these differences.
2. This range of approaches has also had a significant impact on the kind of evidence presented at the end of the projects with research-based projects offering some compelling evidence, but with impact on much smaller numbers of students, whilst impact on the whole institution is harder to measure and present as evidence, but has much more significance in terms of sustainability and embedding. Funders should continue to value this 'softer' evidence.
3. Some of the projects started with fairly vague visions of how they would achieve their goals, but given the opportunity to be flexible and respond to their base-lining activities eventually proved to be very successful. Funding complex and open ended outcomes has been rewarded in this programme, and is a result of flexible and responsive programme management. It is likely that there will be more projects of this open ended type in coming years and that support and project management approaches will need to be flexible to adapt to this.
4. Evidence indicates that funding practical interventions that enhance the general student and staff experience (such as course payment, timetabling, assignment handling) can have an impact on enrolment, retention and student satisfaction. These also lead to increased integration of institutional IT and administration systems.
5. The evidence of benefits (Appendix 2) for this programme is considerable but this only reflects early indications for some projects. It might be worth re-visiting these institutions at some (or even several) points in the future to see if there is additional evidence of student retention or progression (often only measurable over a longer period) or long term cost benefits. It would also be of interest to find out how projects have embedded these interventions in other contexts within their own institutions.
6. Universities must improve how they measure the costs and benefits of their activities, and to do this, staff require training, tools and frameworks to help them make the case for their decisions. This may be an area for future investment by funders.
7. As universities look to new ways to deliver learning to their students, it is clear that these will only work if underpinned with the systems, processes and technology that make this a seamless experience. Examining what is required for this is a process that has already been started by bodies such as the HEFCE Online Learning Task Force²⁴ and the wider work of JISC; however, this will need to be continued to ensure UK HE is able to exploit the opportunities that technology offers for teaching and learning.
8. Projects require time to set up and get started, particularly in recruiting new members of staff. It may be helpful if funders consider allowing more time from notification of the grant award to the start date of the project to allow institutions sufficient time to make the necessary arrangements to set up the project infrastructure and have a complete project team in place at the start of the project. Alternatively flexibility in relation to project finish times can be helpful but impact on planned synthesis and dissemination activities.

²⁴ <http://www.hefce.ac.uk/learning/enhance/taskforce>

RECOMMENDATIONS TO INSTITUTIONS

ORGANISATIONAL

1. Approaches to managing change are fairly well documented and there are some useful resources available to support this process. This programme has developed some useful outputs around stakeholder engagement, and sustainability²⁵ which provide information and resources to suit a range of different contexts.
2. Central support teams featured in most projects as a crucial hub to support academic teams to engage with the possibilities offered by different technologies, providing support to implement them, and offering troubleshooting during pilots. The knowledge and experience residing in these teams take pressure away from frontline teaching staff and can be the important link to institutional systems and structures.
3. Change does not happen at a constant pace: there can be quiet times and sudden leaps forward.
4. Understanding organisational processes and the cost benefit implications of decisions enables focus on services offering the greatest impact. Improvements to the administrative areas of curriculum delivery can deliver the greatest efficiency gains.
5. Small, but crucial interventions can be leveraged to achieve large effects.
6. Embedding activities in the wider system of processes, resources, and support, enhances sustainability.
7. Commitment from senior management is a key factor in sustainability of services.
8. Engaging with stakeholder needs and expectations at the right time facilitates implementation of innovation. Influencing, involving and engaging the right people is one of the most important factors in success or failure.
9. Staff are more open to using technology than ever before, but need support to capitalise on this
10. In order to realise all the potential benefits of using technology to support curriculum delivery, it is important to look beyond pedagogy and to consider the full experience of a student's relationship with the institution from initial contact to course completion. In terms of efficiency savings, it is often in the areas of administration where real improvements can be made that both save money and improve the student experience and service quality.

LEARNERS

1. Involving students as agents of change and champions of new approaches is a very powerful approach which engages learners, generates dialogue and feedback, and supports other learners through the process of change.
2. Learners should be offered multiple pathways and access routes into their curriculum to reflect their diverse circumstances, but they may not be ready or interested in becoming self-regulated or independent. Supporting students to make choices and interact with a flexible, technology enhanced curriculum requires investment and possible staff training.
3. Learners are developing public reputations in open personal and academic contexts and are likely to want to link this with formal accreditation to present to employers.

TECHNOLOGIES

1. Outsourcing some activities, such as hosting services, can be more cost effective.
2. Technology can support more active approaches to learning and teaching which reflect authentic 'real-world' experiences and incorporate opportunities for collaboration, creativity and production.

²⁵ <http://www.jisc.ac.uk/sustainabilitytoolkit>

3. The wide range of technologies available to learners provides opportunities to augment institutional technologies and in some instances they may chose to use their own personal technologies in a formal or informal learning context. These choices should be supported and understood which may necessitate staff training.
4. Students may still need a lot of support in using fairly simple technologies and services in a learning context.
5. Joined-up information systems support more agile development processes at institutional and curriculum team level, especially when 'light touch' quality processes are used alongside an assumption of continuous improvement.
6. Identifying where technology does not add value is as important as identifying where it does
7. Working with open source software, and balancing project requirements against that of the larger community, creates challenges as well as opportunities.
8. Allow sufficient time for testing, evaluation and development before launching into the curriculum for maximum effectiveness.
9. Curriculum staff need to adopt an open minded approach to the ways technologies are incorporated and used within the curriculum. There is no single right approach.

CURRICULA

1. Curricula need to respond to the changing needs of the various stakeholders and require flexible structures which are open to change whilst retaining the core philosophy
 - a. Learner (and potential learner) choice needs to be reflected within curricula, open to negotiation and visible/transparent
 - b. Funder and employer needs demand competence-based curricula
2. Curricula need to become more 'open' in structure, more transparent and less content-based as technologies support new and diverse ways of supporting learning and as learners access and create their own content.
3. E-portfolios allow for a more open curricula in providing a place for learners to aggregate resources for reflection, assessment and showcasing.
4. In a more open curriculum, feedback becomes critical - that dialogue between learners' own activities/productions and developmental feedback on them from peers, tutors and possibly employers.
5. Digital media (for curriculum representation and communication) support better ongoing dialogues e.g. with employers, between different players in the curriculum design and delivery process, with learners and potential learners allowing continuous improvement to be well-informed.
6. Curriculum staff need to recognise that curriculum delivery models and, sometimes, curriculum design must change in order to allow for a greater integration of technology.
7. The engagement of curriculum staff in this change process is essential. Furthermore, engagement will not be successful without their full involvement in the process from the outset.
8. Sufficient development and preparation time must be allocated and ring-fenced before the curriculum changes are instituted. (Consider off-site locations for major planning events to minimize distractions and maintain focus.)
9. Curriculum managers need to lead and drive the change. This will involve challenging existing practice, providing vision and direction, understanding the implications of the change and providing supporting. They must also be able to provide the necessary resource in staff time/remission and facilities.
10. It can be helpful to work with curriculum teams in an 'Appreciative Inquiry' way as this has an emphasis on current good practice and encourages reflection on strengths and pedagogic values.

RECOMMENDATIONS TO PROJECT TEAMS

1. Use research informed principles to help guide the discussions.
2. Work with departments that can help spread the work and grow the legacy of the project.
3. When running a long term project the organisation needs to be clear about what it is attempting to achieve and ensure the structure is in place to enable this to happen. Limit the intended aims and objectives.
4. When in partnership with other organisations ensure their strategic plans, aims and objectives align with those of your own organisation; this will ensure maximum buy-in and thus co-operation throughout the term of the project.
5. Ensure appropriate communication takes place with all stakeholders, particularly those who will be required to provide support during the project.
6. Benchmark other organisations both in and out of the sector.

APPENDIX 1 - PROJECT NAMES, INSTITUTIONS, LINKS AND BRIEF DESCRIPTION

Project name	Description of activities	Design Studio Pages
Atelier-D Open University	Development of a virtual design studio space to support student learning throughout the Design programme of the Open University.	http://jiscdesignstudio.pbworks.com/w/page/12458376/Atelier-D+Project
CASCADE University of Oxford	Implemented new strategies to create improved curriculum delivery models that allow the University of Oxford's Department for Continuing Education to respond more flexibly to stakeholders' needs.	http://jiscdesignstudio.pbworks.com/w/page/24181944/CASCADE-Project
COWL Coventry Online Writing Lab Coventry University	Developed and extended the pedagogy, reach and diversity of academic writing services, through a technology-enhanced teaching and learning environment.	http://jiscdesignstudio.pbworks.com/w/page/24180127/COWL-Project
Duckling University of Leicester	Developed delivery, presentation and assessment processes to enhance the work-based learning experience for students studying remotely.	http://jiscdesignstudio.pbworks.com/w/page/24186879/Duckling-Project
Dynamic Learning Maps University of Newcastle	Navigable Learning Maps were developed to assist students and staff in actively mapping learning by drawing on formal curricular and personalised learning records, supported by easy-to use facilities to add and rate resources, and tools to support discussion and reflection.	http://jiscdesignstudio.pbworks.com/w/page/24179142/Dynamic-Learning-Maps-Project
eBiolabs University of Bristol	Developed a set of integrated tools that help students prepare for laboratory classes and help staff track student achievement.	http://jiscdesignstudio.pbworks.com/w/page/24185693/eBioLabs-Project
ESCAPE University of Hertfordshire	Responding to National and Institutional concerns regarding assessment and feedback. Working with two Schools the project will develop assessment for learning activities to enhance the assessment experience for learners and staff.	http://jiscdesignstudio.pbworks.com/w/page/12458419/ESCAPE-Project
Generation 4 (G4) St Georges, University of London	Used recently-developed technologies to assist in the creation of a more interactive and integrated model for our case-based curriculum in medicine.	http://jiscdesignstudio.pbworks.com/w/page/23634463/Generation-4
Information Spaces for Creative Conversations ISCC Middlesex University	Addressed a recurrent problem in design education, that students are sometimes disengaged from key 'creative conversations' and that this problem can be exacerbated by learning technologies.	http://jiscdesignstudio.pbworks.com/w/page/24184002/ISCC-Project
INTEGRATE University of Exeter	Addressed the educational challenges faced by the University of Exeter's Business School as it entered a phase of considerable student expansion and international diversification.	http://jiscdesignstudio.pbworks.com/w/page/23494047/Integrative-Technologies-Project
KUBE – Kingston Uplift for Business Education Kingston College	Enhancing the learning experience of students studying on higher level business education programmes delivered at Kingston College on behalf of Kingston University.	http://jiscdesignstudio.pbworks.com/w/page/24176105/KUBE-Project
Making the New Diploma a Success Lewisham College	Addressed a key national challenge – the introduction of the new Diploma qualification for 14-19 year olds.	http://jiscdesignstudio.pbworks.com/w/page/24175537/Making-the-New-Diploma-a-Success-Project
MAC Making Assessment Count University of Westminster	Enhancing curriculum delivery through the development of an innovative assessment feedback process.	http://jiscdesignstudio.pbworks.com/w/page/23495173/Making-Assessment-Count-Project
MoRSE Kingston University and De Montfort University	Enhancing learning 'beyond the institution' by developing discipline-based approaches to the enhancement and student ownership of field work and placements.	http://jiscdesignstudio.pbworks.com/w/page/24176457/MORSE-Project
Springboard TV West Anglia College	Internet TV Station to enrich curriculum delivery by providing enhanced resources and a diversity of learning experiences for learners across a range of the college's media curriculum.	http://jiscdesignstudio.pbworks.com/w/page/23492507/SpringboardTV-Project

APPENDIX 2 BENEFITS AND EVIDENCE TABLE

Benefits	Tangible benefit	Evidence taken from Project final reports
Efficiency	Automation or integration of systems	<p><i>'The integration of different open source systems (Moodle, Mahara and ePDP) facilitates effective teaching that increases Student success and progression saving teacher and support staff time through more effective processes of monitoring and tracking progress.'</i> (Making the New Diploma a Success)</p> <p><i>'Costs need to be considered at both an institutional and programme level. A high level of detail will take more staff time to map and maintain over time. The more that information can be fed into DLM on an automated or semi-automated basis from existing systems and data sources, the more economical it becomes. Setting up such feeds may involve technical, governance and practical challenges.'</i> (Dynamic Learning Maps)</p>
	Efficient use of staff time	<p><i>'reduction of staff time dedicated to issue Students with timetables and EMA records in Registry (at least 2 to 3 staff at peak time) approximately 600 hours of staff time and almost 8,000 printouts over the course of the year'</i> (Making the New Diploma a Success)</p> <p><i>'During the project itself, time savings though the use of online enrolment and payment have already offered tangible benefits to the Department. For example, the Weekly Classes programme took 850 additional enrolments in 2009-10, compared to the previous year, and at the same time reduce their staffing by 0.5 FTE allowing them to reallocate the staff effort towards marketing and development of further new courses'</i> (CASCADE)</p> <p><i>'For the four areas of course administration examined in detail by the project, we forecast savings equivalent to over 38 weeks of productive administration time a year. These efficiency savings, and our ability to quantify them, have been useful when we have needed to make the case to fully embed and sustain these services going forward.'</i> (CASCADE)</p> <p><i>'The greatest impact has been seen in the Department "s Public and International Programmes division, which delivers the Department "s two largest programmes (Day and Weekend Schools and Weekly Classes). In the 2009-10 academic year, 5,683 (87%) of the total of 6,501 online enrolments taken by the Department were for these two programmes. As a result of savings made in course administration time both programme offices have been able to support an increase in the overall number of course registrations, for example the Weekly Classes .'</i> (CASCADE)</p> <p><i>'Programme took 850 additional enrolments in 2009-10 compared to the previous year, and reduced their staffing by 0.5 FTE allowing them to redeploy staff to focus on marketing and the development of new courses.'</i> (CASCADE)</p> <p><i>'reduced the amount of face-to-face teaching (which was previously poorly attended) and replaced it with online content delivery in self-access units to which students were directed on an individual basis. Each unit culminated in a task which was discussed in an individual, face-to-face tutorial'</i> (KUBE)</p> <p><i>'by automating the coursework submission, marking and feedback processes we have significantly reduced staff workloads.'</i> (eBiolabs)</p> <p><i>'Once eBiolabs had been shown to producing real improvements in the</i></p>

		<i>student and staff experience there was no going back, especially as the running costs are minimal compared to the staff time required to produce the same end result.'</i> (eBiolabs)
	Efficient use of learner time	<p><i>'GIS laboratory in the field - reduced time spent on basic data processing and preparation (3-6 hours reduced to 5-10 minutes per group), and therefore allowed more time spent on analysis and interpretation.'</i> (MoRSE)</p> <p><i>'The GIS students responded positively to the implementation of the institutional „GIS laboratory in the field“, especially in its ability to reduce the time between the collection of primary data and its analysis and being able to complete projects while still in the field.'</i> (MoRSE)</p> <p><i>'Students found it easy to take the ebook reader anywhere and read whenever an opportunity arose. They used gaps between other activities during the day for study purposes.' I am using the e-reader to access the unit materials every day. This has increased the amount of course materials I have gotten through (I have finished reading through the Part A on Sociolinguistics). Before this, I had been allocating weekends to spend on one or two units, and I would only study through the week if I had a few hours to spare.'</i> (Duckling)</p>
	Capacity to deal with larger numbers	<p><i>'Flip video work developed and refined with larger student numbers. Videos are uploaded to the VLE or Facebook, best videos shared within the VLE. Students reporting significant impact on learning experience'</i> (INTEGRATE)</p> <p><i>'During a period of rapid increase in student numbers, and from a context in which technology was barely used, the INTEGRATE project team worked with academic and professional services staff in the University of Exeter Business School to trial a wide range of technologies to enhance teaching and to improve student engagement in learning. The project particularly addressed the challenges of large student numbers in the first year (over a thousand in the current first year cohort), with about a third of these being international.'</i> (INTEGRATE)</p>
	Efficient use of content resources	<p><i>'The results from the pilot action research showed that podcasting and voice board trials were the lowest-cost interventions with the highest impact on the learning. They resulted in a well-evidenced increase in learner benefits in terms of personalisation, flexibility, reduced isolation and increased engagement, at a marginal cost in tutor time.'</i> (Duckling)</p> <p><i>'The virtual world (Second Life) demanded customisation of the environment and the artefacts, in addition to the training of students and staff. It was piloted with small numbers of students and added limited value to curriculum delivery. Those who participated, however, found it engaging.'</i> (Duckling)</p> <p><i>'For institutions where paper delivery is still used, the provision of courseware on devices such as the e-book reader can still generate significant savings for programme delivery.'</i> (Duckling)</p> <p><i>'cost of around £240 per student for provision of materials via an e-book reader, saving about £360 compared to £600 per student in paper delivery.'</i> (Duckling)</p> <p><i>'Podcasting proved to be a low-cost, high-value technology in that it helped address those challenges without any significant capital or time investment. It also proved to be easily embeddable into the curricula and sustainable over time. In addition, data being collected at the time of writing this report suggests that podcasting has begun to help the Psychology course team to reduce the number of dissertation resubmissions and enhance the quality of</i></p>

		<p>dissertations by an estimated 10%.' (Duckling)</p> <p>'By outsourcing the hosting of our Learner Portal service we have saved approximately .5 FTE for administration and developments' (Making the New Diploma a Success)</p> <p>'Our clear recommendation is to support the dissemination of this attractive, successful, and inexpensive approach, throughout the educational sector. The time required of creation was between 10 - 20 hours per case, which equated to costs of £300- £800. This compares favourably with the analysis of costs in a relatively recent large US study of VPs in 2007, which estimated a typical cost between \$80,000-\$130,000. The technology and the way to use it, has moved on considerably since that time, and the G4 project has been to a significant extent part of that change. (Generation 4)</p> <p>'Our experience of collaborating with LanguageLab for our Education SECOND LIFE pilot shows an example of using the affordances of SECOND LIFE without expending any resources on building new resources.'(Duckling)</p> <p>This technology enabled the course teams to design reusable learning resources that made it possible for them to „design once and deliver many times“. This approach has been successful in terms of the sustainability and embedding of the interventions beyond the end of the funding.' (Duckling)</p>
	Cost savings for students	<p>'Delivering course materials through e-book readers can therefore offer cost-saving benefits for the students – especially if students make use of the reader for other purposes as well.' (Duckling)</p>
Enhancement	Learner marks and outcomes	<p>'There is a significant increase in the attainment of Level 3 learners completing their programme. College reporting processes using data in pro-achieve define those learners who gain Merits and Distinctions as gaining higher grades.' (Springboard TV)</p> <p>'NVQ L1 Achievement results 2010 up by 43%' (Making the New Diploma a Success)</p> <p>'Level 2 Food Safety achievement results up by 141.75%' (Making the New Diploma a Success)</p> <p>The Higher Diploma which ran over the full two years of the project saw retention grow from 62% to 92%, achievement from 69% to 73% and success from 43% to 67%. ' (Making the New Diploma a Success)</p> <p>'The shorter duration of the projects contributed significantly to learners meeting deadlines. There was a drop in the number of requests for extensions and the final assessments were able to be completed appreciatively earlier than in previous years.' (Springboard TV)</p> <p>'88% of learners felt that being able to publish their work was a benefit, they saw it as a valuable motivational tool and said that it made them work harder and more effectively. (Student survey undertaken by 26 respondents 41% of student body)' (Springboard TV)</p> <p>'48% of respondents indicated that they had used e-Reflect either because it gave them extra feedback, helping to realise mistakes and prepare for other assignments or because they thought that it was a way to improve and keep track of their progress.(MAC)</p>

		<p><i>'There is strong evidence that the Making Assessment Count Process can help some students engage with, and make more of their feedback. It seems that a quite straightforward technology can be used to encourage students to think more about the feedback written on their work. However, more than this, the introduction of the 'technology bit' can potentially change the nature of a face-to-face tutorial system (such as that practiced in Life Sciences) so as to focus the tutee/tutor relationship more on academic performance. These two connected transformations are of clear significance and provided that groups of staff can be convinced of the payback, and MAC or some variant can be integrated readily into their support mechanisms, there is every possibility that students will benefit.'</i> (MAC)</p> <p><i>'All 11 students found the feedback podcast very useful and effective in providing a different way to engage students with feedback, supporting the emotional aspects of learning, and providing in-depth information, detailed and specific examples, which helped clarify messages and identify the most important issues with their dissertation. 10 out of 11 students preferred to have a combination of both audio and written feedback on their assessed work. These students usually used the audio feedback first, and the written feedback later, as they found the audio feedback helped them understand the issue as a whole.'</i> (Duckling)</p> <p><i>'There was some evidence to show that student engagement was higher in the studies where the DUCKLING technologies were related to formative assessment. For example, the Wimba Voice Board pilot in Education generated more student input than any of the other studies in Education.'</i> (Duckling)</p> <p><i>'Evidence also suggests that the quality of dissertation and retention improved. The provision of dissertation guidance, support and feedback through podcasts played a key role in these improvements. A Psychology tutor observed: ...not a single one of our dissertation students has needed an extension this year (this is unheard of and a very pleasant surprise!). All those who have not suspended have handed in their final dissertations on time. The only difference from previous years is that all have had access to the feedback podcasts on their draft dissertations.'</i> (Duckling)</p> <p><i>'Podcasting proved to be a low-cost, high-value technology in that it helped address those challenges without any significant capital or time investment. It also proved to be easily embeddable into the curricula and sustainable over time. In addition, data being collected at the time of writing this report suggests that podcasting has begun to help the Psychology course team to reduce the number of dissertation resubmissions and enhance the quality of dissertations by an estimated 10%.'</i> (Duckling)</p> <p><i>'At this stage assessment results are not available and there is only anecdotal evidence of the impact on clinical decision making and knowledge in practice, with the one exception of the controlled trial of VP impact on exam performance, where students performed better on questions set around option points [8]. Consequently it would be useful to explore these areas further to establish the impact of VPs on student achievement and establish an evidence base for long term impact, this would require a longer project looking at exam performance and student retention rates.'</i> (Generation 4)</p> <p><i>'Video recording had far more influence on behaviour and attendance than had been expected, with a 98% student turn-out, and a real interest in how</i></p>
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		<p>video can support learning. Students love it, alongside the other activities within the module.' (INTEGRATE)</p> <p>'By providing a set of integrated and comprehensive high-quality on-line tools and resources that allow students to prepare to succeed in laboratory classes we have increased student achievement'. (eBiolabs)</p> <p>'Since the introduction of eBiolabs the amount of time students spend preparing for laboratory classes increased from an average of 20 minutes to 35 minutes. The percentage agreeing that "laboratory session help me understand the rest of my course" increased from 60 % to 74 % while the percentage agreeing that "lab sessions are one of the most enjoyable parts of my course" increased from 22 % to 50 %. Perhaps most importantly, the number of students who agreed that they "felt well prepared when they entered the lab" increased from 18 % to 54 %.' (eBiolabs)</p>
	Learner skills and personal development	<p>'GIS laboratory in the field - enhanced the ability of students to share data and for the first time complete a GIS project (from data collection, through analysis and interpretation to the delivery of a final product) while still in the field. The students were also exposed to current technologies used in industry in realistic field -based problem environments' (MoRSE)</p> <p>'Perhaps most importantly for learning outcomes were the repeated and unprompted statements by students that the inclusion of decisions in the VPs required them to think more actively, promoted clinical reasoning and developed better understanding than paper based cases.' (Generation 4)</p> <p>"The reflective writing part helped me understand my progress throughout the year and highlighted area's in which I did well and areas which needed attention. Whilst working through the year I gained lots of key skills but I didnt realise this until I had written the reflective diary.'" (MoRSE student)</p>
	Staff satisfaction	<p>'Technology rarely saved staff time (except in the context of assessment), but it allowed staff to work with greater satisfaction and to achieve their aims more effectively.' (INTEGRATE)</p>
	Staff skills and professional development	<p>'Academic staff approaches have developed including skills concerning reflective learning and its assessment, and with regard the role that personal and mobile technologies can play in enhancing student learning.' (MoRSE)</p> <p>'Over the two years, the project has enabled staff to build their skills and confidence with using technologies for teaching and learning and increasing numbers of staff are adopting new ways of working.'(INTEGRATE)</p> <p>'Technology frequently changed staff teaching behaviours to provide a greater focus on engaging with students, and recognizing student attainment and understanding more readily, even in larger groups.' (INTEGRATE)</p> <p>'At the start of the 2010/11 academic year, the new staff induction included the 8 technologies workshop for staff which was very well received and has already lead to increased interest in the use of clickers, Echo360, flip cameras and the OMR scanner.'(INTEGRATE)</p>
	Enhanced recruitment and retention	<p>'The Higher Diploma which ran over the full two years of the project saw retention grow from 62% to 92%, achievement from 69% to 73% and success from 43% to 67%. ' (Making the New Diploma a Success)</p> <p>"I do like the fact that the Learner Portal allowed them to see day by day</p>

		<p><i>their attendance and punctuality. During the course of the study, based on last year, retention rate was 54% before the Learner Portal provided us with this tracking attendance and punctuality system, this year it's 92%. ' (Making the New Diploma a Success)</i></p> <p><i>'Springboard TV enabled us to reverse the decline in applications and enrolments, improve the engagement, retention, achievement and attainment of students in the media area.' (Springboard TV)</i></p> <p><i>' It is, however, too early to say whether the MAC process has had an overall statistical impact on cohort performance (e.g. reduced drop out). Even if a positive change in such indicators is seen it would be difficult to attribute this at this stage to the MAC process given the complexity surrounding the 'degree experience' in any one year. It will only be after a full 3 year cycle, with longitudinal studies undertaken, that we may meaningfully be able to attribute or not any impact of the MAC process on overall cohort performance.' (MAC)</i></p> <p><i>'Across the Department similar gains have been made. Between 2007-08 and 2010-11, the total number of online enrolments transactions in the first quarter of the year increased by 142% from 1,171 in Q1 2007-08 to 2,834 in Q1 2010-11. Growth in financial value was even greater with a 290% increase over the same period. This service has had a significant impact on the finances of the Department and has been a major factor in our continued success in improving service levels and managing the Department 's cost base.' (CASCADE)</i></p>
	<p>Learner satisfaction</p>	<p><i>'E-book readers added significant value to learning too, although at a higher cost to the institution than podcasting. Students commented favourably on the usability and flexibility afforded by e-book readers, and the ease of access to essential readings'. (Duckling)</i></p> <p><i>'Students expressed high levels of satisfaction with the PBL branched web virtual patients. Benefits cited included interactivity, increased engagement, better group discussion and greater realism. PBL tutors reported increased student motivation; particularly in comparison with previous paper based Case -based Learning (CBL) scenarios (Generation 4)</i></p> <p><i>'Increased levels of motivation, engagement and group discussion were reported which are characteristics associated with successful learning. These results were supported by statistically significant ($p < 0.05$) changes in student perceptions as measured by questionnaire (annex 2 of the evaluation report). The beneficial features were linked by participants to the interactivity and realism afforded by this method of teaching.' (Generation 4)</i></p> <p><i>'88% of learners have told us that being able to upload work to the project website has led to an improvement in their motivation. They work harder, show more pride in their work and show an active desire to compete with one another to improve their work. Student survey undertaken by 26 respondents 41% of student body)' (Springboard TV)</i></p> <p><i>'97% of learners valued the opportunities provided by the work experience projects in which they were involved. (Student survey undertaken by 31 respondents 49% of student body) (Springboard TV)</i></p> <p><i>'The DUCKLING interventions resulted in improved learner engagement, more flexibility in the curricula to accommodate the needs of time-poor, work-based distance learners, and the reduction of learner isolation.' (Duckling)</i></p>

		<p><i>'Evidence from the Psychology podcasting study suggested that the students' learning experience improved as a result of four key benefits associated with the integration of podcasting into learning design: (1) personalisation, (2) an additional and different format for providing and presenting clear and engaging guidance, support and feedback, (3) increased flexibility and mobility within the curricula, and (4) „design once, deliver many times“ with minimum adaptation'. (Duckling)</i></p> <p><i>'All fieldtrip cohorts appreciated the role that personal technologies could play in enhancing their participation in learning activities, and there was significant engagement with the GIS Collaboratory mashup.' (MoRSE)</i></p> <p><i>'I think I might have to say that this has been my favorite day so far. Its the first time during my whole degree that I've gone from collecting data myself to displaying it in as finalized product I created. Basically the first time I've taken the whole GIS process from start to finish all myself.'" (MoRSE student)</i></p> <p><i>Learners are enthused by using industry standard equipment in the production of their work. (Springboard TV)</i></p> <p><i>Some students appreciate particular technologies more than others; hence providing a variety of technologies for different purposes gives more opportunities to the greatest number of students. Until they have experienced technology in action, students may not recognize its benefits. Students need to be aware of the limitations of technology and not become over dependent on it (eg, for streamed video). (INTEGRATE)</i></p> <p><i>each of the technologies used has been of considerable value to staff in enabling them to teach and encourage learning in more positive ways, to get to know their students' strengths and weaknesses in more depth and to adjust the level and content of their teaching accordingly. This in turn has led to greater student satisfaction and a greater desire by students for technology to be provided throughout their degree programme. (INTEGRATE)</i></p> <p><i>our work has resulted in our biggest ever recorded increase in student satisfaction with laboratory work. (eBiolabs)</i></p> <p><i>Prior to eBiolabs 8% described laboratory sessions as stimulating, now the number is 25%. Students report that the laboratories are now more challenging (37% vs 30%) despite the experiments themselves remaining essentially unchanged. Fewer students describe the practicals as repetitive, boring or frustrating (14% vs 24%, 10% vs 17% and 15% vs 22% respectively). (eBiolabs)</i></p>
Transformation	Learner goals and progression routes	<p><i>The percentage of students progressing to university has increased from 37% in 2009 to 77% in 2010. (Springboard TV)</i></p> <p><i>Progressing students up by 200%(Making the New Diploma a Success)</i></p> <p><i>70% of students perceived that using DLM would benefit their learning 79% agreed that DLM would be useful for reviewing and reflecting after teaching sessions 81% did want to know how teaching related to the broader curriculum 83% thought that using DLM would be useful for revision 59% felt that DLM would help them better understand the curriculum The importance of supporting personal preferences and different ways of</i></p>

		<p>viewing maps was highlighted by quite polarised likes and dislikes for mind maps vs. text. (Dynamic Learning Maps)</p> <p>Both staff and students from modular programmes saw value in DLM for facilitating better informed module choice, both within the context of the course and also thinking of longer-term career choices. Senior managers saw value in DLM adding to the student experience by supporting choice and also linking into broader skills development opportunities and career options. (Dynamic Learning Maps)</p>
	<p>Innovations in learning and teaching</p>	<p>“The project stands out as one of the most successful in the JISC Curriculum Delivery Programme and it does this for a number of reasons: firstly, the way the project has achieved true learner engagement; secondly, the impact the project has had on the curriculum with a real transformation to a more learner centred approach being achieved; and thirdly, because of the project’s real potential to spread this transformation to the wider college curriculum – become a truly sustainable agent of change. I have been privileged to observe the project as it has progressed and observe these changes taking place and growing in impact and I feel strongly that the project deserves wide recognition for its innovative use of technology in transforming approaches to curriculum delivery.” University Professor and Deputy Chair JISC’s national Learning and Teaching Committee (Springboard TV)</p> <ul style="list-style-type: none"> • Much higher quality curriculum delivery at a marginal additional cost • Low-cost, high-value, transferable and sustainable interventions embedded in the curricula • Awareness of possibilities afforded by a range of learning technologies and how to capitalise on them • New, powerful approaches to assessment and feedback • Innovation facilitated by Teaching Fellows and shared across the university and beyond (Duckling) <p>‘The adoption of the AI approach meant that the ownership of the change process lay with the module teams – the changes were not imposed from the ESCAPE team but emerged from the reflection and discussions that the module teams had with the ESCAPE team. Ownership of the change is important from a sustainability perspective.’ (ESCAPE)</p> <p>‘Springboard TV has re-invigorated the department. Staff and students have embraced the changes it has offered. Senior management are engaged and are keen to develop the use of Springboard in other areas of the college.’ (Springboard TV)</p> <p>The resource and physical environment available to learners has been significantly improved. We have developed a branded identity, re-modelled studios, upgraded production equipment and instituted realistic industry-standard work flow by creating ‘real life’ production companies. (Springboard TV)</p> <p>The curriculum delivery model has been re-designed, integrating practical with theory in a more coherent mix of blended learning. The focus is on the ‘learner journey’ which provides opportunities for realistic work experience.’ (Springboard TV)</p> <p>The project has informed the creation of a radically new online design course, „Design Thinking“ (U101). This was first presented in February 2010 and recruited 400 students. Unlike existing design courses that are heavily reliant on paper-based resources, U101 is delivered entirely online. Two</p>

		<p>other courses (T211 & T307) will benefit directly from ATELIER-D as they begin their regeneration in 2011.' (Atelier-D) The technologies identified and used within the project have clear applications within other curriculum areas in the college. (Springboard TV)</p> <p>5 members of the course team have experimented with learning technologies in ways they would not otherwise have done, and there is growing interest in the potential value of technology for enhancing curriculum delivery – both for distance students and for campus -based students. This has prompted some academics to begin redesigning their courses to explicitly encourage more peer interaction using the affordances of the available technologies. (Duckling)</p> <p>Although DUCKLING’s focus was on curriculum delivery, it has promoted changes to curriculum design, (see DUCKLING’s curriculum lifecycle model, http://tinyurl.com/3xdx89w). For a curriculum to be delivered effectively, taking full advantage of the affordances of learning technologies, DUCKLING established that careful consideration needs to be given to design and re-design – not only of the curriculum, but also of the learning and teaching approaches on a course. (Duckling)</p> <p>early indications suggest it will have a significant impact and benefit to learners, teachers and the broader FE/HE community. DLM is a flexible and interactive tool, which can be readily aligned with an institution’s Teaching and Learning Strategy, whilst at the same time support a diverse range of specific programme requirements. It can be used to increase transparency in the curriculum in an interactive and participative way that more closely matches the changing experience and expectation of many modern learners. It also has potential to help address sector-wide drivers for PDP, employability, greater personalisation and student involvement in the curriculum. (Dynamic Learning Maps)</p> <p>The project has made significant in roads in mapping the MBBS curriculum at Newcastle. Over 60 MBBS study guide modules have been mapped against medical specialities, programme outcomes, case presentations and various timetable and resource repository feeds. (Dynamic Learning Maps)</p> <p>In the academic year 2009-10 eBiolabs prepared² students for around 7500 hours in the laboratory, and handled³ around 5000 pieces of student work. By the end of the academic year 2010-11 eBiolabs will have prepared students for over 35000 laboratory contact hours⁴and handled more than 22000 pieces of coursework. We have expanded beyond our original aim to support six laboratory practicals in a single 40 credit-point first-year unit, “1G Biochemistry” and are currently supporting 57 practicals in eight different units (eBiolabs)</p> <p>We believe that eBiolabs has succeeded, that is eBiolabs has achieved real transformational change, has become embedded throughout the Faculty and is likely to spread further afield, because it provides a set of integrated tools that help to solve a clearly defined problem in a way that increases staff efficiency and student achievement and satisfaction. The integrated delivery of all aspects of the curriculum - content, assessment and feedback was the key to our success. (eBiolabs)</p>
	<p>Changes to institutional policy and process</p>	<p>‘The main impact of CASCADE has been the development of sustainable new services that have been a key part of the solution to the challenge caused by the reduction in funding for students studying for an equivalent or lower qualification (ELQ). These services have used technology to support and extend curriculum delivery activities in the Department (CASCADE)</p>

		<p><i>'Initial investment is required to deliver improvements; but, if done well these interventions can be sustained, for little or no additional time and cost, on an ongoing basis. However, it is worth noting that the areas with the potential for the greatest savings to be made, for example online enrolment and payment or online assignment-handling, are often the most complex to achieve both technically and in terms of change management.'</i> (CASCADE)</p> <p><i>Teaching Fellows, students, admin staff and the central support team are all involved in developing processes to embed the use of new technologies for teaching and learning over the 2010/2011 academic year. Support for continuation of this work is available in a number of different ways through the new learning technologist, the central e-learning team, the Education Enhancement Academic development team and the IT helpdesk and AV support teams.</i>(INTEGRATE)</p>
	<p>Influence on institutional fabric and systems</p>	<p><i>'The replacement of class-based provision with web-based approaches has taken place in a wide range of other curriculum areas across the College and has directly impacted on around 1200 learners, 65 teaching staff and all five of the College's faculties.'</i> (KUBE)</p> <p><i>The channel has been adopted by the college as a communication tool and is now central to the college's marketing strategy.</i>(Springboard TV)</p> <p><i>'This internal dissemination of the project and promotion of approaches to enhancing the feedback process has led to the discovery by the project team of other initiatives exploiting reflection on feedback (some individual academic led and some involving wider numbers of staff up to department level in one case). The project has been particularly successful at having an impact at University committee level with regular updates on the project being presented to all Deans of School and other senior staff at the University Learning Teaching and Student Support Committee.'</i> (MAC)</p> <p><i>Practitioners from five departments (Criminology, Engineering, Lifelong Learning, Management and Media and Communications) are now either redesigning parts of their curricula by making use of podcasting or planning changes that may, in future, incorporate the findings of this research.</i> (Duckling)</p> <p><i>'As well as carefully describing the services, the project team has ensured that each service is fully supported by user documentation and that transition plans are in place to ensure that adequate staff resources are available to deliver the services, e.g. VLE support for courses, online assignment handling and online enrolment and payment, on an ongoing basis.'</i> (CASCADE)</p> <p><i>One of the most important aspects of the Integrate project was the way in which key staff in the Business School took ownership of the technology, setting an example by using a variety of technologies in their own teaching, running training workshops for large numbers of staff in the School, offering individual support where required, and by working with senior managers to ensure that technology developments were an important aspect of the School's agenda for learning and teaching. Without this commitment, the Integrate project would not have had the instant and continuing impact that it now has.</i> (INTEGRATE)</p> <p><i>The project has provided an excellent example of the 'hub and spoke' organisational model in practice and has shown this to be a very positive way of ensuring links and connections are made which continue developmental conversations. This way of working has been continued with the appointment of the Business School Learning Technologist and the aim</i></p>

		<p>is to roll out the hub and spoke model across the University, following restructuring. (INTEGRATE)</p> <p>The Language has changed in the Business School – technologies are now part of the everyday language and way of working in the school (INTEGRATE)</p> <p>In relation to Turnitin: Of the 13453 submissions to May 2010, by far the highest proportion (over 75 %) of these were from students in the Business School. (INTEGRATE)</p> <p>Uptake of DLM is continuing beyond the period of JISC-funding in the original discipline areas involved in the project; embedding in Medicine (~1,800 students and 1,750 staff) and in Speech and Language Sciences (~170 students and 40 staff), with embedding in respective VLEs. Two new subjects (Geography and Dentistry) are exploring use of DLM, a funding proposal has been submitted for the University’s Innovation fund, and there is interest in the project from senior managers in the institution. (Dynamic Learning Maps)</p> <p>Sustainability is ensured. eBiolabs has become accepted as the standard way to deliver laboratory teaching in the biomedical sciences at Bristol and there would be an outcry if it were discontinued. Our year-on-year costs are minimal compared with the savings in staff time achieved by electronic submission, marking and feedback. The workflows and methods developed for delivery and content creation ensure that editing of text-based resources can be done by any academic, while the high-value assets can be recontextualised for various lab experiments so to an extent we are future-proofed against changes to the curriculum. (eBiolabs)</p>
	<p>Social justice e.g. access, participation</p>	<p>The use of visual and audio media (video and photographs) to engage with developing a community of learners, with increased awareness of cultural differences between home and international students (INTEGRATE)</p> <p>The outputs also provide a vivid picture of students within the Business School and the ways in which they can engage in promoting cultural awareness as well as change in the processes of learning and teaching. (INTEGRATE)</p>
	<p>Impact in the wider community – cross-institutional and subject discipline communities</p>	<p>The project has benefited the institution as a whole by: Raising the public profile of the college Undertaking projects with local organisations Interacting through social networking and community interest websites Reaching people who live in geographically isolated communities such as those the college serves.’ (Springboard TV)</p> <p>‘Participation in HE within the local area is low. This project has provided a new opportunity for the college to develop a degree level course in conjunction with a partner HEI. On a recent visit to the college, the Deputy Dean, Partnerships and Enterprise said: “The College’s Internet Television Company is impressive with its virtual studio and industry trained staff. The studio is also being used imaginatively as a commissioner for work within the Arts Programmes and across the college. There are interesting Post Graduate/Undergraduate synergies for the university, and also the possibility of joint projects and work -based learning opportunities.” ’ (Springboard TV)</p> <p>The project has opened up opportunities for engagement with external</p>

		<p>agencies and organisations. (Springboard TV)</p> <p><i>'Our experimental steps have taken us into areas other than medicine, for a range of uses such as ethics training, writing a grant proposal or, in one case, how to understand and select a copyright licence. There is no doubt that this approach is transferrable to other disciplines which either require some element of decision-making, or the application of knowledge in a practical context. (Generation 4)</i></p> <p><i>the development of e-Reflect 3.0 is a good way forward in that it is using high quality external expertise to develop a product that is written in a way that can be supported by the institution. It is also sufficiently flexible (open source) to be taken up and adapted by other institutions and will be able to provide an e-Reflect component for a MAC process being rolled out School wide or by an individual academic for a single module or topic. We would recommend this approach to other institutions as a model for sustainable development. ' (MAC)</i></p> <p><i>'many of our outputs more relevant to a wider audience. In particular they offer:</i></p> <ul style="list-style-type: none"> • <i>Suggestions of areas where other institutions might achieve comparable benefits;</i> • <i>Information on how to achieve such benefits;</i> • <i>Shared outputs from all stages of the process on which others can build;</i> • <i>Open source code for Moodle. (CASCADE)</i> <p><i>The evidence base generated by DUCKLING has informed decisions on curriculum change, innovation and embedding of technologies by the DUCKLING course teams. It has influenced and continues to inform curriculum delivery decisions made by many other Leicester colleagues and course teams across disciplines and at other HEIs. (Duckling)</i></p> <p><i>Our final consideration is that, to our knowledge, it is the first time that elearning had to be taken so seriously in medicine and healthcare, for making a contribution that cannot be obtained from a book, or face-to-face contact or any other conventional learning opportunity.' (Generation 4)</i></p> <p><i>DLM also featured in three multi-institution interoperability project proposals funded by JISC; 'PIOP-3' (Leap2A), an XCRI mini-project, and an on-going consortium project which is developing a specification for competencies. In addition to Programme activities the DLM project has disseminated at 5 national/international events. A public demonstrator and software download of DLM has been made available. There have been a number of expressions of interest in using DLM at other institutions. (Dynamic Learning Maps)</i></p> <p><i>We have licensed eBiolabs to the University of Exeter under a share-and-share-alike no-profit agreement. (eBiolabs)</i></p>
	<p>Students as change agents</p>	<p><i>We used students as 'agents of change', by talking and listening to them and involve them in the process.' (Springboard TV)</i></p> <p><i>'The project was fortunate to obtain the support of two very keen students who not only served on the Project Steering Group but also did much other work to liaise with the wider body of students in the School.' (MAC)</i></p> <p><i>once provided with technology in a module, student expectations changed; from not being particularly interested in technology for teaching and learning,</i></p>

		<p>they started to ask for additional technology and resources in other modules, especially beyond the first year. In addition, students were enabled to take a key role in changing practice through the 'Students as Change Agents' initiative and, because of their own expertise and interest, were also able to support staff with technology in their teaching – to good effect. (INTEGRATE)</p> <p>At the time of writing this report (the start of the 2010/11 academic year), developments are well underway for the first cohort of student e-learning champions to be established in the school, working at a series of technology-oriented projects. (INTEGRATE)</p>
	<p>Awards and recognition</p>	<p>GIS team won a highly commended award at the ESRI (UK) user conference in May 2010 in the "Innovation & Best Practice - Communities class.(http://www.shapingyourvision.co.uk/awards/). (MoRSE)</p> <p>"The College of West Anglia has a strategic aim to maximise student success. The innovative development of Springboard TV within the media curriculum has had a very positive impact on student success. The facility has enabled development of a very learner centred, meaningful, realistic work environment which is challenging and engaging students leading to skills development and interactive assessment opportunities. The project has also enabled us to better support community partnership working. I am delighted that the success of the project has already been recognised by our peers and has been short listed for an AoC / LSIS Award for leadership and innovation in curriculum development. David Pomfret Principal/Chief Executive The College of West Anglia' (Springboard TV)</p> <p>Jenny Wren received recognition in the recent Students' Guild teaching awards as Innovative Teacher of the Year in the Business School, as voted for by her students in the context of her work with Flip cameras. This means that senior managers and staff and students from across the University will recognize the role of technology within the Business School. (INTEGRATE)</p> <p>The work of the INTEGRATE project was recognised in the Periodic Subject Review within the Business School. (INTEGRATE)</p>