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OULDI-JISC Project Evaluation Report: the impact of new curriculum design tools and approaches on institutional process and design cultures

Simon Cross
Rebecca Galley
Andrew Brasher
Martin Weller

Institute of Educational Technology
The Open University
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JISC

The Open University

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1. Executive Summary

This report presents an evaluation of the OULDI-JISC Project (Open University Learning Design Initiative JISC Project). In particular, it considers the impact of new curriculum design tools and approaches piloted by the project on institutional processes and design cultures. These tools and approaches include tools for sharing learning design expertise (Cloudworks), visualising designs (CompendiumLD, Module Map, Activity Profile) and for supporting design and reflection in workshops (Facilitation Cards, workshop activities, etc.). The project has adopted a learning design approach so as to help foreground pedagogy and learner experience. Nine pilots have been completed across six UK universities.

The project sought to address four key questions:

- In what ways can the efficiency and effectiveness of time spent designing learning be improved?
- How can we capture and represent practice; and in particular innovative practice?
- How can we provide 'scaffolds' or support for staff creating learning activities, which draw on good practice and make effective use of tools and pedagogies?
- What does a quality design process and 'methodology' look like?

The key achievements of the project are:

1. Success in changing or improving the process, practice and perception of curriculum design. The combination of elements required for such success are identified as: selection of effective design tools, well configured institutional and informal design processes, proper opportunity for collaboration, reflexive working and dedicated time away from the day-to-day to work on a design, positive and real management endorsement, staff with positive attitudes and adequate tacit knowledge of the art of teaching and the discipline of designing learning, and an expert consultant role to guide and advise teams.

2. Delivery and sustainability of an online tool called Cloudworks which enables those working in learning and curriculum design to share and comment on designs. Between the tool launch in March 2009 and December 2011 there were 1.03 million page views, over 230,000 visits, 4,500 clouds added, and 5,500 comments posted. Cloudworks now has a strong brand image boasting over 4,600 registered users from across the world.

3. Successful implementation of eight pilots across six UK HE institutions. Each pilot has sought to present and embed learning design tools and approaches. In total over 189 staff have attended these workshops.

4. The customization and adaptation of OU-originated visualisation software to make it more usable in a learning design context. This software has been named CompendiumLD. CompendiumLD is open source, has been downloaded over 2,000 times and has been included in at least two university education courses.

5. The wide dissemination of the practical and research aspects of the project. The project team has directly contributed to over twenty conference papers, several journal papers and a book chapter. We have delivered over forty presentations to external audiences, maintained a regular blog and made resources, reports, tools and guides available on its website and the Design Studio

This evaluation report provides an overview of these achievements. In conclusion the project can be seen as delivering successfully against its nine major objectives:

1. To review the existing curriculum design processes at the OU in the first year of the project including describing and modelling the curriculum design process
2. To develop working relationships with units in the OU and to explore the transferability of elements of our approach by working with five other UK universities and two pan-communities
3. To work with stakeholders at the OU to identify key moments in which enhancement or change in curriculum design process could lead to improved quality of design, and to work with partner institutions to undertake a similar process
4. To pilot learning design methodologies, tools and techniques in at least eight trials and to document and evaluate this experience
5. To engage with, build or enhance a range of communities and develop their capacity for self-sustainability particularly focusing on organised events, key topic or subject areas, existing operational units and conferences or special interest groups
6. To increase, monitor and evaluate exchanges of learning and teaching ideas and experiences in appropriate communities
7. To undertake and review annually enhancements to the website(s) being used to support the community building and activities planned (e.g. Cloudworks)
8. To undertake and review annually enhancements to the visualisation software used to support the pilot and design mapping tasks (e.g. CompendiumLD)
9. To continue to broaden in scope, content and definition the OU learning design methodology.

2. Background and Context

2.1 Introduction

The Open University Learning Design Initiative (OULDI) project has sought to develop and pilot new ways of designing curriculum and new methods and tools to help staff understand and better participate in the design process. The project was led by the Institute of Educational Technology at The Open University.

The project has adopted an integrated approach to developing and structurally embedding curriculum design practices. This approach held that a quartet of project activities - understanding, representing, guiding and sharing design - must take place together. Four central questions which helped direct the project have been:

- In what ways can the efficiency and effectiveness of time spent designing learning be improved?
- How can we capture and represent practice; and in particular innovative practice?
- How can we provide 'scaffolds' or support for staff creating learning activities, which draw on good practice and make effective use of tools and pedagogies?
- What does a quality design process and 'methodology' look like?

The concept of a 'learning design methodology' has been central to our project approach, however, we were equally aware that different interpretations of the term could, and were, made. From one perspective, methodology referred to the approach the team were making in understanding and supporting designers – a methodology for research and support. A second perspective was that of a design methodology - the approach that an individual designer uses to create their design. And a third view was of methodology as a change process mechanism for restructuring institutional learning design practice. Understanding 'method' in these three ways and resisting a single definition has enabled us to connect more readily with diverse literatures and to orientate resources and tools towards user needs.

There have been five main strands to the project. This multi-strand approach has enabled us to deliver against five sets of objectives rather than one and, by integrating these strands, also achieve additional value. In so doing, however, it has sometimes been a challenge to fully communicate the breadth and depth of the project.

The first project strand has focused on creating an online tool called Cloudworks. This tool provides an open public space to which users can contribute and discuss their learning and teaching designs and experiences. When development of

Cloudworks begun in late 2008 it was known that online repositories of good practice, case studies, learning objects and Open Educational Resources (OER) were not being used by teachers as much as was expected despite teachers apparently saying that they wanted examples of good practice and access to others to share and discuss ideas with (Beetham and Sharpe, 2007). Cloudworks sought a different approach to the repository model by drawing on theories based on the early work of Vygotsky and the work of Engestrom and Bouman in relation to mediating artefacts and dimensions of object-oriented sociality. This proved useful in developing the concept of 'clouds' and the type of interaction expected for our online learning and teaching design sharing tool (Engeström, 2005; Bouman et al., 2007; Conole & Culver, 2009). There was also a strong intention to borrow good practices from other popular social network sites (such as Flickr) and to permit only open design and open communities. We adopted an iterative approach to developing Cloudworks with four development phases.

The second and third project strands sought to assemble and develop a collection of useful tools and to trial these in five HE institutions. When the OULDI-JISC project begun, the OU had already created or revised a number of design tools ('tools' as used here includes resources, objects, conceptual frames, software or websites). Together these tools comprised a nascent 'toolkit' which we sought to develop with user contributions during the project. In terms of the specific tools we developed or revised: an Activity/Pedagogy Profiler tool inspired by the media advisor toolkit developed some years earlier and which used categories/headings and table-style layout informed by pedagogic schemas (Conole & Oliver, 1998); a Module Map tool which, whilst originally partially derived from the Principles/pedagogy matrix (Conole, 2008), has evolved significantly during the project; a Course Features Cards set; an Information Literacies Card set; and guides and workshop activities associated with visualising aspects of the curriculum design. This work was informed by research undertaken in the other strands, in particular around how learning designs can be used for making design knowledge more visible and for sharing designs with others.

The fourth work strand consisted of the technical software development of CompendiumLD. This utilised our ongoing research about how designers do, and can, represent a learning or curriculum design in visual linear or non-linear ways. In the early stages of the software development we used research from interviews and workshops held at the OU, the broader learning design literature (Koper & Oliver, 2004; Conole & Mulholland, 2007; Beetham, 2007), instructional design literature, and from others who had examined use of concept mapping in problem-solving and notion (Baylor et al., 2005; Inglis & Bradley, 2005; Gibbons & Brewer, 2005; Novak & Cañas, 2008). We planned four iteration phases (with each using user testing and feedback to inform the next) and had launched the full version with supporting guidance by December 2011.

The final project strand sought to draw together the work on Cloudworks, CompendiumLD and on guiding and supporting design by seeking to establish self-sustaining communities within Cloudworks. The community building aspect of the

project was planned for 2009-10 in order to coincide with the launch of Cloudworks. The involvement of some community groups was initiated by contact from the project team, whilst other support was provided at the request of communities of practice. The experience of supporting groups on Cloudworks was intended to feedback to future technical development and in to developing support and guidance for the tool.

In addition to these work strands, the project aimed to contribute to the broader JISC programme in which it was situated. One aspect of this was to ensure the project broadly aligned with the definition of curriculum design given by JISC in 2008:[1]

> *'Curriculum design' is generally understood as a high-level process defining the learning to take place within a specific programme of study, leading to specific unit(s) of credit or qualification. The curriculum design process leads to the production of core programme/module documents such as a course/module description, validation documents, prospectus entry, and course handbook. This process involves consideration of resource allocation, marketing of the course, and learners' final outcomes and destinations, as well as general learning and teaching approaches and requirements. It could be said to answer the questions 'What needs to be learned?', 'What resources will this require?', and 'How will this be assessed?' (JISC, 2008)*

In this definition, the terms 'course' and 'module' are used interchangeably. Over the duration of the project, both have been used by staff and in policy documents at the lead and partner institutions. For example, before September 2011 the Open University used the term 'course' whilst after this date 'module.' Where possible this report uses the term module although the term course or unit may appear when directly quoting staff.

2.2 Structure of the report

Already, the OULDI-JISC project team have published over 700 pages of reports, evaluation and analysis so the purpose of this final Evaluation Report is to gather together these data and review the project work in its entirety.

[1] Although this definition is not without its limitations, for example: design may involve other process than those listed; the logic of the cause and effect used (which suggests a design process leads to design product) can often be reversed and the perhaps unintentional implication that all designed curriculum must lead to credit (thereby excluding curriculum design for open or 'free' courses); and that the design process ends in the production of various artefacts rather than the final outcome of the design being a rich, engaging and effective learning experience for the student.

Sections 4, 5 and 6 comprise the majority of the evaluation.

Section 4 evaluates the base line and other early work undertake by the project. This aimed to better understand current institutional curriculum design processes and practices and involved a detailed review of the formal OU module production process along with staff survey and interview data.

Section 5 focuses on the benefits and issues associated with developing and implementing curriculum design tools, resources and approaches. Included here are evaluations of Cloudworks, CompendiumLD, a range of OULDI 'Toolbox' Design Tools such as the Module Map, Activity Profiler and Facilitation card packs, and how OULDI tools have worked with other tools.

Section 6 explores how the OULDI project work has changed academic practice and the practice of other teaching and learning professional and informed senior manager perspectives and it raises the question of who owns pedagogy and what makes a good tool. Also, in the context of the project having achieved significant successes, it seeks to unpack the 'discourse of resistance' which remains an issue for those seeking to implement institutional, procedural or cultural change in respect to learning and curriculum design. This section is more discursive and reflective than the preceding two.

These three key sections are preceded by a description of the evaluation framework and methodology (Section 3) and followed by a conclusion (Section 7). This conclusion is shared with the Executive Summary of the Final Project Report (Cross, Galley, Brasher and Weller, 2012), indicating that these documents are intended to be read together.

2.3 Project Partners

The project team created external and internal partnerships with module teams, faculties, professional support units and technical development groups. Most important, were the nine pilot partnerships. An overview of each is given below.

External Pilots Partnerships

University of Reading Pilot: Pedagogy and technical choices
The OULDI tools and approaches were used to support academic staff developing technology enhanced curricula, by providing them with tools and approaches to think critically about their design decisions, and facilitate wider sharing and collaboration at the University of Reading i.e. beyond the localised pockets of good practice identified in the University's e-benchmarking and Pathfinder projects.

Brunel University Pilot: Using a blended learning design approach to optimise the use of technology
The OULDI tools and approaches were first trialled with multi-disciplinary design

teams, and then a bespoke online learning design resources called 'The Brunel Learning Design Suite' was created to support staff through the University's design, approval, development and evaluation phases of the institutional curriculum design process.

London South Bank University (LSBU) Pilot
In this pilot the LSBU project team engaged with academics from across the University as they grappled with the concept of technology enhanced curriculum design. Learning design workshops were used to up-skill staff in pedagogical, technological and design for learning skills. OULDI tools and approaches were trialled alongside tools and approaches from the Carpe Diem project (the learning design workshop developed at the University of Leicester, arising originally out of another JISC-funded project, ADELIE, in 2006). The London South Bank Pilot was unable to complete their evaluation report. A copy of a draft report has been included instead.

Cambridge University Pilot: 13 Things for Curriculum Design
The 13Things Programme explored the use of various curriculum design tools, including OULDI tools, to lecturers at the University of Cambridge and gathered feedback in order to determine the transferability of the OU methodology. The 13Things pilot introduced lecturers to the OULDI tools - alongside design tools from other projects - and encouraged them to spend time experimenting and then blogging their experiences. Besides blogging about the individual tools and methods, participants were also encouraged to attend workshops and apply the tools to their own practice.

University of Leicester Pilot: OULDI – Carpe Diem 7Cs pilot workshops
This pilot aimed to develop and trial a learning design template and set of resources which combined activities and tools from the OULDI and Carpe Diem projects. The template was piloted through two learning design workshops: an online workshop to a group of nine academics from SAIDE (South African Institution of Distance Education), and a face-to-face design workshop to a group of twelve academics from the University of Leicester.

Open University Internal Pilot Partnerships

FELS Pilot: The impact of early learning design on the efficiency and effectiveness of curriculum design processes and practices
This pilot is based in the Open University's Faculty of Education and Language Studies (FELS) where a 'front-loaded' OULDI curriculum design process was trialled where a greater proportion of academic module production time was allocated to designing a module at the beginning of the process. The aim has been to reduce the overall time the design and production process would take, and at the same time demonstrate specified improvements to learning and teaching.

Library Services Pilot: Using a learning design approach to embedding an

information literacy levels framework
Based in the University's Library Services Unit, this pilot aims to equip all librarians who work with academic faculties with an understanding of, and set of OULDI tools to support, critical engagement and dialogue with module teams around the integration of information literacy outcomes, activities and demonstration in modules and across whole qualifications.

Support Unit Pilot: Using a learning design approach to supporting evolving design practices at the OU
This pilot focuses on identifying and monitoring evolving changes in design practice in the University, and examines the impact of changing perceptions of design roles and relationships between non-academic and academic teams on design practice. Finally, it attempts to discover whether the OULDI tools and approach have any role to play in improving the efficiency and effectiveness of new practices.

B2S Pilot: Applying standardised representational frameworks for the pedagogical benchmarking and review of a module
This pilot trials how effective the OULDI representations might be in terms of acting as 'stand-alone' artefacts communicating the essential features of a module to others. The Bridge to Success (B2S) Project was chosen as a test case to see how well the tools work as valid and reliable tools for expert review.

3. Evaluation Framework

3.1 Overview of project evaluation framework

The OULDI-JISC Evaluation Plan was agreed in 2009 and has provided a useful framework for organising the collection, analysis and evaluation of data in respect to the project objectives and outputs. In 2010 and 2011 minor revisions were made the Evaluation Plan as work on each project strand progressed. These changes augmented the original plan and remained closely aligned to the project objectives and outputs.

3.2 Project objectives and outputs

The project plan, agreed with JISC in 2009, states the project objectives as:

1. To develop working relationships with units in the OU and to explore the transferability of elements of our approach by working with four other UK universities and two pan-communities, capturing barriers and enables by appropriate data recording mechanisms

2. To review the existing curriculum design processes at the OU in the first year of the project including describing and modelling the curriculum design process

3. To work with stakeholders at the OU to identify key moments in which enhancement or change in curriculum design process could lead to improved quality of design, and to work with partner institutions to undertake a similar process

4. To pilot learning design methodologies, tools and techniques in at least eight trials and to document and evaluate this experience

5. To engage with, build or enhance a range of communities and develop their capacity for self-sustainability particularly focusing on organised events, key topic or subject areas, existing operational units and conferences or special interest groups

6. To increase, monitor and evaluate exchanges of learning and teaching ideas and experiences in appropriate communities

7. To undertake and review annually enhancements to the website(s) being used to support the community building and activities planned (e.g. Cloudworks)

8. To undertake and review annually enhancements to the visualisation software used to support the pilot and design mapping tasks (e.g. CompendiumLD)

9. To continue to broaden in scope, content and definition the OU learning design methodology.

The project outputs listed below have been aligned with the five project strands as described in Section 2.1.

OULDI-JISC Project Outputs:

1. A sustainable and evolving, user-generated site (Cloudworks) for collaborative learning designs with a critical mass of learning designs, as well as tools and resources for design. Target: 4000 clouds by end of project (Project Strand 1)

2. A self-sustaining learning design community providing a forum for exchange of ideas and designs, along with guidelines for success factors identified to make such a community work (Project Strand 1)

3. A set of resources and guidance on different aspects of learning design and outlines for associated design activities and tailored workshops (Project Strand 2)

4. A clearer understanding of using learning design successfully in curriculum design innovation, strategies and approaches to embedding LD as an approach across a range (Project Strand 3)

5. Evidence of use of a software application designed to support learning design and visualisation (Project Strand 4)

6. A record and evaluation of our approaches to implementing institutional change through adopting a LD approach (Project Strand 5)

For more information about where in this report there is evaluation relating to each objective or output, please refer to the conclusion where a useful 'look-up' table is presented.

3.3 Data collection and evaluation methodologies

The OULDI project has adopted a mixed methods approach to data capture and analysis. a range of data capture and analysis methods have been used by the project. The project comprises several interlinked strands of work and to date has already produced over twelve evaluation reports. Table 1 below lists which methodologies each report uses. The final column indicates where data relating to

the project pilots, tools, or software has also been captured or analysed by third parties.

	OULDI produced reports that contain evaluation and analysis												
Method	**Baseline Report**	**Cloudworks Phase 1 & 2**	**Cloudworks Phase 3**	**CompendiumLD Report**	**Reading Pilot Report**	**Brunel Pilot Report**	**Cambridge Pilot Report**	**Leicester Pilot Report**	**FELS Pilot Report**	**Library Pilot Report**	**Support Unit Pilot Report**	**B2S Pilot Report**	**Non-Project work**
Post-test/-trial questionnaire responses	50*	Y	Y	Y	40	28		16		30	Y		Y
Stakeholder Interviews	Y	8			Y	Y	Y		Y	Y	Y	Y	
User or Expert Usability Testing		2		Y									
Case Study Method		4											Y
Personal narratives					3	3	3	3	3	3		2	
Participatory Analysis					Y	Y			Y	Y	Y	Y	
Web use Analytics		Y	Y	Y						Y			
Blog, Video-log or Email review		Y		Y	9	Y	9			Y			Y
Visual Image Capture/Analysis				Y/Y	21/N	4x/N	2/N		Y	Y		Y	Y
Narrative Analysis		Y	Y										
Social/Object Network Analysis		Y								Y			
Student Feedback		Y	Y	Y		5							Y
Field notes or reflective log		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

*staff attitude survey conducted after workshop;

Table 1: Summary of evaluation methodologies used in project reports

3.3.2 Evaluation of Cloudworks and Design Communities

Cloudworks was developed iteratively with a focus on agile and responsive development during each phase. The project aimed for and achieved three phases of development. A range of activities to promote use of the site by the curriculum design community was undertaken alongside the technical development. Data capture and evaluation took place during and after each phase.

Key aspects of the evaluation methodology for Cloudworks were:

- **Web use analytics**. Top-level monthly statistics were recorded for the Cloudworks website. These included the number of page views, visits, unique visits, Clouds added, comments added, links added, new registrations, total Clouds, total comments and total registrations. This data was used to track progress against project targets and analyse trends. In addition, some data categories were divided further in to project team activity and non-project team activity thereby enabling us to better determine how much the community was contributing and taking 'ownership' of the site.

- **Expert Usability and Accessibility testing**. Testing was commissioned by the project and undertaken by specialist individuals at the OU's Institute of Educational Technology (IET).

- **User Online Survey**. An online questionnaire regarding use and perceptions of the Cloudworks site was developed for evaluating Phase 1. This has subsequently been reused for Phase 2 and 3. In each case, Cloudworks users were invited to respond.

- **Technical logs**. Comments, issues and development logs were maintained by the lead developers. These recorded any reported technical or usability issues or problems reported by users, and have been shared publically via blogs on Cloudworks and alongside the open-source software on the CloudEngine download website.

- **Longitudinal analysis of contributions**. A sample of 250 Cloudworks users was selected and a periodic record made of the extent of their contributions (Clouds created, comments, followers, etc.) over an 18 month period. This method was chosen because it would enable us to understand what proportion of users contributed to the site and the degree and length of this contribution. This data complements the headline web use statistics (see earlier).

- **Community Indicators Framework (CIF).** A new composite framework for indicators of community has been developed by the OULDI-JISC project team (Galley et al., 2012). The framework has enabled more systematic positioning of transactions and emerging patterns of activity on the site so

that we might - more reliably - use the empirical evidence we have gathered over the last 3 years.

- **4 case studies.** Each case study focused on a critical or typical case of the Cloudworks tool in use: for conferences; communities of practice; collaborative literature review; as a pedagogical wrapper for learning designs.

- **Field notes.** A reflective log was kept by the project officer. These notes include experiences of supporting communities, developing the tool and moderating the site.

- **User feedback** relating to the use of Cloudworks for designing or sharing designs/ideas gathered from pilot workshops and events (see earlier).

- **Unsolicited user comment** and feedback posted to Cloudworks and other publicly accessible social networking sites (such as Facebook and Twitter) or blogs.

- **Activity Network Analysis and spatial analytical forms**. The project developed a representational method to assist the analysis of interaction with and across Clouds in the online Cloudworks social space. This was necessary to help reveal activity patterns and behaviours (Cross, 2010b):

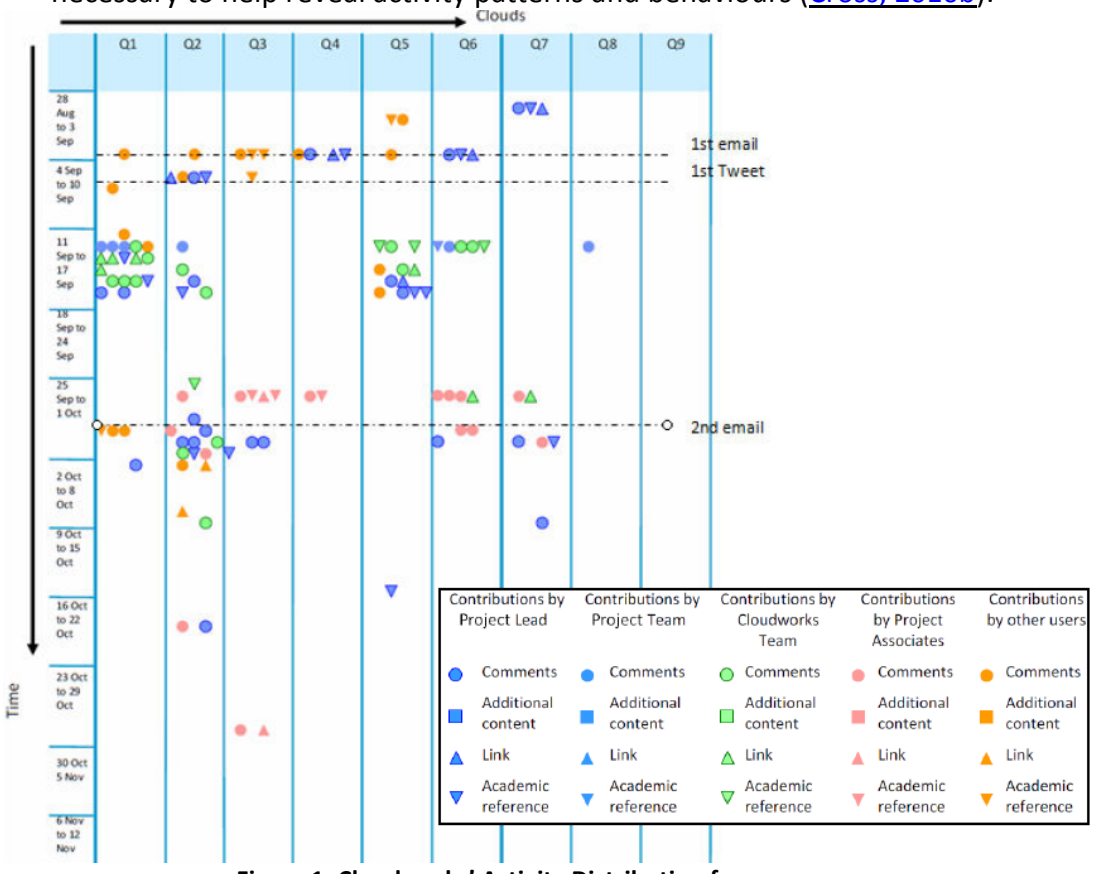

Figure 1: Cloudworks' Activity Distribution form

3.3.2 Evaluation of the OULDI-JISC pilots and learning design tools

The original intention of the project was to conduct eight typical-case semi-longitudinal case studies each looking at how an institution, faculty, unit or team responded to and attempted to embed the curriculum design process into their design practice. These were to take place across five higher education institutions and account for almost half the project spend. Due to a sixth institution (a ninth pilot) joining the project in 2011, the project exceeded its original aim to that of nine pilots.

Eight of the nine pilots (See Section 2.3) focused on a semi-longitude case study of institutional, faculty or unit response to embedding design practice. One of the eight - the University of Reading Pilot - included an additional case (associated with the Postgraduate Certificate of Academic Practice (PGCAP) qualification) whilst the final pilot – University of Leicester – featured two shorter cases. Overall, therefore, eleven cases of varying scale can be discerned within the nine pilot reports the project has produced.

Each OULDI pilot team were encouraged to set specific success criteria for their intervention alongside those required by the overall project (see Section 3.2). Table 2 classifies the success criteria set by each pilot into four groups: meeting staff needs, meeting learner needs, achieving change in practice; and achieving a strategic aim.

In general, most pilots identified success criteria in more than one category. It was found that where institutions, faculties, units or teams were able to align success criteria closely to their own strategic objectives, engagement was higher and more sustained. Pilots that set success criteria felt they were better able to target their workshops and evaluation, and found it easier to convince others in their setting of the value of engaging in the pilot. See the Pilots webpage for more information.

Success criteria	Reading	Brunel	Leicester	Library	FELS	Support Unit	B2S	Cambridge	London S. Bank
Meeting Staff Needs									
Support academic needs / teams feel more supported	Y			Y	Y	Y			
Meeting Learner Needs									
Support student needs / module is designed for their needs		Y			Y				
Students are more aware of their learning / aspects of the module				Y					
Achieving change in practice									
Greater critical thinking and reflection by academics	Y	Y			Y				
More collaboration and sharing of designs	Y	Y		Y			Y		
Achieving strategic aim									
Achievement of unit or faculty teaching and learning objective			Y	Y	Y				
Achievement of an OULDI deliverable or goal			Y		Y	Y	Y		

Table 2: Individual pilots success criteria

Key aspects of the evaluation methodology used in each of the nine pilots were:

- **Nine semi-longitude explorations** (spanning 1-2 years) into how an institution, faculty, unit or team has attempted to embed the OULDI curriculum design tools and methodology. These were of critical importance for understanding changing attitudes, strategic goals, and mechanisms for embedding. A pilot report template was developed in order to ensure a degree of consistency in reporting across the pilots.

- **Over 20 personal narratives** each focused on a critical or typical case of OULDI tool or approach use from across the pilots. Each personal narrative has been constructed through a dialogue between the participant and the researcher, usually following a semi-structured interview, and is presented in the form of a rich two to three page report. This narrative approach was chosen so as to better understand and articulate the particular enabling circumstances associated with practice, process or cultural change.

- **Over 20 intervention evaluation reports** capture details of the tasks, participant numbers, resources and feedback from workshops and similar design support activities. They focus on capturing a representative range of comment and reaction to the design tools and methodology. A standard

survey form was developed by the project team, although particular circumstances of each pilot intervention meant this had to be adapted or merged with the standard institutional forms used for evaluating workshops.

- **Semi-structured interviews** captured senior manager stakeholder perspectives. This method was selected as the most appropriate method for this group because of the low time input required from interviewee. Interviews with senior managers associated with five of the nine pilots were conducted, with content from these interviews used to create personal narratives where appropriate.

- **Full or jotted field notes** were taken as a reflective log by a member of the project team, usually the project officer, after each key encounter (e.g. a workshop, module team meeting, etc). Field noting is an accepted ethnographic research tool and also supports action research approaches. The project used these to support the iterative development of workshop activities and formats.

- **Visual images** such as representations of the Course Map, Pedagogy Profile or CompendiumLD maps were captured as photographs (when created on paper) or as screenshots or jpeg images (when created on a computer). Given that representation of curriculum designs was a key interest to the project it was essential that these be captured where possible.

- **User generated evidence.** We have stayed alert to and recorded/stored this data which includes blog posts, video-logs, emails sent by participants to the project team, slide presentations, student feedback, and even academic conference or journal papers.

3.3.3 Evaluation of CompendiumLD

The development of CompendiumLD, like that of Cloudworks, adopted a phased and agile approach.

Key aspects of the evaluation methodology were:

- **Web use analytics.** Top-level statistics relating to number of downloads, for which platform and what where (OU/non-OU) were collected and the numbers of downloads/views of guidance documents or slide shows was recorded using publically available data.

- **Expert Usability testing** commissioned by project and undertaken by specialist individuals at the OU's Institute of Educational Technology.

- **A comments and issues log** was maintained by the lead developer this recorded any reported technical or usability issues or problems reported by users.

- **CompendiumLD designs.** Evidence relating to using CompendiumLD for designing or sharing designs/ideas was gathered from pilot workshops and events. This included screenshots, visualisation sketches and CompendiumLD files.

- **Field notes** were taken as a reflective log by the project officer during workshops and other events. In addition detailed notes were taken by the lead developer whilst providing support for CompendiumLD use in a taught master's level module. Over 50 students used CompendiumLD during the module.

4. Baseline Review

4.1 Data capture methods and sources

Before the project embarked on its five work strands, the project team undertook a detailed baseline review of the curriculum design processes and practices at the lead institution. Research and analysis for the OULDI baseline review took place between November 2008 and June 2009 and culminated in the publication of a final 62 page report titled A Review of Curriculum Design at the Open University 2008-09: OULDI-JISC Project Baseline Report in November 2009.

The baseline review contained four main sections: curriculum design processes, stakeholder perspectives, staff perceptions and practice and software baselines. An ethnographic approach was adopted to review the OU Curriculum Management Guideline intranet, the documentation used to produce and deliver modules, Strategy Unit guidance, and computer systems for managing information relating to course production, cost and delivery (e.g. student record system, production database and the VLE). This was followed by a series of more than 50 review and validation interviews and a review of institutional audit documentation supplied by the Quality Office.

This data was used to create a detailed set of flowcharts of the institutionally approved process. Later the project also created faculty specific versions. The diagrammatic representations produced as part of this baseline work have been very well received by all those who have participated in the interview activities as easy to use reference guides to the institutional module production process. The process of creating the flowcharts also revealed inconsistencies in the guidance or recommended process. For example, there were at least nine documents available on the intranet that contained references to the approvals process for a qualification. This information was passed to the Curriculum and Qualifications Office and will be useful to the Stage Gate Good Practice project (formed more recently to take action to review and re-write the content on the Curriculum Management Guidelines intranet) and the university's Stage Gate Review project. Draft packs of the flowcharts have also been issued for faculty training purposes.

4.2 The Stage Gate Process

To manage the overall curriculum portfolio, the Open University uses a Stage Gate process to ensure that the curriculum offered to students is fit for purpose and helps deliver institutional priorities. This process was introduced in 2005 and creates a framework to support curriculum investment decisions throughout the life cycle of a qualification or module. It has been designed to provide a level of confidence in curriculum choice which is auditable and facilitates regular review.

Qualifications have three Stage Gates (Opportunity Review, Business Appraisal and Specification, and Annual Review) whilst modules have five Stage Gates:

Course Development and Design

- 1. Opportunity review
- 2. Business Appraisal
- 3. Specification

Course Presentation

- 4. Post-launch Review
- 5. Lifecycle Review

The first two Stages are primarily focused on investment decisions. The Specification is used in the academic approval process of the courses/modules and is intended to inform module production, and Stages four and five link specifically to quality assurance and enhancement reviews. Stage five also includes a re-assessment of the business case and course/module life.

The Stage Gate process embodies a series of decision points ('Gates') that a project must pass through, each embodying a key question: i.e. 'how does this project relate to opportunities that are available (in terms of student demand, government policy, professional recognition etc.)?'; 'what is the business case for this project?'; 'what is the specification of this project (in terms of learning opportunities and learning outcomes, learning resources, assessment etc.)?' Standardised forms are used to record the input for each Stage.

Flowchart 5 (see Fig. 2 below) gives an overview of the OU Stage Gate process. At each Stage there is a 'gate-keeper' committee who must decide whether the proposal should proceed through the Gate. By the end of Stage 3, a project will have been considered and approved from an 'opportunity' and marketing point of view, as a business proposition and most importantly as a durable and high-quality academic module.

As Fig. 3 and 4 below indicates, Stage Gate 3 is a particularly complex two-part Stage which includes Course Specification (the first part of Stage Gate 3) and Course Design. It involves a number of documents ( ), textual or numerical data ( ), decision taking moments ( ) and computer databases ( ). For larger versions of these diagrams refer to Section 2 by Mundin in the Project Baseline Report (Cross (ed), 2009). Stages 4 and 5 require confirmation that the project meets all appropriate academic standards, is feasible in technical and resource terms, continues to be in line with the University's strategic objectives, and matches market opportunities.

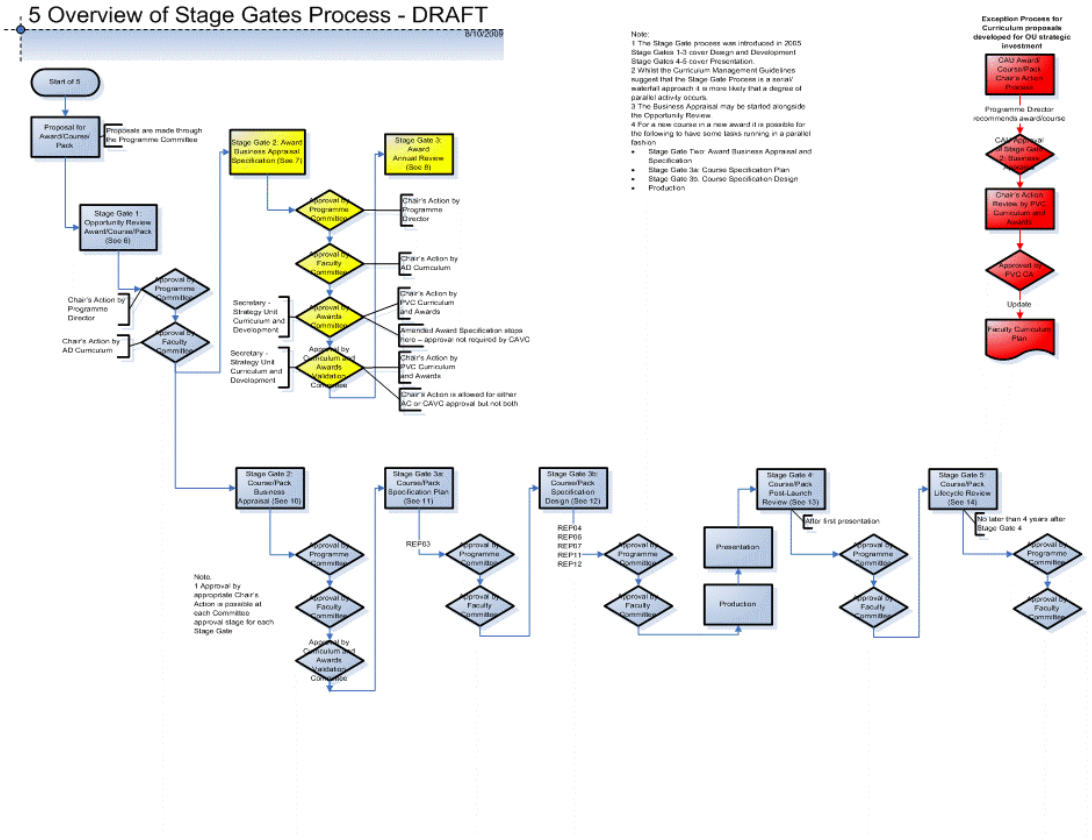

Figure 2: Flowchart 5 showing an overview of the Stage Gate Process

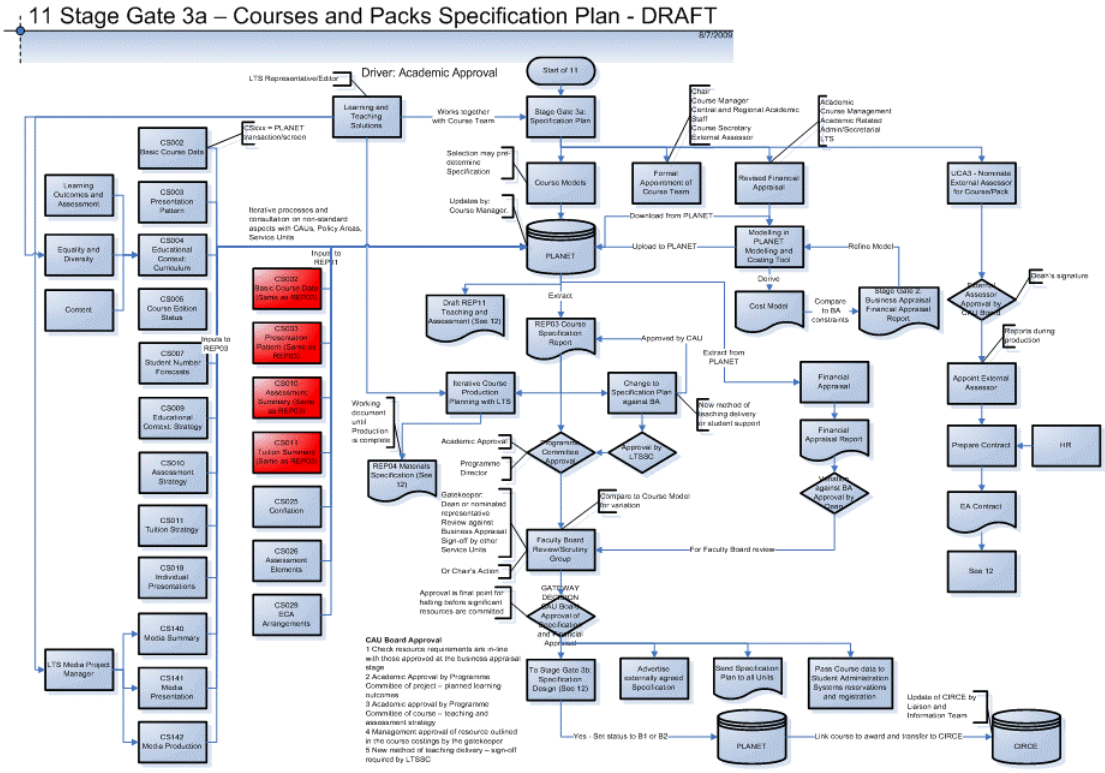

Figure 3: Flowchart 11 showing processes involved in Stage Gate 3a

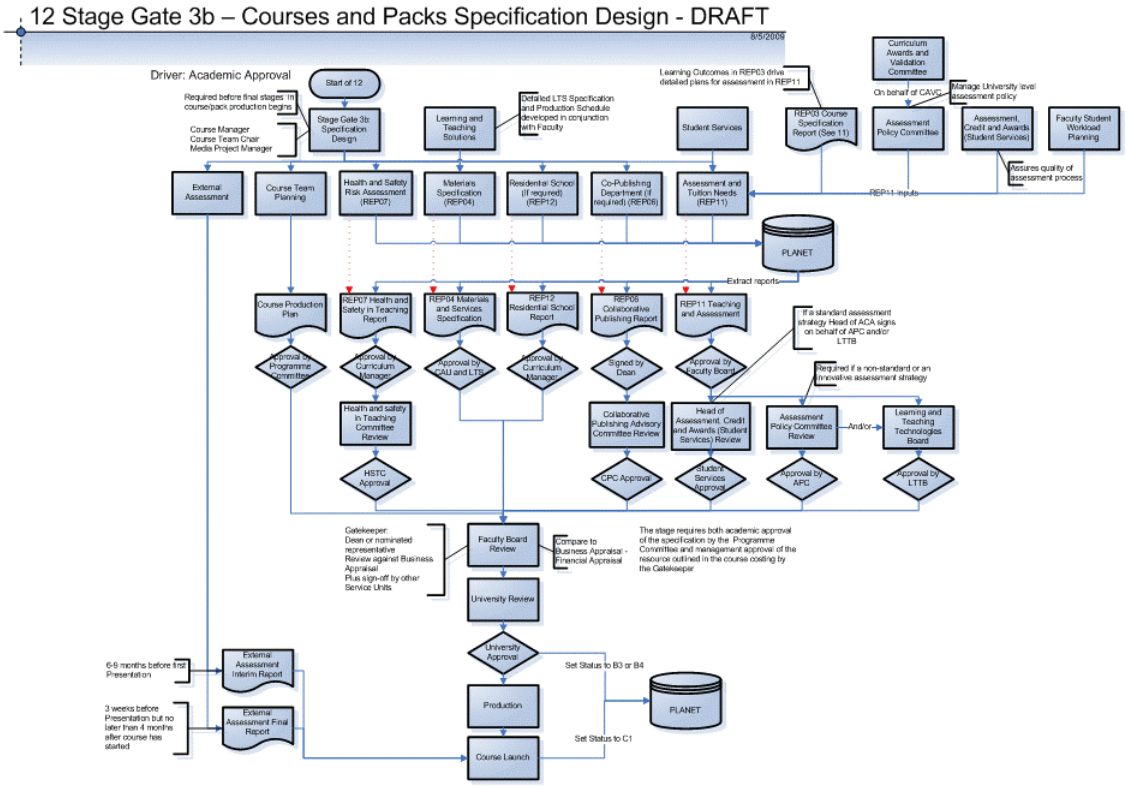

Figure 4: Flowchart 12 showing processes involved in Stage Gate 3b

4.2 Process issues

When the process was introduced in 2005, it was closely aligned with traditional OU module design and development schedules (up to three years), but the process no longer fits with modules that require to be developed and marketed within a year. One of the benefits of mapping the curriculum design process has been to identify the complexity of the Stage Gate process, which now can be seen to conflict with its original intention of users making appropriate use of the Stage Gate process in relation to the task they were performing. All modules, whether a 10 point level one short module, or a level three sixty point module are required to pass through the same process and the same committee meeting time-tables which are approximately quarterly.

Interviews showed that some users had found it difficult to identify which documentation is the 'correct' version and which is out-of-date and there was uncertainty about who the Stage Gate process owner was. Many faculties were also found to be running their own version of the documentation with the result that there was an OU generic "As Is" process and also individual faculty-based "As Is" versions.

The baseline review found that the formal module production process required limited consideration of pedagogy early in the module development process – either

at Stage Gate 1 (Opportunity Review) or Stage Gate 2 (Business Appraisal). Whilst the Stage Gate process was used to provide a serial set of activities, and to ensure that each Stage is approved before the start of the next Stage, in reality because of project time-frames it was likely that Stage Two may start before Stage One has completed and so on. Therefore, whilst the opportunity review document template asked 'is there evidence of a gap in the market in terms of pedagogy?' and 'will this opportunity add value to the University's pedagogic reputation?' there appeared little requirement by the formal process for the module team to have performed any pedagogic design at this stage. For example, one academic noted that 'outside of completing the forms, there is little in the way of work to answer the questions except for the financial modelling,' whilst another admitted 'I re-used information from other similar Opportunity Review documents to complete the [module] …template.' These cases help to raise a number of questions: is Stage Gate 2 too early to be thinking about pedagogy? Should support be provided at this stage or in Stage 3?

In Stage Gate 3 (Module Specification) the process is expected to move more towards teaching and learning. However, our baseline review found that even during Stage Gate 3 considerations other than pedagogy appear as major drivers. Time was consistently cited as critical factor; for example one academic noted that 'there is a pragmatic approach to learning design during module development. Time constrains can mean modules are developed despite learning design rather than because of learning design' whilst another acknowledged 'there is a balance between what is thorough and what is practical.' Others cite schedules ('the plan works back from the [module start] date') and the additional time that curriculum design requires. For example one teaching and learning support professional explained:

> *'Course teams I work with generally don't think through learning activities in such a detailed way and aren't receptive to planning them with such precision. It is also very time consuming and neither I nor the course team would have time to do this…'* (Baseline Report interviewee)

Requirements of the formal systems, such as what information is required for the university's online module management system, also helps drive the design process for Stage Gate 3.

To summarise, the base line activity enabled the OULDI project team to raise a number of questions for the university:

1. How often should the process be reviewed?
2. Who should manage the process? – could the university be clearer about who the process owner is, how they will manage continual process improvement, and their role as champion, guardian, gatekeeper etc.
3. Should modules with short production time-scales (less than three years) use the same process? –how could the process better support rapid reaction to changing markets and legislation
4. What impact does the current schedule of committee meetings have on delaying or accelerating module production

5. How consistent in the interpretation and practice of the Stage Gate Process?
6. When should pedagogy be considered and how?
7. Has the process become too complex for staff to navigate and ensure guidance and support remains consistent?
8. How do individual teams manage discrepancies? For example, the Business Appraisal for Stage Gate 2 asks for some information about teaching methods and tools when in fact there is no module team to decide on these until after the Business Appraisal is signed off.

The base line review made it possible for the OULDI to identify and articulate clearly the ways in which embedding a learning design approach into the institutional curriculum design systems could help improve the efficiency and effectiveness of the systems, and pull pedagogy and student experience back into the centre of the process.

5. OULDI Tools, Resources and Activities

This Section of the evaluation report will examine how useful users have found the curriculum design tools developed by the project. It will draw upon evidence from all nine project pilot reports, the Cloudworks and CompendiumLD reports, and some as yet unreported data. Table 3 below outlines the principal OULDI tools developed and trialled during the project.

The OULDI-JISC project has developed and revised a number of curriculum and learning design tools since September 2008. Some of these, such as Cloudworks, CompendiumLD and workshop templates, were specifically mentioned in the original project plan. Others, such as the Course Features Cards or Information Literacy Levels Facilitation Cards were developed during the project in response to project findings and work by other projects.

OULDI tools developed and trialled	State of tool in September 2008	Key Tool Development to 2011
Workshop formats (Section 5.1)	Original 'Learning Design Challenge' format	▪ Existing workshop activities extensively trialled and revised. New activities introduced and format variants trialled ▪ Development of three distinct learning design workshop templates available for reuse on a creative commons BY: NC:SA licence.
Cloudworks (Section 5.2)	Did not exist	▪ Designed and developed a website for the sharing of learning and teaching design ideas and experiences ▪ Moderation and support for 3 years ▪ Engaged COPs and Conference organisers ▪ Achieved target of over 4,000 registrations ▪ Released as open source code
CompendiumLD (Section 5.3)	Original version of Compendium available and early set of icons created	▪ Customisation of existing software (Compendium) for learning design ▪ Addition of new functionalities ▪ Development of new and extended icon set ▪ Research in to the benefits and value of visualising curriculum and learning designs
Course Map (Section 5.4.1)	Did not exist	▪ Developed module map framework in collaboration with the parallel institutional Curriculum Business Models (CBM) project ▪ Created Excel and Paper versions with associated workshop activities
Activity Profiler (Section 5.4.2)	Concept already developed	▪ Created Flash, Excel and Paper versions with associated workshop activities
Course features Cards (Section 5.4.3)	Did not exist	▪ Development and production of pack of cards and associated workshop activities

Information Literacy Levels Cards (Section 5.4.4)	Did not exist	▪ Development and production of pack of cards and associated workshop activities
How to Ruin a Course activity (Section 5.4.5)	Originally designed by the Change Academy for Blended Learning Enhancement (CABLE) 2007	▪ Development of face-to-face and online learning design activity and resources ▪ Used in more than 17 workshops ▪ Online version has been accessed more than 1350 times

Table 3: Summary of OULDI tools, development and use

5.1. Workshops as a Curriculum Design Tool

The OULDI project team has seen the workshop model as a tool in its own right, rather than simply a mechanism for explaining and demonstrating design tools. As a discussion reported in our Library Services Pilot revealed, some staff still believe there remains a challenge in 'persuading module teams to shift their focus from module content to pedagogic structure and design.' We have found that the workshop, by presenting a series of new design tools and activities 'in-use', has the potential to shift focus more firmly on to the learner experience or, as one participant noted, 'the whole focus of this event is not about teaching people, it's about people learning' (Papaefthimiou, 2012).

The OULDI team delivered almost twenty workshops during the project pilots including fourteen directly associated with the pilots. Post-workshop questionnaires and later impact surveys reveal a wide range of reaction from participants - even those present at the same workshop. However, feedback has been overwhelmingly positive as this quote from one 2011 workshop illustrates:

> *'And thanks again for the workshop. I found it really useful... It's almost like that stuff is usually very basically given lip service in the business appraisal and planning stages, then kind of forgotten and only revisited when trying to fill in the student workload planning tools at the end; whereas this was a much more constructive and creative way of looking at it'.*

Workshops helped to provide a focus to 'objectively identify what should be kept and what should be changed,' to create more space to reflect on designs, to learn 'enough discipline to park …useful new thoughts and keep them separate from the task in hand, so that they didn't lose focus,'(Galley, 2012a, p16) and achieve – as an OULDI project officer noted - a 'disruptive impact' between 'the existing stage gate forms and the learning design process' (Ibid., p23).

Pilot workshops were based on one of the three OULDI workshop templates, but adapted expressly for the intended audience. Designers selected from the 'pick and mix' OULDI toolbox of tools, activities, resources and activity sequences. This easy customisation to context was a clear advantage of the workshops. As one

appreciative participant wrote in their feedback 'it was one of the most useful courses I have done for a while' (Papaefthimiou, 2012).

The OULDI team adopted a design approach to devising and delivering workshops that was not too dissimilar to that it was advocating as an approach to curriculum designing. Feedback from workshops delivered during the FELS, Library Services, Support Units, University of Reading, Brunel University, LSBU and University of Leicester pilots, and interviews with OULDI workshop observers and designers, reveal a number of success factors.

Key components to a successful workshop were found to be:

- Detailed initial scoping of context, purpose and aim of workshop
- Explicit alignment of workshop aims with institutional strategies and priorities
- Design of workshop structure and selection of tools to best meet audience skills, experience and needs
- Delivery of workshop by knowledgeable and enthusiastic presenter, keeping to structure and timings and, in larger workshops, the allocation of external critical friends in each team to challenge design thinking, and stimulate focused and informed discussion
- Opportunity for teams to work together on real designs; to develop shared understanding and share and exchange ideas with others
- Post-workshop feedback and, if necessary, iterative development of template

Each of these points will be described in more detail below.

5.1.1 Scoping of context, purpose and aim

The design of each workshop began with a meeting between the OULDI project officer and the pilot lead. This meeting clarified the purpose and aim of the workshop in respect to the success criteria set by the pilot team (see earlier) and the requirements of the OULDI project that the workshops must include OULDI activities, tools and resources.

In many cases, and where practicable, the workshop aims or objectives were developed through dialogue between the project officer, project lead and, in some cases, project manager. In some pilots, such as the Cambridge University and University of Leicester Pilots, greater autonomy for setting objectives was given to the project lead. In these cases, the processes which defined workshop aims were not specifically captured, although their outcome is evident in the stated workshop outcomes.

The stated aims / outcomes for most of the OULDI workshops are summarised in Table 4 below. An attempt has been made to categorise each aim/objective according to type of impact. However, in some cases the stated aim/objective is not

clear and it is difficult to tell what impact is anticipated (clarification comes from looking at the description of specific sessions. For some workshops there does not always appear clear alignment between the workshop aim/outcomes and the pilot success criteria defined by the pilot leads (see earlier).

Workshop aims/outcomes	Reading 1	Reading 2	Brunel 1	Brunel 2	Leicester 1	Leicester 2	Cambridge	Library 1	Library 2	LSBU 1	LSBU 2	FELS 1	FELS 2	Support Units
Awareness														
Gained awareness of range of resources, tools and methods	Y	Y	Y		Y			Y						
Gained awareness of affordances of available technologies					Y									
Understand issues and challenges involved in teaching today	Y										Y**			
Demonstration of role of four tools in module design process									Y					
Learn to use														
Experiment with new tools and resources						Y	Y*			Y				
Experience thinking about design process from range of perspectives	Y	Y	Y		Y									
Review programme design in light of SR2 regulations				Y										
Build an action plan for work that remains to be done^					Y									
Develop a storyboard of design^					Y									
Apply														
Understand how to transfer experience gained to own context and modules	Y	Y	Y											
Map existing tools/resources used to new models/tool (and find gaps)						Y^^			Y					
Reflect														
Assess relevance of technologies to own context / learners needs					Y									
Share views about tools with others							Y*							

Consider how tools could improve understanding of processes / module design								Y	Y					
Evaluate Cloudworks as a tool for sharing								Y						
Test and peer review sample e-tivities^														
Other														
Redesign Carpe Diem workshop incorporating OULDI resources						Y								

*optional workshop as part of intervention **four half-day workshops were delivered by external consultants on specific topic (not including OULDI tools) ^non-OULDI activity/tool ^^This workshop looked at

Table 4: Summary of workshop aims/ outcomes across the pilots

5.1.2 Alignment with institutional strategies and priorities

Learning design has moved up the strategic agenda especially in relation to the perceived new challenges and complexity associated with using new technologies and learning online. In 2009, the university's new Learning and Teaching Strategy including two related strategic objectives: to 'develop and apply new approaches to learning design' and that 'all staff will have expertise to engage in learning design.' The OULDI team have remained closely involved with the Curriculum Business Model (CBM) project and contributed ideas for two of the five CBM representations. The importance of learning and curriculum design is also recognised by the most recent Business Plan for the Institute of Educational Technology (the unit where the OULDI team is based) and the team have been liaising and supporting the roll-out of the CBM work to faculties.

Strategic alignment has also been a feature in our partner pilots. For example, in the FELS Pilot the project aligned with faculty interest in revising the process for module development, in the Reading Pilot workshops tool place as part of the annual CPD weeks, and the Brunel Pilot aligned with the SR2 freedom resulting in high levels of senior management engagement.

5.1.3 Design of structure and selection of tools

The scoping process described above provided the information needed to build the structure of each workshop and select appropriate curriculum design tools. Table 5 below shows the OULDI tools used in each pilot workshop.

		Cloudworks	CompendiumLD	Module / Course Map	Activity/ Pedagogy Profiler	Learning Outcomes View	Task Swim-lane	How to Ruin a Course activity	Course Features Sorting cards	Information Literacy Levels Cards	Number attending / Participation
Jan 2009	LSBU Pilot Workshop 1		Y								7
July 2009	Reading Pilot Workshop 1	Y	*Y*								30
Nov 2009	Brunel Pilot Workshop 1	Y	Y	Y				Y			27
Feb 2010	Reading Pilot PGCAP Workshop (online)	Y	Y	Y	Y						5
Mar 2010	Library Pilot Workshop 1	Y	Y	Y	Y						25
Apr 2010	Library Pilot Workshop 2	Y		Y	Y		Y			Y	33
May 2010	LSBU Pilot Workshop 2	optional	optional	Y	Y	Y	Y				33
June 2010	Reading Pilot Workshop 2	*Y*	optional	Y	Y	Y		Y			28
July 2010	Brunel Pilot Workshop 2		Y	Y	Y		Y				24
Apr 2011	Cambridge Pilot introduction to tools	Y	Y	Y	Y						<10
Sept 2011	FELS Pilot Workshop 1			Y	Y				Y		11
Oct 2011	FELS Pilot Workshop 2			Y	Y	Y				Y	9
Oct 2011	Support Units Pilot Workshop			Y	Y				Y		13
Mar 2012	Leicester Pilot workshop 1	Y		Y	Y			Y	Y		9
Apr 2012	Leicester Pilot Workshop 2			Y	Y				Y		12

Table 5: Summary of OULDI tools used across pilot workshops

Some workshops also included tools developed by others such as Ulster University's ViewPoints Project, Gloucestershire's CogenT and Leicester's Carpe Diem Workshop. This willingness to integrate and trial combinations of tools, rather than solely using project derived tools, is considered a strength of the OULDI project (see Section 5.5.1). In addition the team have found it important to remain mindful of the skills, attitudes and immediate needs of the particular group/s of staff attending.

Evidence from the pilots shows that the reception of design tools can depend on staff attitudes towards uses of technology, the idea of using a design approach in teaching, the priority they give to teaching and learning in their role as academic, and the perceived time they have for design. So, the way that tools are presented to staff can impact their first impressions and likelihood of reuse. Tool and activity selection for a workshop may depend on which faculties the participants are from.

The Library Pilot found that some faculties are unused to working in multi-disciplinary teams whereas others have been doing so for some time and that each may differ in their previous contact with support units. Similarly, one of the personal narratives from the Reading Pilot shows that a positive faculty attitude to curriculum design can impact staff perceptions (Galley, Reedy et al., 2012, p3; Papaefthimiou, 2012).

Staff differ in their opinions about what a curriculum design tool should do (see the discussion later in Section 6.7) and when it may be useful. For many, the tool is useful if it adds immediate value to the design process so attitudes towards tools can be dependent on when it is used. The following quotes offer contrasting views from two module teams present at the same workshop:

> Team A*: 'From my perspective this was kind of a waste of time because from the perspective of [my module] which is mostly written now, this workshop took place too late in the production process to be of any real use'*
>
> Team B*: 'I think the workshop came at precisely the right time for the [module] team; it gave them a good opportunity to step back and reflect on the content they've produced…' (Galley, 2012c)*

The more negative perception of Team A may also be because using the tools revealed a potential imbalance in the amount Team A had spent developing different resources - in particular there had been high cost spent on resources that, once mapped to their design, appeared to be used for only a short period by learners in just a few activities. Had the tool been used to identify this earlier the perception of the workshop may have been different, instead the design activities asked a question that, with hindsight, the team may have chosen to answer differently.

This example shows how some participants judge a workshop/tools in respect to the 'job in hand' (such as the module they are currently working on). For example, some have mentioned how they found the workshops useful in evaluating and critiquing their designs: 'it was a good way of testing and challenging our perception of the module' (Galley, 2012c). Whilst for others the workshop is more about skills development; a fact clearly illustrated in Feedback from the first workshop held for the Library Pilot found 86% agreeing that it would be useful in their future work. This example shows the importance of aligning workshop activities with the needs of the participants.

Finally, selection of a tool or approach will depend on broader context such as are any of the tools expected to be adopted as standard practice and whether the workshop fits a broader programme of planned, even regular design or module-development related events. For example, in one pilot 'part of the success can be attributed to the fact the message kept getting reinforced…' over a series of design related workshops' (Galley, Reedy, et al., 2012).

The usefulness of the individual tools shown in Table 5 will be discussed further in sections 5.2-5.5.

5.1.4 Delivery of the Workshop

Expert workshop facilitation is cited in several of the pilots as important to a successful workshop as this comment from the FELS pilot sponsor (the Associate Dean of Learning and Teaching) shows:

> *'The main point of this exercise for us is to get module teams to think about the pedagogy driving the learning design, detach themselves from the content and the resources, and to concentrate on the student learning experience. I think the [OULDI project officer] steered them through this thinking very successfully. So, from my point of view, progress to date already shows benefits…' (Galley, 2012a, p16)*

Observations from a Teaching and Learning Technologies Manager further support this. He said 'I particularly noticed how several times [the OULDI project officer] weaved the work together…this is the kind of 'added value' which a skilled worker brings to the job.' In addition, he felt there was value in the facilitator being firm and directive:

> *'Being academics, the first thing they would do is unmake what the first academic has done…that's why you need the external authority figure…[to] say 'look I want you to focus on this. These questions are out of bounds… and actually most of us, especially in an academic environment are actually quite inhibited from being that directive' (Galley, 2012a, p17)*

This demonstrates the importance of managing the sequence of design process activities and the difficulty that those new to activities may initially have in understanding how to use them most efficiently. In the FELS Pilot, the project officer held a half-day one-to-one meeting with the module chair prior to each workshop. This involvement of the module chair appears to have proved valuable in preparing accurate representations for use in the workshop, and in helping them to understand the purpose of these curriculum design representations.

The role of workshop facilitators and buy-in from module chairs/leaders both appear to be important variables in ensuring tools and resources are used effectively. Where a module leader is reluctant to engage - as seemed the case for two modules teams approached by the project and who decided not to participate in the pilots – then it proved very difficult to progress further. Similarly, our pilots found that facilitators were often asked to fulfil the role of 'coach' (for example, supporting teams in identifying the questions they needed to ask about the formal institutional processes) rather than 'design facilitator.' Participants also valued having a 'critical friend' – someone more expert in the curriculum design tools often from another university - as part of their group to help explain, advise and challenge (Alberts, Sharma & Parnis, 2011, p27). For example, one workshop participant noted:

> '*I wanted to complement your team on putting together a fabulous course I attended on Monday… It was well run, and thoughtfully put together. I was impressed by the expertise of the local organiser as well as the colleagues from other Universities...*'

This often central role of a learning design expert indicates that it may be difficult to achieve a state where workshops are self-facilitated without prior support.

5.1.6 Designing for Collaboration

Designing for collaboration involves creating opportunities for teams to work together on real designs, develop shared understandings, and share and exchange ideas with others. The format of a workshop provides designers with the opportunity for social and collective curriculum design practice, and it is this attribute that has been most valued by participants. For example, consider these three quotes: '[I liked] opening up the discussion and group thinking about designing for learning'; 'I really enjoyed chipping in ideas and suggestions to my team, and helping out with the design of another person's module;' and 'we needed this time to really become familiar with the motivation and nature of the module and to develop cross-curricular links with other colleagues – a secondary but immensely valuable side product' (Papaefthimiou, 2012, p13). Indeed, for some, the workshops added new impetus to working more closely as a team and to pursue other means for sharing learning and teaching experience. As one participant noted 'it seems to me that this day ticked the box for … enhancing the strong learning community at [the University]… and it would be good if it could continue in other guises (Ibid.).

An overwhelming theme from feedback – mentioned in over fifty separate feedback comments – was the opportunity design workshops provided to take 'time-out' from the day-to-day academic role and focus on the design of their module:

> *'In particular it was helpful to have the kind of headspace and time to think in detail about these sorts of things in a way which we don't get a chance to during module team meetings'*.

It seems that group working was easier if the group was composed of individuals working on the same module. The Brunel Pilot report for example noted that 'sharing ideas during the workshops was complicated by the mixed composure of some course teams.'

Inter-group activities, such as the last main session in the two Reading Pilot workshops where participants had to share their designs, had mixed results. For some, it didn't work because a team had not finished their previous activities (so did not have a view to share) or had not explained enough of the context for the design to be interpreted. However, for others these provided a 'good opportunity for a

cross-fertilisation of ideas' and even could have been achieved in less than the 30 minutes allowed (Papaefthimiou, 2012, p61).

5.1.6 Feedback and improvement

It is clear when comparing the early 'Design Challenge' workshop format used in 2008 with those used in FELS workshops in late 2011, which the workshop structure, tools and activities have evolved. As the pilot reports show, data has been gathered after workshops, post-workshop questionnaires, later impact surveys, semi-structured interviews, and in analyses of outputs or a combination of these, and this has been used to inform and prioritise workshop development.

In addition reflective logs were kept by facilitators for over half of the workshops delivered. Some of these are included in the appendices of the pilot reports and, where available, show a detailed, session by session reflection written alongside a summary of participants' feedback and sometimes with recommendations for improvement. For example, the reflections by the facilitator for the Reading Pilot July 2010 workshop make reference to a decision to include an activity from a previous workshop – 'this activity was included as a result of feedback from the workshop held at Brunel' and the decision to not record 'the session on Cloudworks live' (which was also due to previous feedback). Another change was that made to the introductory session; at an LSBU workshop in May 2010 the introductions and presentations took almost 90 minutes, so at the Reading workshop in July, 'we start[ed] immediately with the warm-up activity. The activity seemed to work well…'(Papaefthimiou, 2012, p57). The reflections also demonstrate that the facilitators were prepared to self-critique their sessions; for example after the Reading events the facilitator wrote 'in retrospect I feel that it would have been sufficient to give out four or five definitions and shift focus …onto the benefits and challenges.' Another example is that an idea for a paper icon set of CompendiumLD nodes emerged from the first LSBU Pilot workshop and this resource was developed for use at the second workshop and consequently elsewhere (Brown, 2012, p9).

5.2. Cloudworks

Development of the Cloudworks tool and the promotion of user groups and communities in Cloudworks were key outputs for the project. The project plan shows that Cloudworks was expected to:

1. Provide a forum for the exchange of ideas
2. Collate tools and resources for design
3. Enable collaborative learning design
4. Provide a forum for the exchange of designs
5. Become self-sustaining and evolving, with a critical mass of users
6. Identify success factors that can make communities work
7. Be 'fit-for-purpose' and usable

The following evaluation of Cloudworks as tool will be structured by these seven criteria with each comprising a separate sub-section. It will draw on the evaluation contained in the Cloudworks Phase 1 and 2 Report and a number of published reports and papers that have documented and evaluated the process of development of the site (Conole & Culver, 2009; Conole & Culver, 2010; Conole, 2010; Galley, Conole, Dalziel & Ghiglione, 2010). Together, these reports cover a period of three years; from March 2009 to March 2012.

5.2.1. Forum for exchanging ideas

Cloudworks has been developed in the belief that one of the key challenges in encouraging more innovative learning design is getting teachers to share designs and exchange ideas. The site is a public space that enables communities to form around events, ideas, designs and questions that are posted as 'clouds' , commented on and added to. Clouds are intended to act like collective blogs in that additional material can be added and will appear as series of sequential entries under the first contribution and they are like discussion forums in that users can post comments which also appear sequentially. Clouds also enable aggregation of resources (both links and academic references can be added); and finally they have a range of other 'Web 2.0' functions, such as 'tagging', 'favouriting', RSS feeds, Twitter-like 'follow and be followed', and activity streams for different aspects of the site (see Fig. 5 below). Collectively these features provide a range of routes through the site, and enable users to exchange ideas in a number of ways.

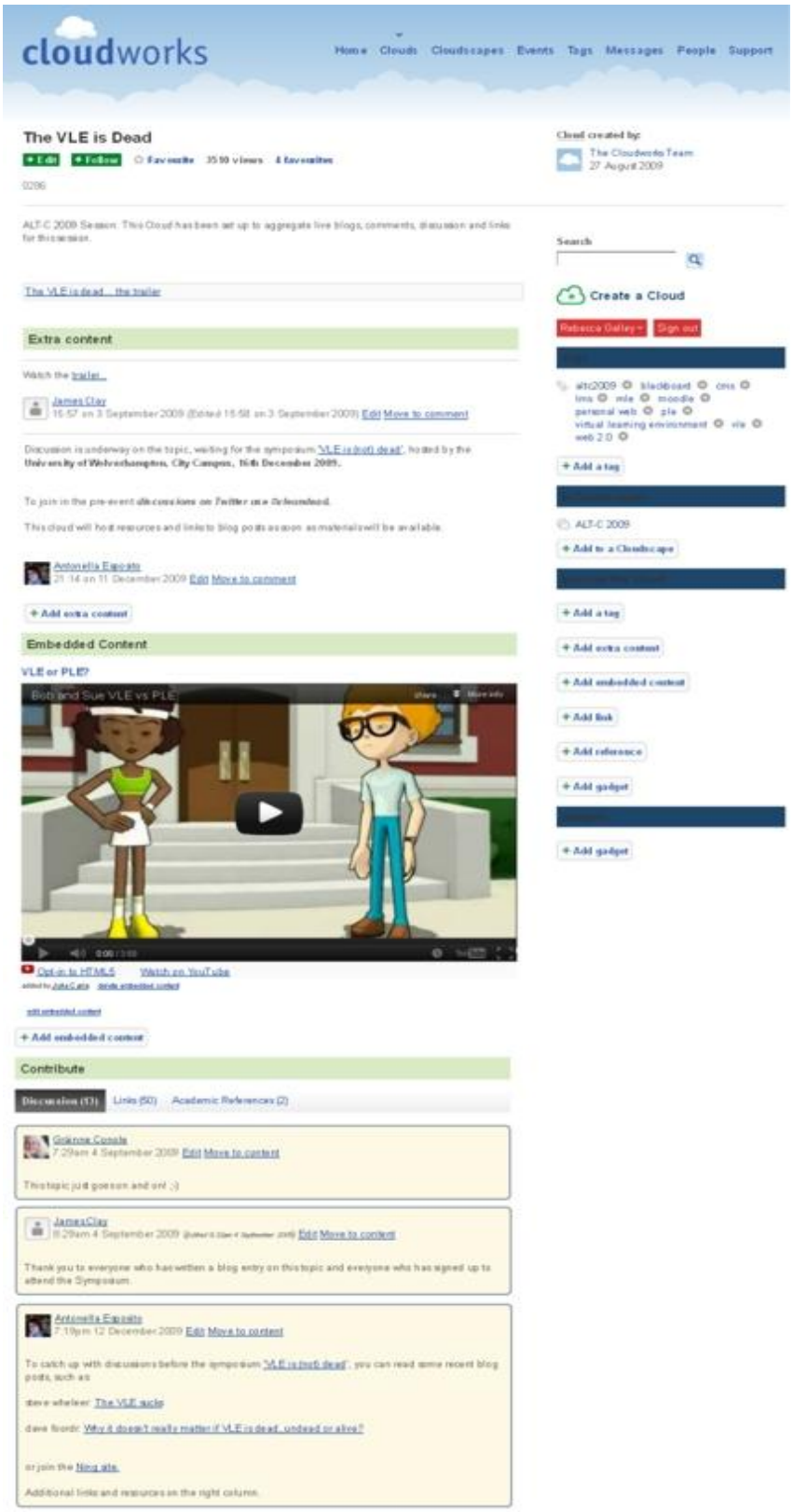

Figure 5: Excerpt from 'The VLE is Dead' Cloud showing range of functionality

By end of June 2012, just over 3 years after the launch of the site in March 2009, 4,829 Clouds had been created on the site and 5677 Comments had been posted (see Fig. 6, 7 and 8). Approximately 64% of the Clouds and 77% of the Comments were added by users of the tool (i.e. not the project team or close associates). The project target was to have at least 4,000 Clouds by the end of the project. This target has therefore been achieved.

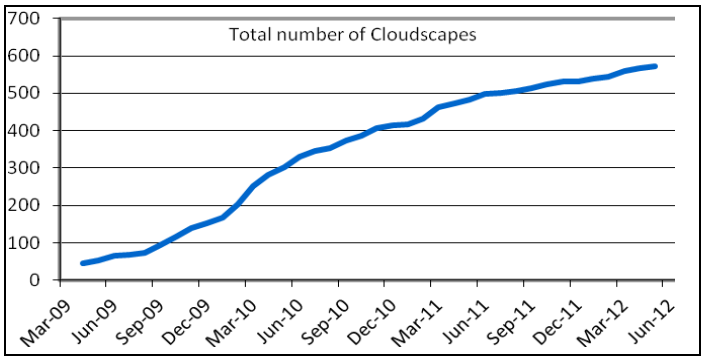

Figure 6: Cumulative Cloudscapes March 2009 to May 2012

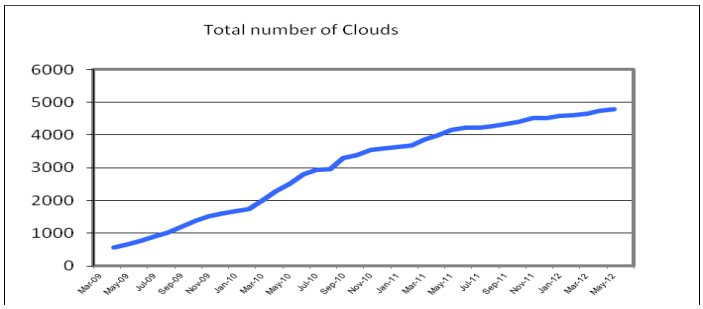

Figure 7: Cumulative Clouds March 2009 to May 2012

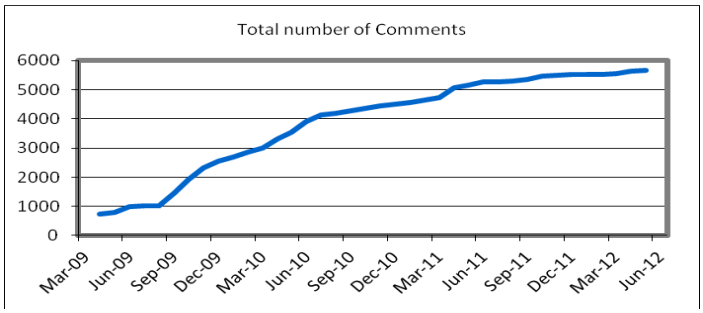

Figure 8: Cumulative Comments March 2009 to May 2012

In addition to activity by registered and logged in users, data indicates that since its launch, there have been more than 252,000 visits to the Cloudworks website and 1.2 million page views. In one of the busiest months, June 2010, there were 567 unique logged in users (6,169 unique visitors in total) and even in the last four months of the project - the winter months being a relatively quiet time in the Cloudworks calendar - the monthly average was 157 unique logged in users (4,732 unique visitors in total on average per month).

Statistics show that a high number of learning and teaching related information, resources and ideas have been added to Cloudworks: in addition to the 4829 Clouds

and 5677 comments detailed above, 4642 Links, 1577 Embeds and 1271 items of 'Extra content' have been added by June 2012. However, these contributions are distributed disproportionately across the site and this can lead to a mixed visitor experience. For example Cambridge University Pilot participants commented that many Clouds had no responses and that content, when found, was of varied quality, whilst another noted that there were 'lots of interesting snippets' and, when a third pilot participant returned to the site later, they were 'interested to see developments on some of their followed Clouds.'

A discussion session during the first Library Services Pilot saw a more detailed articulation of benefits associated with the sharing of ideas and knowledge. For example: '[it is a] central information hub', 'good for gaining opinions outside the OU,' 'informs about new developments,' provides 'another space to get involved in conversations with influential people,' and is an 'opportunity to find out what other people are doing.' Like in Cambridge University, participants found the apparent lack of structure and focus a barrier. Also mentioned as barriers were inconsistent use of terminology, people discouraged to post because it is open, lack of content in some Clouds and 'new initiative' fatigue.

Interviews with Cloudworks users show that Cloudworks has particularly appealed to those 'looking for a specialised social network about e-learning', and that users engage with the site to share ideas and knowledge in very different ways. In one interview, a user describes how she perceives what other people are doing in the site:

> *"I am able to distinguish different kind of users - occasional users who are interested occasionally in some particular Clouds such as conferences, or specific topics, or some idea from a journal, from news, from a newspaper, etc...Scholars who, for a while, debate about an ongoing issue or idea, or who have engaged in a face to face workshop and afterwards use Cloudworks".*

A 2011 user survey sent to 200 Cloudworks users achieved a response rate of 14% (n=27). The responses indicate that 12 (46%) found the content on Cloudworks appropriate for their needs whilst 6 respondent (23%) did not, and 7 (27%) replied neither agree nor disagree. The same survey showed that 7 (26%) agreed that their professional knowledge or understanding had increased (15 (56%) replied neither agreed or disagreed and 3 (11%) disagreed). Seven (26%) respondents agreed that Cloudworks had or would have an impact on their practice, whilst 6 (22%) disagreed and 12 (44%) neither agreed nor disagreed. This data indicates Cloudworks helped around a quarter of users achieve an increase in knowledge or impact on practice whilst around half were still uncertain about whether it will be of use to them.

Two longitudinal studies of Cloudworks users (Group 1 who registered in 2009 (n=250) and Group 2 in 2010 (n=93)), shows that around two-fifths of those who registered made one or more contributions to Cloudworks (Group 1=39%, Group 2=38%). However, just 20 of the 250 in Group 1 (8%) and 4 of Group 2 (4%) went on to make contributions a month after registration. This perhaps indicates a core of 5-

8% of contributors which is similar to levels of participation notes for other websites (Cross, 2011).

Four further points emerge from the longitudinal analysis. Firstly, that in the second year (2009-10) 18 people from Group 1 made one or more contributions. This would indicate a consistent core of between 5-10% of users. Secondly, that users seem more likely to contribute to Clouds created by the project team rather than Clouds created by other users. Thirdly, a review of all contributions by the original 'core' group of 20 users (to 103 Clouds) shows an interesting pattern of activity:

- 40% were associated with workshops or events that had been held in a face-to-face context
- 20% were posed questions – the Cloud asking the community for comment or feedback
- 10% were about or referred to 'real things' such as reports, tools, objects or publications
- 7.5% were about virtual media (online newsletters, re-tweets etc.)
- 7.5% focused on presentations that had been made (e.g. at a conference)

These figures indicate that Cloudworks has proved particularly useful and effective for supporting conferences, virtual events and 'flash' debates. Lastly, there was found to be a relationship between the number of contributions made and the proportion of that group who have shared personal information in their Cloudworks profile (Twitter link, personal website, and/or photograph). So, whilst only around 10% of those who made just one contribution had also shared personal information, around 75% of those making 11 or more contributions had personal information in their profile (Fig. 9). This could indicate a link, one perhaps not unexpected, between scale of contribution and willingness or ability (technical ability, availability of a Twitter account etc.) to share personal information (Cross, 2010).

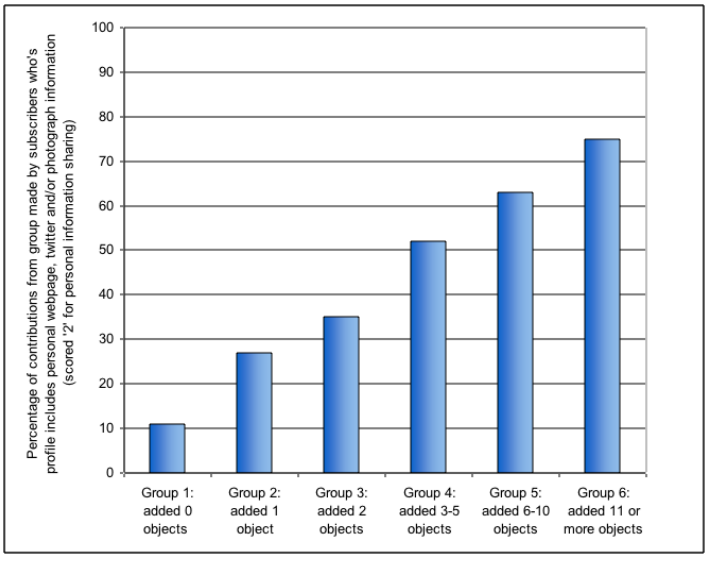

Figure 9: Contributions made and proportion of group sharing personal information

A review of the factors impacting on participation and the emerging patterns of behaviour are summarised in section 5.2.6 and discussed in more detail in the *Cloudworks Phase 1 and 2 Report*, in conference papers presented by the project team, and in two case study reports (Galley, Conole & Alevizou, 2010; Galley, 2010a).

5.2.2. Collation of tools and resources

The 'Learning Design Toolbox' Cloudscape – the central place the OULDI-JISC project has used to collate curriculum design tools and resources – has been viewed by 7982 distinct guests (i.e. distinct IP addresses) from 65 countries (to June 2012) and features 69 Clouds in total (22 activities, 24 resources and templates, and 23 tools). In addition 143 comments, 96 links and 25 embeds have been added to the Cloudscape by 64 distinct registered and logged in users.

The Cloudscape has been used to support a number of learning design workshops, including the annual JISC-CETIS 'DesignBash' in 2009, 2010 and 2011.

5.2.3. Collaborative learning design

Despite its other successes - and although there has been a great deal of very productive sharing of 'snippets' of practice on Cloudworks (discussing and sharing a new teaching tool, or a teaching and learning experience, or asking a tricky and interesting pedagogical question) - there has been disappointingly little sharing, iterating and developing of what might be described as 'worked' learning or curriculum designs. Furthermore, feedback from workshops, such as that held in Reading and Brunel, indicate lukewarm interest in using it for online open module design.

This is not to say that the argument - the 'potential' - for using it for collaborative design is not been well understood and accepted. For example, the Library Services Pilot reported most participants 'thought that Cloudworks would be a useful tool for communication … with module teams' (Galley, Reedy et al., 2012) whilst an OU associate lecturer posted on Cloudworks: 'it could be a great place for Course Teams to collect feedback from Associate Lecturers and staff tutor, for example, or associate lecturers might like to brainstorm some tutorial strategies for a specific module.'

The problem of realising online educational discussions around representations of learning is complex and shared by other learning design communities. For example, Dalziel (2007, p.383) writes of LAMS community discussion:

> *"Educational discussion of learning design issues remains patchy, whereas by comparison, technical discussion of the software is rich and sustained. While this pattern has been mirrored in the Sakai community (Masson, 2006), successful implementation of the learning design vision requires rich educational discussions*

of implementation and experiences with students. This suggests the importance of critical mass and active engagement by educators".

Given this history, the OULDI-JISC project was aware that achieving the aim of stimulating and supporting collaborative design practice would be a significant challenge.

There will be many reasons why individuals or groups decide not to use Cloudworks to share designs but a re-occurring theme from interviews and surveys relates to its open nature. For example, one OU associate lecturer felt 'there are many things [that] people discuss that are purely OU-related and/or not really fit for external consumption.' In the FELS Pilot it was decided not to use Cloudworks because they wanted an 'invitation only' space, however, even when a closed space was created it was used 'very little' by the wider academic module team (although was used effectively by Library Services and to a lesser extent the Course Chair (Galley, 2012a, p.25). According to an OU survey (n=37) staff prefer to share with a specific group, team or faculty, or individuals they know. Sharing with the wider community was ranked lowest (of five options) by 73% of respondents (Cross, Clark & Brasher, 2009).

Clifton (1999) suggests an underlying reason for this apparent self- or localised-interest may be distrust: '…when people do not trust each other, and when they do not share norms, obligations and expectations, as is presently the case in many universities, the community is not likely to develop.' Lack of a 'sense of community' is something also revealed in the Cloudworks user surveys. Only 3 of 22 respondents said that *they* felt part of a community on Cloudworks (with 8 disagreeing) yet more, 8 respondents, felt there was *a* sense of community. This shows some users felt outside the communities forming on Cloudworks.

5.2.4. Forum for exchange of designs

The project team have undertaken promotion and support work aimed at encouraging design exchange and the outputs of workshop activities have often been uploaded: for example the six module maps created during a Brunel Pilot workshop have on average been viewed 375 times each and Clouds created at the LSBU Pilot workshop have been viewed over 250 times.[2]

In the case of the Brunel Pilot, there is some evidence of workshop participants engaging in some discussion about each other's designs, and critiquing design practice, even though this is not sustained over time. For example, a team posting their design (Fig. 10) received the following comment:

[2] Follow links from: cloudworks.open.ac.uk/cloud/view/2598/links#contribute and /cloud/view/3666

"Ah, you put a stop in - I forgot that! This is a really good visualisation of a module. It's interesting to see this representation as opposed to the textual ones that we in the e-Learning team (via our SharePoint site's Document Archive) and students see. I really think a lot of the students would like something like this when they first start a module - an overview or so in this format. It's always good to give students a 'road map.'"

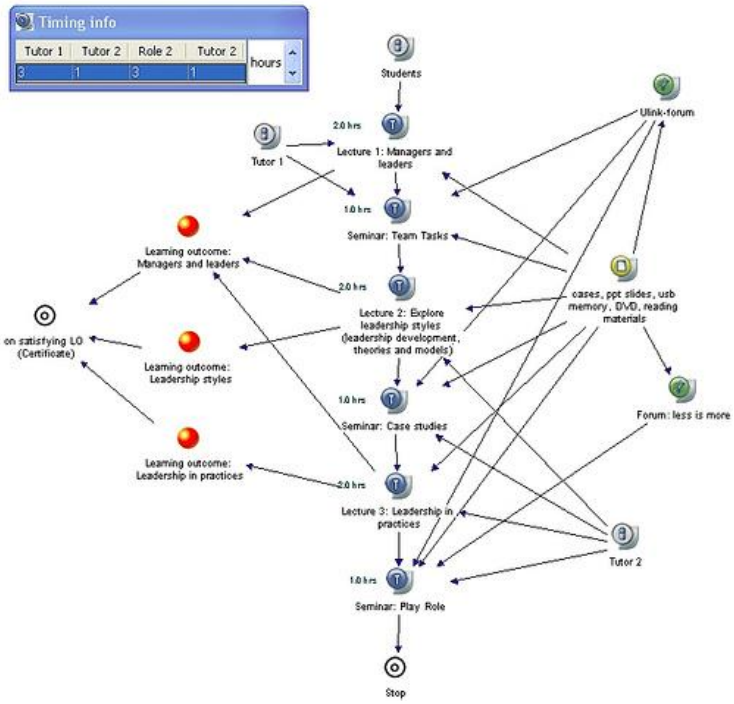

Figure 10: Sample learning design representation created in CompendiumLD

In order to encourage the sharing of worked designs, additional functionality and guidance was developed in collaboration with the LAMS foundation to enable the embedding of a far wider range of learning design formats, including LAMS sequences (see Galley et al., 2010), CompendiumLD maps, Google documents and forms, and Prezi presentations. This development appears to have had some limited impact in that a few educators have started using the site more to collate and share designs. For example, since September 2011, 14 role play designs from the EnROLE project repository have been added, and the co-ordinator for the University of Nicosia's LAMS system has shared 7 of his LAMS lesson designs to the site (see Fig. 11).

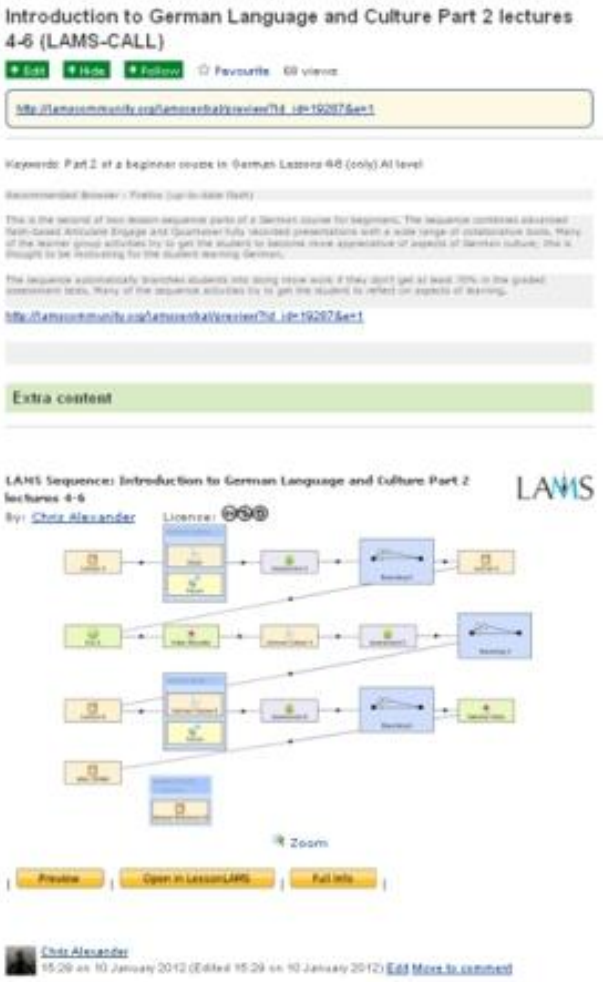

Figure 11: LAMS lesson design shared on Cloudworks

Yet despite Cloudworks presenting a rich forum for exchange there is little evidence that acts of sharing have prompted any extended or deep, conversations and exchanges between different teams. Some reasons for this lack of exchange will be similar to those discussed in Section 5.3.3 above and may indicate there is little demand, confidence or desire for practitioners to exchange or critique designs. In addition, due to the difficulties many find in representing their designs, the lack of exchange may in part be because curriculum designs are not being communicated (represented) well enough.

5.2.5. A self-sustaining tool with a critical mass

The concepts of 'self-sustainability and 'critical mass' are often discussed together, although sheer numbers may not alone be enough to ensure Cloudworks use can be sustained by its user base.

Data for the number of Clouds and Comments shows that the proportion of Clouds and Comments added by general users (rather than the project team) was higher in 2011 than in 2010 (Table 6). It also shows that in the first 6 months of 2012 the proportion of Clouds added by general users has increased again, and although the proportion of comments has dropped slightly, it remains high. This would seem to indicate that responsibility for adding content to the site is now firmly located with the users rather than the project team.

Year	User contributed Clouds	User contributed comments
2010	72.0%	81.1%
2011	86.2%	92.8%
2012 (first 6 months)	89.4%	88.9%

Table 6: Proportion of Clouds and comments added by general users

Yet despite this trend, the overall number of Clouds added fell by half between 2011 and 2012 (from 1,984 to 942). The number of Comments posted fell by a similar proportion. As the graphs below indicate (Fig. 11 and 12) there is not a consistent correlation between numbers of project team contributions and use overall. It is therefore difficult to determine if these falls are connected to the lower amount of contribution made by the project team.

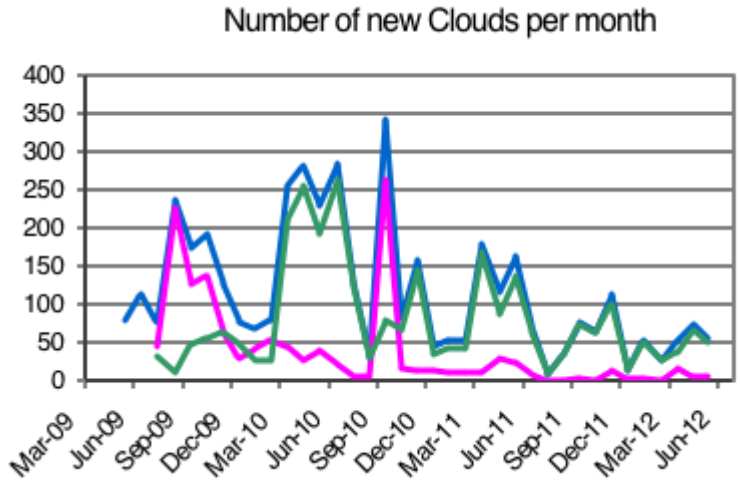

Figure 11: Number of new Clouds per month

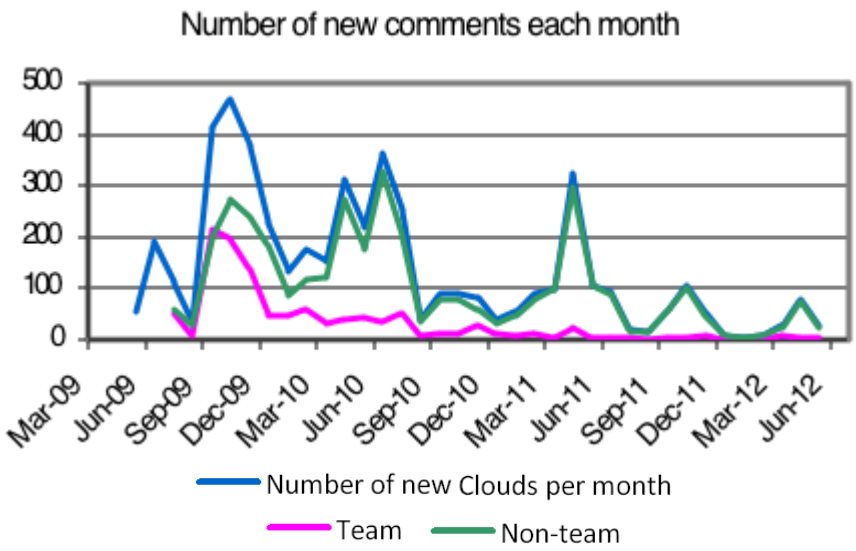

Figure 12: Number of new comments per month

An alternate measure of self-sustainability is how well Cloudworks has become embedded in the formal and semi-formal practice of associations, institutions and groups who use the site. The Cloudworks Phase 1 and 2 Report (Galley, 2010c) reviews four cases of groups using Cloudworks: Ascilite 2008, OER Monterey 2009, ALT-C 2009 and JISC Innovation Forum 2010. It found that 'most often, conference Cloudscapes were set up by delegates as an informal backchannel to a conference, rather than by conference organisers' and where used 'by conference organisers, they tended to be structured more logically, with placeholder Clouds set-up for live-blogging and discussion.' Institutionally, Cloudworks has been used during a number of events or conferences such as the Learn About Fair (2012), Widening Participation to Postgraduate Education event (2012), the *OU Open* Conference and IET 'coffee morning' series. Elsewhere it has been used by the International Blended Learning Conference and as backchannel for Cambridge 2012 and Oxford Design Bash 2011 amongst others.

Several communities of practice have also created Cloudscapes and Clouds, often with the support of the project team. This includes the Mobile Technologies Special Interest Group (OU) and the ELESIG community of practice (Whitehead, Sharpe, Galley & Culver, 2010).

The OULDI Project has also published the code developed for Cloudworks as CloudEngine (Freear, 2011). This code, distributed under a GNU General Public License version 2, uses PHP 5 and a MySQL database and is built on the CodeIgniter framework. It is intended to be lightweight and easy to install by other institutions keen to run such a site.

5.2.6 Community success factors

By adding new social functionality to Cloudworks during Phases 1 to 3, the site has become better connected to other web 2.0 communication channels (namely

Twitter, blogs). This has enabled further self-oriented as well as collective dimensions of engagement. At the same time, blended communicative practices were promoted in the face-to-face pilot events, such as workshops, seminars and conferences, resulting in new patterns of activity in Cloudworks. Table 7 (from Alevizou et al., 2010, 2011) summarises the patterns of activity pointing to types of uses as they evolved over time and through the added functionalities.

Core types of activity	**Evolutionary trajectories in use/activity**
Events (supported and serendipitous) Workshops Conferences Virtual seminars/conventions	Increased number of requests to Cloudworks team for setting up pre-designed spaces for spaces (summer 2009) for events: a) richer record of events in relation to a) embedding papers & presentations; b) audience responses and dialogic interchanges (back-channels) Increased number of users setting up ad-hoc spaces for back-channel activities (Autumn 2009)
Audience/interest group targeted cloudscapes for specific research idea/project or teaching topics & pedagogies	A raised activity regarding users outside the Cloudworks team setting up Cloudscapes (60.2%) (Aggregation of topics with more followers; increased personalisation and projected topic-oriented sociality) (Autumn 2009)
Topic/Question oriented sociality	Essentially dialogic in nature – Clouds or Cloudscapes which raised questions and issues and provided a shared space for users to discuss. A new pattern of activity sparking 'flash debates' is evident from Summer 2009. Provocative questions and polling style activities – often transferred from the blogs and twitter – generate rich and immediate discussions An aggregator, a record and focal point of discussions in a public space
'Open Research Reviews'	Researchers posing their research questions and aggregating relevant resources, but also inviting others to contribute and discuss (Autumn, 2009)

Table 7: Core patterns of activity and evolutionary trajectories (from Alevizou et al., 2010)

Over time, the project has found it difficult to understand the transactions and emerging patterns of activity witnessed on the site. This resulted in the OULDI team looking for more effective ways to interpret the empirical evidence being gathered and better promote sustained and productive participation. The project sought to explore how observations of interactivity on Cloudworks fits theoretical frames such as ritual performance, collective intelligence and expansive learning (see Alevizou et al., 2010, 2011) and began to relate empirical evidence gathered from the site to the literature from a range of disciplines concerned with professional and learning communities. In looking at research relating to distance learning communities, studies into Computer Mediated Communication (CMC), self-organising communities on the web, and wider research about the nature of learning organisations and continuous professional development it was concluded that no one perspective or 'frame' sufficiently explains the observed interactions.

In particular the team became interested in models that could represent more loosely tied and open groups (as opposed to more bounded, closed communities) and looked at Wenger's (1998) and Brown and Duguid's (2001) ''Networks of

Practice'', Wittel's (2001) concept of ''network sociality'', Garrison et al. (2000) ''Communities of Inquiry', and Fischer's 'Communities of Interest.' This research was used by the OULDI project team to create a new composite framework for indicators of community (Galley et al., 2012).

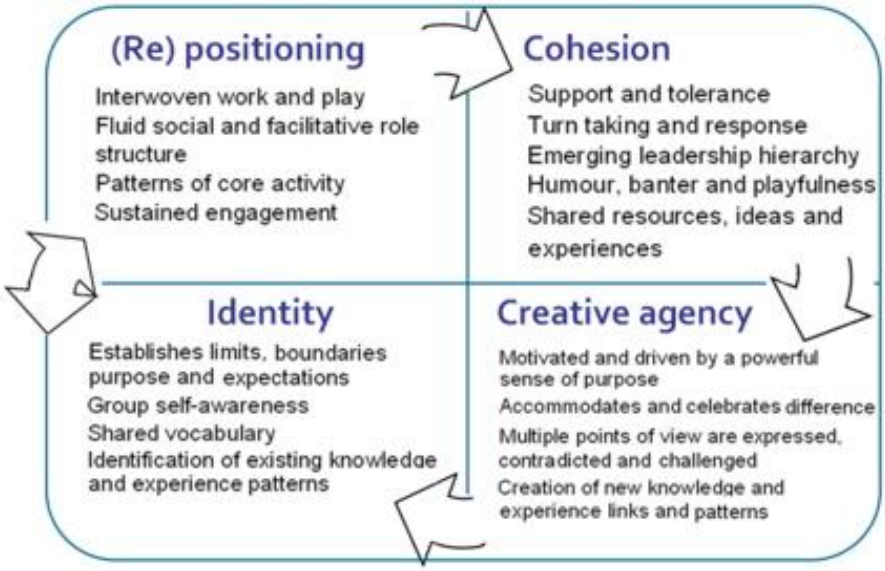

Figure 13: Indicators of Community Framework, Galley et al. (2012)

This framework has been used by other researchers in the university who continue to validate and test it. In addition to supporting evaluation and iterative development of Cloudworks, the framework has been used to develop support and guidance materials for the site.

5.2.7. Fit for purpose and usable

Cloudworks was developed over three phases and during each phase adopted a iterative development approach. This has enabled us to respond to emerging user needs and feedback. In addition, expert testing of the site was conducted at the beginning of each development phase.

Usability testing was conducted by a Human Computer Interaction expert using a Heuristic evaluation approach i.e. an expert review of a website based on a heuristic set of protocols. Testing was scheduled at the beginning of phases 2 and phase 3, so that changes could be made with the least impact on the end user and as an aid to reducing the costs of re-engineering the website (Jelfs, 2009a; Jelfs, 2009b; OULDI, 2011).

The expert viewed the website to look for navigational issues, consistency of web pages, how easy it is to recover from errors made by the user, how easy it is to 'learn' the metaphors (i.e. Clouds, Cloudscape, Cloudstreams) used on the website and the colour contrast and visual appearance.

An audit in respect to the accessibility of the site (for those with disabilities) was also undertaken after phase 2. The site was tested by an Web Accessibility expert with IE7 (including largest font setting), under Windows XP, and with Jaws 11, ZoomText 10 (screen magnifier), Windows High Contrast display setting (large font, white and yellow on black), Dragon 10 (voice recognition), and Colour Contrast Analyser tool version 2.2 (Colwell, 2010). Cloudworks was found to offer a very high standard of accessibility, particularly in comparison with other social networking sites. The accessibility audit and the open source code to support others in improving the accessibility of the software, is available on the project website.

User feedback

After each developmental phase, Cloudworks users were invited to complete a questionnaire survey. For example, after Phase 2, the team sent emails to 299 randomly selected users and posted a public invite on the website. In total, 22 complete responses were received. These show that half agreed that Cloudworks was easy to use (11 respondents) with several saying they enjoyed reading about new projects, interesting new ideas and research, with one reporting 'it is fairly intuitive [I] just have to read it 2-3 times before '[I] get it'', another that it is 'simple and straightforward' and a third 'I get absorbed in discussion and following links (Galley, 2010b). However, for many users the navigation and organic evolution of the site structure presented difficulties. For example, the Cambridge Pilot report found that 'Cloudworks was poorly received' with feedback showing participants found it fragmentary, difficult to navigate, and difficult to find relevant content. This issue of navigation was also mentioned by a respondent to the user survey: 'I've almost totally given up using Cloudworks, since I find it extremely difficult to locate things which I've entered myself, let alone anything else' whilst another said its 'just hard to find stuff and it is hard to know all what is available' (De Baets & Sheppard, 2011).

In an interview, one user suggests the site could do more to communicate how the site is used:

> *"I think it could be interesting ... to let newcomers know how many different clusters of users are active in these social networks because I think the [banner] on the top of the home page 'to share, find and discuss learning and teaching ideas, experiences'. I think that view does not express the complex reality of this social network"*

Feedback from staff participating in the Cambridge Pilot appears to show that Cloudworks was challenging the conception of what a 'support tool/resource' should look like. For example, one person asked 'is it a resource store? A forum? A social networking site? I can see the answer maybe …all of the above' whilst a survey respondent complained 'it's trying to *both* a repository and twitter.' It also shows how a user can find the site frustrating when they were unsuccessful in finding enough about their subject. Searching by subject rather than by pedagogic, teaching or learning practice illustrates how many staff continue to view pedagogy through

the lens of their subject content and how this expectation may influence how a user feels towards Cloudworks.

A series of supporting documentation and activities have been developed for Cloudworks. These include pages about sharing learning designs and resources, using twitter in Cloudworks, information for conference organisers and delegates, getting the most out of Cloudworks, FAQs, Slide share and video presentations, and a 'CloudQuest' activity.

5.3. CompendiumLD

5.3.1 Introduction

CompendiumLD is a software package designed to help create, edit and share diagrams of teaching and learning. These diagrams may show the sequence of learning tasks, the relationship between elements of the learning such as objectives, tasks, resources and assessment, or a mind map of content and related student activity.

The decision to develop CompendiumLD was informed by claims that the advent of e-learning is making the process of creating modules more complex, staff are feeling more overwhelmed by the challenge of how to effectively integrate ICT in a course (Agostinho, 2008), and that staff find it is becoming harder to understand how all the parts or components of planned learning and teaching fit together (Falconer & Littlejohn, 2007). A survey of OU staff found over 50% agreed or agreed somewhat with these three claims (n=50) (Cross, Clark & Brasher, 2009). The project team were also interested in how visual mapping could promote creativity in the design process. Research undertaken at the OU in 2007 and 2008, comments from key stakeholders gathered at a stakeholder meeting and previous work on concept mapping indicated that a tool such as CompendiumLD could help users:

- Reflect on and improve teaching and learning ideas and design
- Check for coherence and clarity
- Demonstrate that the design has been well thought through
- Plan module development specifications
- Share understanding of what the module looks like with others
- Be create and thing thought new ideas.

CompendiumLD provides a set of specially designed 'learning design' icons and a blank canvas on which to map these out and draw lines to connect elements together. The canvas can be as large as the user wants, even composed of nested canvases, and the maps can be saved and exported as images.

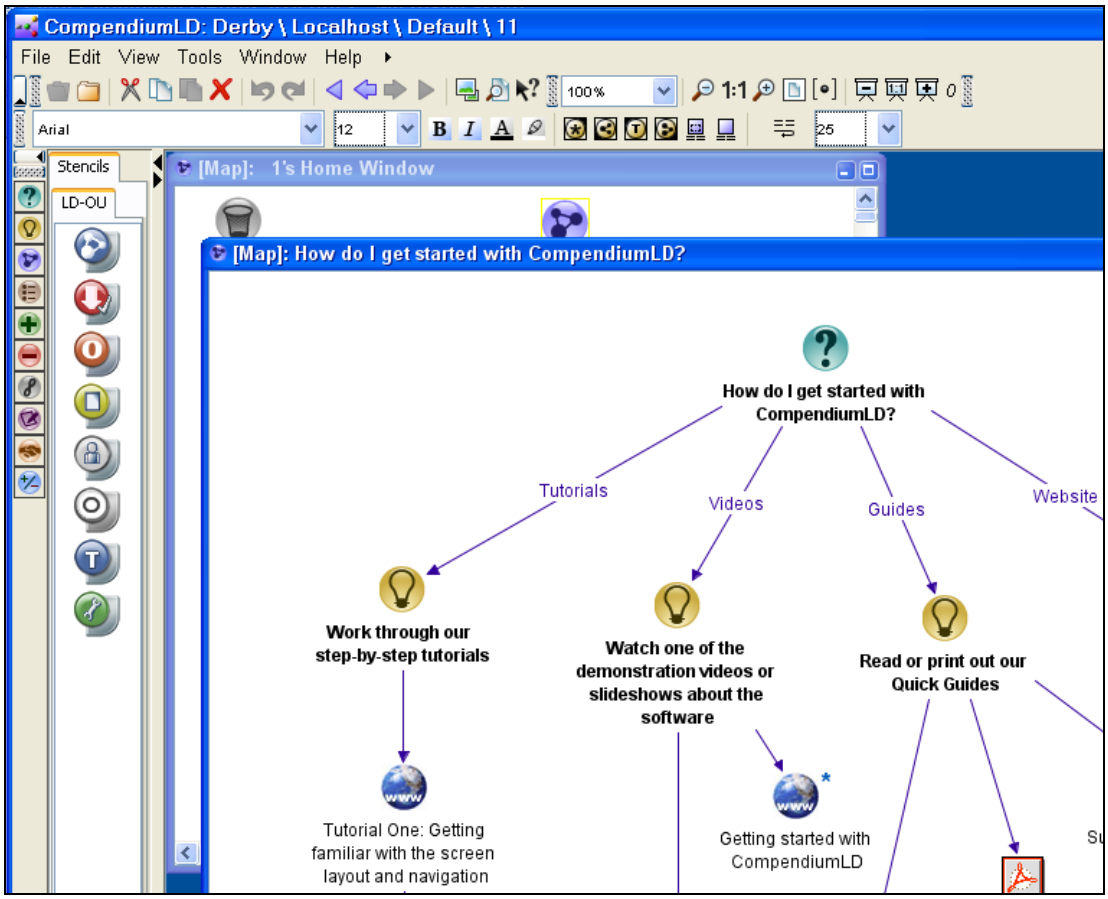

Figure 14: Screenshot of CompendiumLD version 1

5.3.2 Use in Curriculum Design

CompendiumLD has been downloaded over 2,000 times. This demonstrates a degree of interest in the tool although use remains limited to individual practitioners rather than as a mandatory requirement of a module design process. The case study narratives give several examples of individuals who have gained benefit from using the software. For example, a participant in the Cambridge Pilot noted 'I suspect this could be a very powerful tool in the right hands,' whilst an LSBU academic who was familiar with visualisation techniques 'picked up the concept and 'ran' with it… see[ing] the value in the methodology.' Others outside of the pilots have also provided positive feedback. For example Donatella from Italy commented that 'all in all, I think this way to represent does have advantages with respect to more verbal approaches: it perhaps takes more time to learn it, but the final result is more 'readable.'

These examples show that CompendiumLD is a tool that needs to be used within a broader design-based approach to creating a curriculum it would therefore appeal to those already more experienced in learning or curriculum design, as this quote from our Reading Pilot shows:

> *'CompendiumLD and course design is a mode of thinking and I think that we were implementing it beforehand… we are getting very good feedback and good*

> *student outputs. So I think the thoroughness…was aided and abetted by the software process I suppose – the 'tool in use'… Personally – and it's a bit radical to say this -… my view is that its revolutionised our thinking [about] learning and teaching'* (Papaefthimiou, 2012, p.73)

This quote is from someone who has used concept mapping techniques before. However, for many staff, visualising a module *and* using computer software to do this are both new skills to learn:

> *'Staff have generally not visualised their designs in the past, apart from possibly flipchart or pencil and appear efforts at times (due to the traditional nature of face to face teaching. They were introduced to CompendiumLD for the first time. The opportunity to reflect on the design of their programmes, their personal design practice, and the range and balance of topics ... were generally commended.'*

So for some 'getting their head around' CompendiumLD, or rather the representations it enables users to create, can be a significant change. The fact that many staff did not appear to have or be keen to learn visual techniques to map, understand and design module was a consistent observation across the pilots. The authors of the Cambridge Pilot Report concluded that to use CompendiumLD would require 'formal training' (something not provided in the Cambridge Pilot) to get used to the user interface and gain 'command of its underlying concepts of curriculum design.' This last point suggests that using CompendiumLD may require a conceptual frame as yet unfamiliar to many academics.

One key purpose of CompendiumLD has been to promote creativity and problem solving (solving of un-structured problems) in module design by a better understanding of relationships between module elements. Some feedback recognises this, for example: '[I got benefit from] visualising module or course design through CompendiumLD and' [there was a] very good focus for developing a complex case study based module using Compendium[LD] as a vehicle for refining design and delivering strategy' (Papaefthimiou, 2012, p.41-45).[3] Elsewhere, it would appear CompendiumLD is being used to teach teachers design (at the Open University and University of Geneva) and before the building of a LAMS sequence (Brasher, 2012).

Whilst the initial 'blank open canvas' has appeared daunting to some, for others who preserve it becomes easier to recognise the benefits as these two comments show:

> *'The mind-map structure is open and invites a creative response to the design, but some designers my find this lack of structure limiting. There are some stencils, or sample templates to use to guide the planning. The separate components of the design, tasks, resources etc, are indicated by icons that can be moved around the*

[3] Feedback from three separate workshops all show CompendiumLD related sessions scored an average of 4.0 out of 5 (i.e. average score of 'useful') (n=9).

screen and linked together. This allows for easy exploration and revision of the design. The output is a mind-map of the design that is clearer and could be shared with colleagues for annotation and editing.' (Posting on Cloudworks, member of staff from University of Hertfordshire)

'I met some difficulties in modelling the learning scenario in CompendiumLD:… what information must be presented on the map? [Then] I discovered the … sequence mapping icons. These are a great way to guide the implementation of the concept map! Finally, I realised that a concept map, well-built and well-reasoned a priori, [can be] used to implement the [LAMS] activity in a very easy way.'[4]

One method to better engage those unfamiliar with visualisation was trialled during the second LSBU Pilot workshop. Here participants were asked to do the same visualisation task (build a task swim-lane) as at other workshops, but this time using paper with stickers of the CompendiumLD icons rather than using a computer running CompendiumLD. The LSBU report notes that 'most academics are less skilled in this area; for them sticking to paper-based tools in a face-to-face situation has proved a better option' (Brown, 2012, p.9).

At the OU, feedback from a workshop with media developers and editors showed 15 of 18 respondents agreed or strongly agreed that CompendiumLD is a useful tool for learning design, 12 of 18 found the template layout useful and half that the workshop had changed the way they think about and visualise learning design. For this group the main potential benefits were in supporting communication, creativity, clarification ('…of potential complex problems') and use in production processes and planning (such as future specifications, helping picture research, preparing drafts, and identifying gaps). As one participant said:

'I think that it would be useful for course [/module] teams to use devices like CompendiumLD when planning their courses. It would be good to have a visual representation of what the course was going to do, and how it was going to do it, at an early stage in course production. This would help to ensure that everyone involved was clear of the production plan, and would be able to understand their role accordingly.'

This quote hints that one key benefit of CompendiumLD, or rather the visualisations it can help create, could be to the overall design process (the communication of designs rather than sole use by a particular individual). Indeed, the last phase of our CompendiumLD development has focused on building functionality to embed SVG images (design maps) in to webpages to facilitate sharing (see Section 2.4.2 in Brasher, 2012).

The potential for using CompendiumLD as a tool to create designs for sharing has been mentioned in several case study narratives and user comments. At LSBU an

[4] Translation of a post in French by Donato Cereghetti

academic used screen capture to grab CompendiumLD images and share them with colleagues whilst a Reading academic said they shared CompendiumLD maps with colleagues in Manchester.

There are also several examples of those studying the OU's H800 module (which introduces CompendiumLD as a potential design tool) posting their design or comments on Cloudworks. In one example, the designer posts their learning design and says:

> *'in an attempt to use some of my new H800 learning I am attempting to change my existing traditional (read boring) [sic] lessons to ones which involve the use of a wiki. Based on an idea by a fellow H800er I've produced a compendium[LD] design which I submit to the Cloudworks community…'*[5]

Whilst for another student who posted on Cloudworks, CompendiumLD, when combined with Cloudworks 'is going to change the way I plan and deliver learning for my students.' Further analysis on the use of CompendiumLD in H800 was carried out to inform the development of the tool (Brasher, 2010). Other examples independent of project, include someone from the University of Augsburg who found CompendiumLD a 'most interesting … smart (and free) little tool for visualising course designs' and an anonymous poster who listed their initial reaction to CompendiumLD which included 'forces me to self-interrogate,' 'powerful but confusing, 'not too complex' and 'useful and playful.'

Given the challenges to implementation outlined above, the evidence shows that CompendiumLD has not yet achieve widespread use and, whilst more favourably received by many teaching and learning specialists and some with a professional interest in teaching and learning, it remains considered by many academic staff as a specialist design tool or one that has yet to convince the time investment will yield return – put another way, that the problems or errors in a design that such visualisation can help reveal are not considered worth the additional effort by academic members of staff. Not only does this indicate that some lecturers do not really see themselves as 'designers' of learning and teaching (whilst of course many others do) but that decisions to use the tool are influenced by time prioritisation, perceptions of (acceptable/satisfactory) module quality, and it also raises the question of how and with what to convince academic staff. This latter point does not appear to be simply a question of evidence however – the examples cited in the project reports demonstrate benefit can be had – but that practitioners from different subject fields require different types or levels of evidence and that, in some cases, asking for more evidence has been a convenient way to defer or avoid engagement.

[5] Cloud created by Rodell, A. (2011*).* H800 is an OU postgraduate course in which CompendiumLD is introduced to students. There were no replies or comments on this cloud. For another example see //carolt.edublogs.org/

5.3.3. Usability (fit for purpose)

CompendiumLD is based on the Compendium software developed by the Knowledge Media Institute. Compendium was developed as a knowledge mapping tool rather than a tool expressly configured for learning or curriculum design. This reuse of an existing product was essential in order to keep development cost down but also made sense because it saved duplication of effort. However, as with all reuse, the project inherited a particular user interface, code and data base structure and generic support materials. Development has, therefore, been partly concerned with changing the existing software so it is more usable for educators, and partly with developing new functionality to support the user in designing.

The CompendiumLD Report outlines feedback from expert usability testing and that gathered direct from users. The report demonstrates how this feedback has helped direct development of the software and we have also encouraged users to critique the software and offer suggestions for improvements (Brasher, 2012).

5.3.4. Guidance and Support

The project has produced a variety of guidance and support for CompendiumLD. This includes:[6]

- CompendiumLD hand-out
- Getting Started with CompendiumLD: Slideshare presentation (4,973 views)
- Doing More with CompendiumLD: Slideshare presentation (2,284 views)
- Video of a 'worked example' by Paul Clark in 2008 (2,228 views)
- New Approaches to visualising, sharing and guiding: Slides (373 views)
- Two getting started tutorials (are available on website as PDFs) – one has also been translated in to French by a user
- Template for workshop activity using CompendiumLD (320 views)
- Activity idea for using CompendiumLD stickers and task swim-lane (771 views)
- CompendiumLD Task Swim-lane stickers (Slideshare) (482 views)
- CompendiumLD Briefing written in 2009
- Quick Reference Guide

Where available, the page view data appears to indicate several thousand people have been made aware of the software and the representations (principally the task swim-lane) that the software can help create.

In addition, there are a few examples of users posting their own advice and guidance. For example, Joe from Reading has posted his presentation 'Using CompendiumLD for Course Design' on Vimeo (130 plays) and Chris, who in a blog

[6] For CompendiumLD resources visit the CompendiumLD OULDI page and the Cloudworks clouds titled 'CompendiumLD', 'Application of CompendiumLD', and 'Activity: 45 mins: Task Swimlane'. Also this post at Edutechwiki.

entry said 'I have previously used spread sheets and word processors. This year I have come across CompendiumLD and I am finding it is useful in organising ideas and supporting files', added a cloud to Cloudworks titled 'Mistakes to avoid with CompendiumLD' (164 views). A Google search for 'CompendiumLD' shows that others , including academics, students and bloggers, have shared their attempts at using the software.

5.4. OULDI 'ToolBox' Design Tools

5.4.1. Module Map

The Module Map was developed by the OULDI project in response to the fact it can be easy to fall into the trap of primarily focusing on syllabus content, rather than whole student experience,. This is especially true when first starting work on developing a new module or programme. The 'at a glance' view provided once the 'map' has been completed enables the teacher / designer to describe the whole programme of study in terms of how the existing learning and teaching tools and materials support learner activity around four aspects of student experience (Guidance and Support, Content and Experience, Communication and Collaboration and Reflection and Demonstration).

The precise presentation of the Module Map has varied as the project has progressed and people have adapted it to their own needs. The four representations below (Fig. 15) show variants on the basic four 'zones' of the map. The top-right example (Leicester Pilot) shows a standard four zones with additional space for module summary and keywords. In the top-left example (Reading Pilot) the 'reflection and demonstration' zone has been split in to two and symbols added to show which unit each relates to. The same split is made in the lower-left example (Brunel Pilot) with two additional descriptors ('interaction' and 'evidence') added to create a 'communication and interaction' zone and an 'evidence and demonstration' zone. The final example is from Leicester and shows the most recent version of the map. Here each of the four zones has been further divided in to two - 'tools and resources' and 'roles and relationships' - in order to make explicit these two very distinct aspects of the design and to especially to avoid, as had sometimes been done previously, teams not thinking enough about roles and relationships.[7]

This further example of a completed Module Map from the FELS Pilot demonstrates the result possible when a module team work alongside a learning design expert (Fig. 16) (Galley, 2012a, p.13).

[7] Clockwise from top-left: Papaefthimiou, 2012, p.23; Alberts et al., 2011, p.21; Ibid. p.24; Nie et al., p.18.

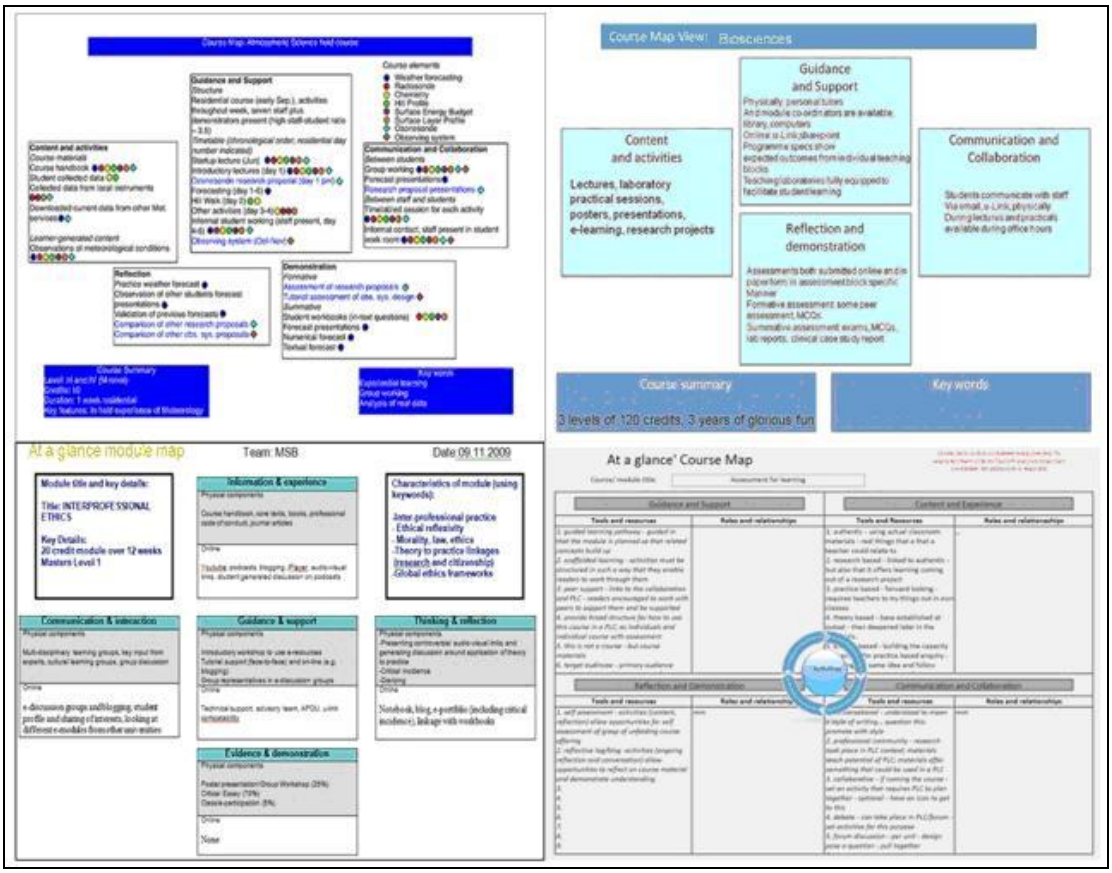

Figure 15: Four representations of the Module Map

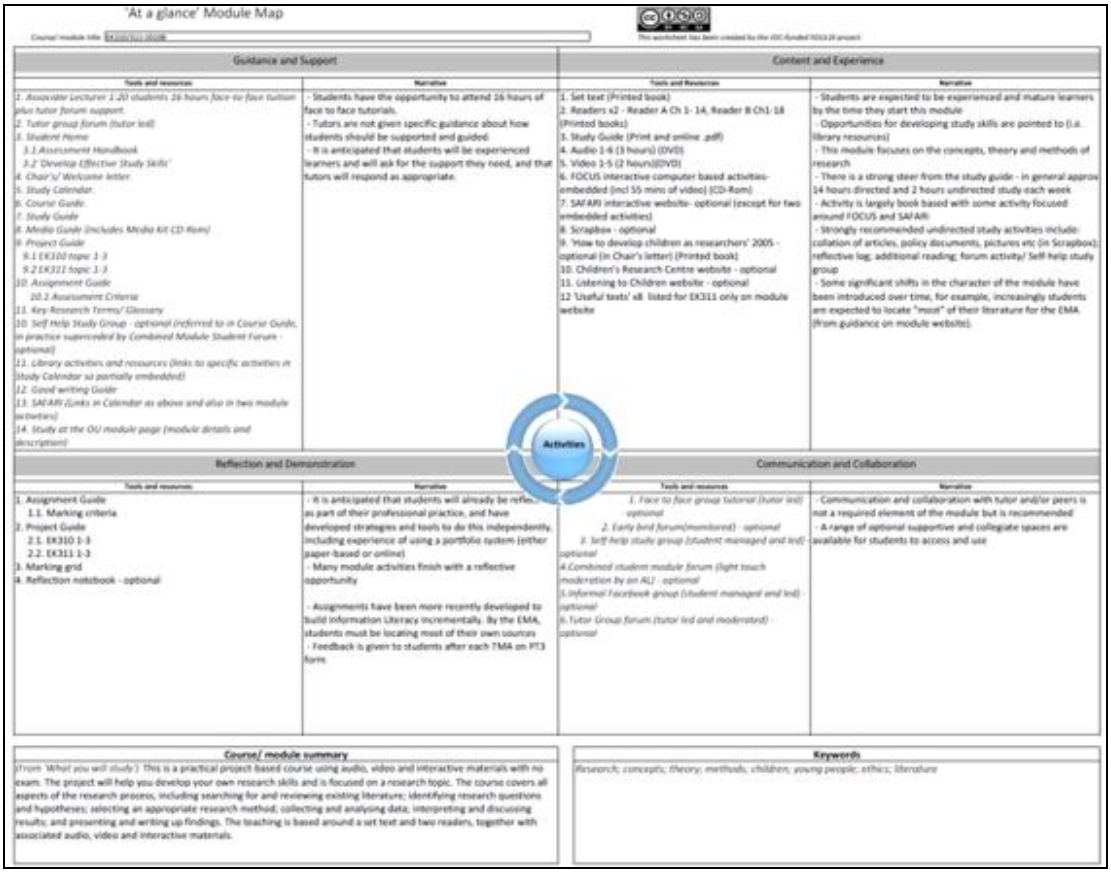

Figure 16: Module Map created during the FELS Pilot

Furthermore, even the name of the tool has changed from Course Map to Module Map in response to a change in terminology used by the university, and the label 'map' has remained despite the layout of the tool evolving; from four or five interconnected blocks to a table or, in the case of the OU's Curriculum Business Models Box (CBM Box), a form.

The Course or Module Map tool has been generally considered useful, especially at the early stages of developing a design where teams need to consider key aspects of the modules. Feedback from staff indicate the tool was useful because 'you can all see almost at a glance, what is where, when and how.' It is perhaps no coincidence that the project team informally refer to this tool as producing an 'at a glance map.' The tool also appears to help people think 'in more detail about the different elements of the module'. Yet whilst some mention how it helped in thinking about new technologies such as forums and blogs, for others it provided a useful reminder for even basic things such as how long the module would last, what media resources were required or the nature of student collaboration (for example, one workshop participant noted 'we never looked at the course [/module] and said 'how many hours do we want the participants to complete this in?').'

Furthermore the relational juxtaposition of the four zones in a broadly diamond shape help users move away from a linear list-based approach. As one participant from the FELS Pilot comments:

> '*The Module Map] takes it beyond an inventory so its not just about sitting down and just ticking off the materials at a very basic level it's actually looking pedagogically at what you've got and that I think is its main value. "The materials fit here, and this is doing this, and this is doing this' (Galley, 2012a, p.15)*

The more visual layout of the Module map also seems to help staff compare key aspects of several modules. This 'very visual method which does allow ready comparison' has resulted the module maps helping an academic or team to review other modules and/or to explore the curriculum fit of their new module. Examples can be found in the pilot reports, however, the following quote was actually posted by a user on Cloudworks:

> *'What I found interesting about this activity was seeing the focus of different faculty's courses. Based in Science, I thought that the reflective element was pretty much absent a lot of the time and I can think of only one task that involves reflection on one of my courses' (Comment by I Brown in Cloudworks)*

Workshop feedback and participant interviews show that whilst some have found the tool easy to use with relatively minimal guidance, others found that expert support or coaching enhanced their appreciation of, and benefit gained from, the tool. Contrast, for example, the fact that one user commented that it did not require

a ‘massive input of time to master the [tool]’ whilst in another case the sustained project officer input was considered necessary:

> *“As someone newly responsible for a module someone else wrote I was a little daunted at the prospect of having to know the module well enough to produce the module map, and I was struggling to gain an overview of it. I felt it was useful to work through it with someone who had experience of the tool, to discuss it and help me identify the type of objects that were needed. I found that the objects for the map emerged once I knew what I was looking for. Having gone through the process the map gives me a very useful categorised overview of the module. While working through the material I saw it with 'fresh eyes' and identified some issues that need to be considered further… This got me into the mindset that allowed me to continue on my own.”[OU pilot, which one?]*

Also in the feedback users report difficulties they have had with the tool. The root of a number of these may lie in the gap between the pedagogy on which the tool is based and that held by those using it, and in the users’ ability to navigate this gap. It is perhaps this that explains several examples where although the tool successfully achieved its aims (of making designs more explicit) the outcome was not valued by the user. For example, one participant in the Cambridge Pilot said that this tool ‘would be frustrating because there are so many points in there I would not be able to do anything about’. This indicates that the tool *was* seen capable of making the design explicit but that the designer did not want to be reminded they were (or at least feel) powerless to enact required changes. For a second participant, the tool challenged their understanding of what aspects of teaching and learning should be considered. They commented that it did not conform to ‘the handbook-style headings …topics, staff, assessment, teaching and learning approach’ and ‘many of the categories in the module map do not seem particularly relevant e.g. …how will students communicate and collaborate?’ For this participant making explicit what many others would consider an important aspect of learning (collaboration and communication) was not useful. This perhaps again is not a fault of the tool per se but the way a user responds to the new design space it opens.

Workshop observation undertaken by the project team indicates that the Module Map can offer a different, more thematic and student centred perspective than more linear templates such as the Carpe Diem storyboard. It would also appear that the sequence in that design tools are presented to users, even within a single workshop, may impact on up-take. For example, an activity using the Module Map followed an activity based on the Carpe Diem Storyboard yet according to the workshop observer ‘very few of the teams used the [Module] view at all.’ This was perhaps because the Module Map considers the module from a more holistic abstract level and therefore needs completing before more detailed planning and sequencing (be this the Carpe Diem Storyboard or CompendiumLD mapping) (Nie et al. 2012).

5.4.2. Pedagogy/Activity Profiler

The Activity or Pedagogy Profile is a bar chart representation which has been designed to help teachers (and learners) describe the distribution of tutorial and directed-study. The profile represents activities across six activity types derived from a learning activity taxonomy (Conole, 2011) and builds on an original concept first discussed in the late 1990's. The representation can be created by augmenting the results of a detailed unit-by-unit or week-by-week analysis but equally can be used as an expression of intent by the module team. It can be used at different times in the design process from first ideas to evaluation and review and provides a useful vocabulary for sharing with learners and other stakeholders how learners will spend their time while studying, and provides a framework for reviewing student workload patterns. It therefore, can help understand the balance and shape of learning activity and to contrast this with what the designer was, and is, intending.

The OULDI project has developed three versions of the tool; paper template, EXCEL spreadsheet template and a widget. Each have the same basic outcome - a bar chart showing the proportion of time a learner will spend doing activity associated with seven or so different pedagogies. Staff are encouraged to construct this chart by looking at component parts of their module (for example each week, or each unit) and estimating time spent. These times are totalled for each column. Where staff are using this to express what they *would like* the module to look like, they can simply sketch what they would like the bar chart to look like.

A montage of bar charts created by teams working with the activity profiler at Reading, Brunel, the Open, and Leicester Universities is shown below. There are examples of teams using paper, Excel (top left), and Widget (centre) versions of the profiler from a range of disciplines: from physiotherapy (top-right) to Social Science (top-left), Organisation and Behaviour Management (centre) to Biosciences (lower-middle).

The tool has been used in the project pilots to help staff express what pedagogically they would like the module to look like, to evaluate the profiles of other modules and, often a little later in the process, to contrast their imagined profile with the actual module produced.

Figure 17: Nine Activity/ Pedagogy Profiles created during the OULDI Pilots

Feedback for the Pedagogy (sometimes called Activity) Profile has generally been good and the pilots report some effective uses of the tool. For example, a participant in the Leicester Pilot commented when interviewed:

> *'I really like the profile because it suddenly shows you in its beautiful graphical context that actually you might have thought you've developed a very socio-constructivism model, but when you see the bar graph, and you see you've got absolutely no communication! You actually think, 'Oh, hang on!' And you could go back and revisit the storyboard and think where we went wrong in these course elements because we do want it to be social-constructivism. So let's go back and how we might rework some of the activities.'*

Whilst at another workshop an academic reported that 'the profile graphs give me a good overview of each block as well as the course as a whole. They will also be easy to discuss with the rest of my course team.'

The profile tool also appears capable of highlighting differences between modules. In the case of one group from the FELS Pilot, this resulted in them understanding more about how pedagogy varies temporally, as well as in respect to level, context etc:

"Looking over the three profiles it seems important to know the date at which the module was first presented- E807 seems to reflect the fact that it is a post graduate module but also the fact that it is a more recently produced module."

The tool has often been used alongside other curriculum design tools. For example, one workshop for the Library Pilot had a four way carousel activity (featuring Pedagogy Profiler, Module Map, Course Features and Task Swim-lane tools). In another workshop, the profiler was used in conjunction with the Course Features Cards:

"[Session plan]: Key word activity. Introduction of representation and taxonomy (include purpose and limitations). Ask team to [use Pedagogy Profiler to] predict what [the course] will look like. Show our prediction and worked view… [Then] What does the module ask of students?' What does the module ask of tutors?' Compare with [similar courses]. Revisit the key word activity started in the morning. Generate a word/tag Cloud of the module 'As is'. Outcome: Clear and shared view of what the key pedagogical features of the new [course] will be [and 'key words' for revisiting later in design process]"

The five principal difficulties users have encountered with the profilers were that:

- There should be (or is) a single 'right' or 'correct' profile when in fact the suitability of any profile is contextual (dependent upon the pedagogic approach and intent of the module).
- All the bars should be same height. This essentially would mean that each type of activity would receive the same amount of time yet of course there is no greater value in this than any other distribution.
- The categories are expressed using the wrong words or bias (or exclude) certain aspects to teaching and learning.
- This is a detailed task that, if to be done thoroughly, could take time
- The meaning of each category (what learning activity it referred to) was unclear and needed examples or more guidance. These two examples illustrate this point: 'I found some of the categories difficult to understand and therefore apply, particularly 'information handling', 'experiential' and 'adaptive'' and There appears to be an issue as to how self-directed study time and assessment is indicated- if this was counted as assessment (or contributing to assessment) then [the module] profile would be very different.'

As a consequence of the latter point we have observed that module teams have either interpreted the categories differently or tried to develop alternative category titles. This demonstrates teams taking ownership of the model and finding value in the activity, yet it also makes it harder to compare profiles produced by different groups.

5.4.3.Course Features Facilitation Cards

The Course Features cards have been developed to support individuals or teams in thinking about the overall character of their module and as a first step in building their Module Map. There are fifty cards, each featuring a key word or phrase; such as 'Self-assessment', 'Enquiry-based', 'Group work,' 'Accessible,' 'Conversational' and 'Online.' The cards are colour coded so as to align with the four zones in the Module Map (see 5.4.1) and now available in a OULDI Activity Box pack (see Fig. 18)

Figure 18: Photograph of the Course Features Cards, activity instructions and box

The Course Features Cards, and a two-part activity with which to use them, were developed in the final year of the project and used in the FELS, Leicester and Support Unit Pilots. Feedback shows that the Course Features Cards activity worked well. Staff reported it 'broke the ice' and 'got us immediately started on designing the module in a creative and friendly way, making us feel that we were shaping the end game even at the first stage.' Another spoke of it being 'very liberating' and noted it helped 'create a resource for reference, reflection and a shared starting point… you are free to engage with other steps of the design process without clouded judgement.' Elsewhere one academic noted they enjoyed the fact it offered a different perspective as it 'did not have to relate directly to the learning outcomes' (Nie et al., 2012, p.37).

A further development of the cards has been to create an online version in Wallwisher. Here, curriculum or module designers can use the post-it style interface to sort the cards virtually (Fig. 19).

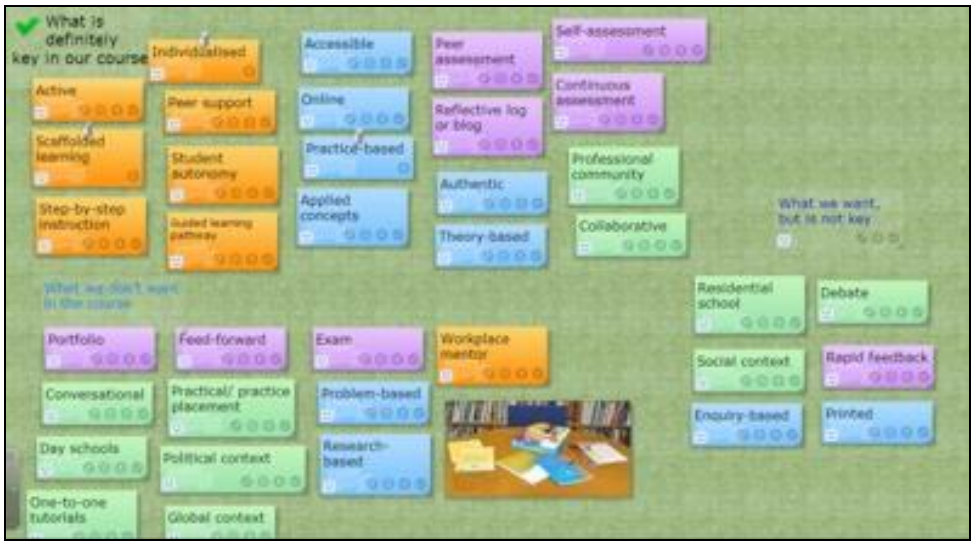

Figure 19: Course Facilitation Cards on Wallwisher

5.4.4. Information Literacy Levels Facilitation Cards

These cards have been developed by the Open University's Library Services Unit in collaboration with OULDI-JISC project (2011) and are designed to help teachers / designers consider how to effectively integrate information literacy into individual modules and/ or whole programmes. They are grouped according to the 4 skills areas covered by the OU IL Levels Framework:

1. Understand the information landscape
2. Plan and carry out a search
3. Critically evaluate information
4. Manage and communicate your results

Each skill area has 4 cards, one each for 1st, 2nd, 3rd and Masters Level. On the front of each card the broad skill area is identified, and on the back the outcomes for the relevant level (Figure 18). Use these cards in module team meetings, workshops and staff development sessions, or to help explain IL to employers, tutors and students.

The cards can help teams to:

- decide on learning outcomes, teaching and assessment of IL skills at a particular level
- think about IL skills across an entire programme and about how progression can be built-in
- ensure that IL skills are explicit within learning and teaching, thus enabling you to better articulate, teach and assess these skills

Figure 20: Photograph of the Information Literacy Facilitation Cards, instructions and Box

5.4.5. How To Ruin A Course Activity

This activity has been adapted from one designed by the CABLE project and focuses on the key issues and strategies that impact on the success (or otherwise) of learning and teaching within a specific context. The output of this activity is a design checklist which can be used as one of the design evaluation tools in a mid-way design review and at the end of the workshop. The activity is useful for surfacing concerns or resistance to changing practices, and enables teams to explicitly identify the design problems of concern to them and begin to identify solutions, or risk management approaches.

The online instructions for this activity have been viewed over 1400 times on Cloudworks and feedback following its use in the second Reading Pilot workshop shows it was positively received. In particular staff felt it was a good icebreaker, worked well in getting team talking and was useful for contextualisation of the workshop. Suggestions for improvement have been iteratively incorporated in to the activity (such as sharing points with others). The activity continues to be used in OULDI workshops.

5.5. Unanticipated Outcomes

5.5.1. Combining OULDI with other Design Tools

The OULDI project has funded two pilots – at Leicester and LSBU - that sought to trial an intentional combining of OULDI tools (new to both institutions) and those developed by the Carpe Diem project (tool which Leicester and LSBU have used for several years). This provided a valuable opportunity to compare and further trial how multi-project tools could be mixed and work together.

In general, the combination of tools seemed to work well for the audiences involved. One academic found that 'using different tools together enabled her and the team to reflect and refine their design.' Feedback scores from Leicester showed that over 75% found most of the OULDI and Carpe Diem tools very useful. When asked what participants liked about the Leicester Pilot workshops, OULDI tools were mentioned more often than Carpe Diem; a count of the instances gives: OULDI Course Features (7); OULDI Activity Profile (6); Carpe Diem Storyboard (4); OULDI Module Map (3); Carpe Diem Resource Template (1); OULDI How To Ruin A Course (1). This shows that both sets of tools appear to be liked by participants. Indeed, in some cases it was the tools in combination that proved most effective. For example, one participant said 'I liked the storyboard [a Carpe Diem tool] and Activity Profiler [an OULDI tool] if used in parallel' whilst for another, existing Carpe Diem user, the OULID tools 'allowed me to look at Carpe Diem in a new way' (Nie et al., 2012, Appendices).

In addition, other OULDI pilots used resources developed by the JISC funded ViewPoints and CoGent Project whilst the virtual Curriculum Design 'toolbox' started by the project on Cloudworks contains tools and resources from dozens of projects.

5.5.2. Development of More Design Resources

The Course Features (Section 5.4.3) and Information Literacies (Section 5.4.4) card packs resulted in our developing a 'Design Activity In A Box' concept for presenting and packaging workshop/group based design activities. In the last few months of the project we have added two new boxes/packs.

The first supplementary pack includes five packs of post-its customised with CompendiumLD learning design graphics and instructions for five design activities. These activities include creating a learning outcomes view (a notation view linking learning activity to outcomes and assessment based on Biggs' model of constructive alignment), mapping resources and tools to outcomes, using mind mapping to solve design problems and using the post-its to help prepare a Module Map (Fig. 21).

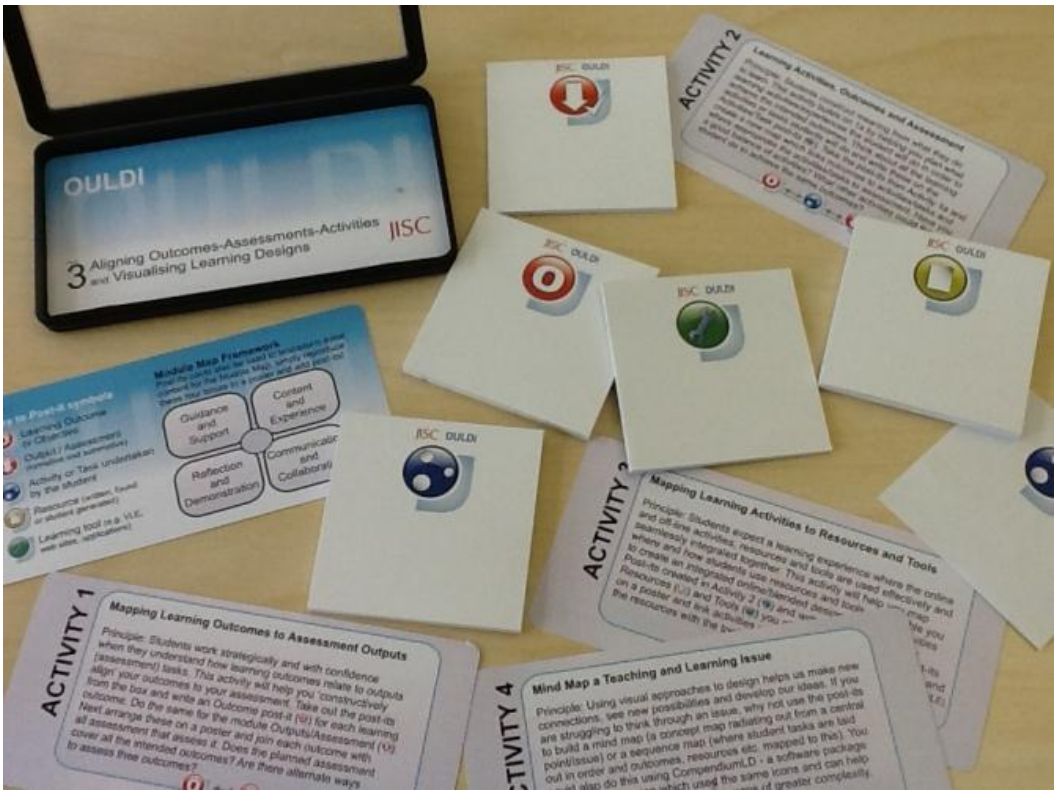

Figure 21: Photograph of the Information Literacy Facilitation Cards, instructions and Box

The second supplementary pack focuses more specifically on authentic learning and assessment (Fig. 22). This is based on work undertaken by Whitelock and Cross (Whitelock & Cross, 2011; Whitelock & Cross, 2012). The pack includes four activities and eighteen cards and is currently in the final stages of development.

Figure 22: Photograph of the Information Literacy Facilitation Cards, instructions and Box

6. Change in design cultures, practices and identity

6.1. Introduction

This project has sought to effect change in institutional culture by embedding new formal and informal design practice. This section will focus on three of the stakeholder groups identified in the initial baseline report: managers, academic staff, and academic-related staff (either learning/teaching professionals, technical development or project managers). These three groups could be considered separate sub-cultures within an HE organisation and the project has had discernibly different impacts on each.

6.1.1. As things were: more on the Baseline review

Between September 2008 and August 2009 the project undertook a Baseline Review of the lead institution's curriculum design and approval process. This involved over 35 interviews with staff and detailed desk-based research including reviewing the technical systems underpinning the curriculum process. The centrepiece of this work is a series of process maps and an explanation of the methodology adopted in their preparation. The review also included some key stakeholder position statements including those of senior managers, identified key stakeholders, presented data from an online survey of staff about their attitudes and perceptions of e-learning and sharing and their use of visualisation techniques and baseline data relating to the software the project was planning to develop.

Some staff interviewed for the base line review saw teaching and learning design practice as distinct from the formal production process. One commented 'the stage gate process does not help with learning design. Learning Design is a parallel process' whilst another that 'learning design was not a formal process as part of the course design. It is a set of skills and experience brought to the course team by individual members.' Others noted that 'there [are] no specific learning design elements in the development of a course. The approach to learning design is more ad-hoc' or that 'the review of learning design is not an explicit activity but embedded within the review process; there are no specific checklists to use in the reviews.' Such views indicate that for some, it is not the role of the formal process to intervene or direct what design practices are used, even when there are known and inherent risks (necessarily present if indeed there is ad-hoc working or reliance on having the right mix of personal). Perhaps this is touching upon the question of autonomy, the belief that the creation of learning and teaching should be left to the discretion of the academics involved, and of ownership. Indeed, when a media developer working on a module had suggested to the academic team that there

should not be a printed version of the module, an academic team member later suggested the developer 'make it clear when you are offering something extra … so that the module team do not think something is being take away from *them*'. This statement indicates that a perception of 'them' and 'us' remains yet this does not mean that team working cannot be a very productive experience – as another developer notes '[it was] interesting to see [the] different approach of academics and media teams. Glad we didn't find any real problems.' It is to these separate sub-cultures and the impact or change in practice that the evaluation now turns.

6.2. Lecturer/Academic Staff

All nine of the project pilots have involved academic members of staff. For the purposes of this section, the term academic refers to individuals with expert subject knowledge who are given the role of writing and/or delivering module content and who assume some or all responsibility for the pedagogy used to teach the module.

The project has reported how positive experiences of the tools, resources and workshops have encouraged academics to change or adapt their practice. For one module chair, the benefit of the design workshop is clear:

> *'I think that anything that can tighten up the thinking about why we are producing what we are producing is a good thing and it is financially a good thing because it can speed up some of the other decisions…it would have been much more haphazard if it was just the module team sitting round and looking at a pile of resources…The workshops then meant that the regular team meetings started from a different point.'*

This comment demonstrates how the workshop can help disrupt the usual process of module production and help focus those involved. Other participants told us that workshops provided space away from their usual routine. For them, this was not just about disrupting the process of module production, but about making time for module design and setting aside other demands. As one OU participant commented:[8]

> *'[the workshop provided] the kind of headspace and time to think in detail about these sorts of things in a way which we don't get a chance to during module team meetings. It's almost like that stuff is usually very basically given lipservice in the [early] stages, and then kind of forgotten and only revisited when trying to fill in the student workload planning tools at the end.'*

An academic from Reading University believed the OULDI experience had had a substantial impact on his school saying 'my view is that it has revolutionised our thinking…to learning and teaching.' He reports good student feedback, even though

[8] There are many examples in the pilot reports of this sort of comments. Also see for example ''the workshop forced me to spend time that I would otherwise not have spent ' Nie et al., 2012, p.32.

'there's no doubt that certain members of staff have had to work very hard on this… and we have put a lot of effort in' (Papaefthimiou, 2012, p.20)

Two participants interviewed from the Leicester Pilot said that the design practice approach was refreshing different whilst all three said it had helped them challenge their initial design ideas. One participant was quite clear:

> *'I wanted to have my thinking challenged with regard to course design … and I definitely left reflecting and questioning our unit's current approach… It was just a much freer and [more] creative experience than getting the learning outcomes and writing them as active verbs'* (Nie et al., 2012, p.20)

Whilst a second Leicester Pilot participant said:

> *'what I like about this [is] it didn't start with what are the outcomes. You came at it from a completely different angle. And because you did that, you had to ask yourself, 'but what are our outcomes? Does this link up with our outcomes?'* (Nie et al., 2012, p.12)

In other pilots too, the method in which the OULDI representations present modules was seen as original and different. This lecturer from Reading echoes the Leicester participant comments:

> *'It forces you… it makes you think about the different components of the learning process in a way that is structured and makes people address those issues and discuss them. [This makes] people think about 'how to we set learning outcomes?', 'How does that link to that?' I think the intension is to use it regularly as it is…and there is no doubt the kind of process you go through like this makes you think about what the students are going through'* (Papaefthimiou, 2012, p.27)

Elsewhere too, there is evidence that design practice is changing. For example, one module team member commented '[the approach] makes us think more from the point of view of the students and what their needs are' (Galley, 2012a, p.39). Whilst others said the representations have also helped them become more aware of issue and respond to them. Such change in practice is noted in the Reading Pilot where an academic found '[We] really miss out key elements of the cycle… and it's clear that we need to implement more activities in the course which allow for these…' (Papaefthimiou, 2012, p.22) and in Leicester where a participant acknowledged changes made would not have happened had she not been introduced to the curriculum design tools (Nie et al., 2012, p.17).

In several pilots, the process of reflection on practice prompted by the OULDI intervention extended to consideration of the relationship between the information required for institutional approval and production process and the outputs from the actual curriculum design activity teams undertake. In at least one pilot, both the team chair and manager found it frustrating and difficult to translate the learning design outputs achieved from the pilot intervention into the stage gate forms and

documentation (and this despite additional support and templates developed by the pilot team for this specific purpose). It was felt that academics did not, at present, 'have the skills to fully incorporate' or translate design outputs into university systems.' The module chair felt that without 'sustained' support 'through the process' then the university would get a 'much lower return on their investment.' This is interesting because it implies that developing the skill to 'translate' is not necessarily one for academics despite the academic module team having responsibility for producing the module to university requirements.

Another aspect of this renewed reflection has been a foregrounding of pedagogy and who, especially when working a module production team, in is responsible for voicing the pedagogic perspective. In one pilot, the module chair argues for a 'learning design mentor'; a 'pedagogical jiminy-cricket.' She explains: 'there are so many people [including the academic team] that… seem to sit around the table … it's kind of weird but out of all the people I'd like to have someone … who actually has a pedagogical hat on… it seems an important enough issue…' This view appears to imply that consideration of pedagogy – of teaching and learning structures – is not necessarily considered a role an academic team member could/should take despite the fact that academic teams are comprised of 'lecturers'. The base line report notes the reluctance of academics to critique each other's pedagogy and this module chair also felt that, in respect to the role of pedagogic advisor, 'I think it better that someone is outside [the team] really.' Furthermore, the OULDI learning design activities seemed to have helped show academics the limits of their understanding in relation to online pedagogies:

> *'[T]he thinking process is going to be slightly different and I do think it's an area we don't know enough about at the module team level.'*

The view that the curriculum design activities are helping academics become more self-aware of the issue is important in the context of our base line report findings which showed that 74% of teaching staff felt the process of creating modules is becoming more complex (Cross, Clark & Brasher, 2009). It also seems that a design approach is helping to question how well pedagogy is dealt with in current design practice.

For some participants, the value of the OULDI tools and resources were not in the reuse value of the tools themselves but in the new perspectives they provided. As one pilot participant from Brunel explains:

> *'The tools were probably not the best approach for us, but indirectly we were able to use the underlying principles… including the ways in which we could structure and link teaching to assessment. This certainly influenced our discussion and the way we thought about the course'* (Alberts et al., 2011, p.33)

These more subtle changes are harder to document. The LSBU and Cambridge Pilots for example found little overt evidence of sustained OULDI tool use. Whilst these pilots did not undertake as detailed follow-up research as some other pilots (meaning some changes may not have been noticed) they also chose more 'hands-

off' methods to deliver the OULDI package. So, whilst Cambridge delivered information about the tools and resources electronically and LSBU advertised workshops directly to academics, at Reading the greatest success was with PGCAP volunteers who received an introductory workshop, some on-going support and a cash incentive and in the FELS pilot where significant negotiations with the Associate Dean and then Module Chair took place prior to involving academics directly and the OULDI project officer held additional meetings both with the chair before and team after the workshop events. Sustained engagement would therefore appear to have been a factor in helping achieve change in practice.

Other benefits cited by those academics involved in the pilot interventions have been:

- The workshop/tools provided a mechanism for effectively reviewing previous modules in preparation for a remake or redesign
- Design activities enable them to make links and connections between elements of the module they would not otherwise have easily made
- Workshops provide the opportunity to meet and get know others involved in the module production (including other academics)
- Provided an opportunity to create, share and record design artefacts for later reference
- Provided an opportunity to better understand and appreciate other perspectives and roles in the module production process

And many academics who participated in the pilots have voluntarily made public the presentations, video-blogs, interviews and other documentation they produced. This demonstrates a willingness to share their experiences and even change practice beyond their team.

Our work has shown that one very significant challenge in any analysis of practice has been the range of academic experience and understanding of pedagogy, teaching and learning, and of their willingness and skills to experiment with new approaches. As the Pro-Vice-Chancellor for Student Experience and Staff Development for one of our pilot institutions told us:

> *'It is … variable isn't it across the institution? … I could bring ten academics in here and you'd go 'oh flipping heck [the university is] right on the pact here' and I could also bring in 10 academic in here and you'd go '[the university is] completely off the pace''*

6.3. Non-Lecturer Teaching and Learning Staff

A second key staff role in the production and delivery of modules is the broad group of expert teaching and learning staff who are not academic lecturers. This includes teaching and learning support, library services, media development, and curriculum design experts. The project pilots have worked closely with staff from this group to

deliver the pilots. In addition, two pilots – the Library Pilot and Support Unit Pilot – focused on this group of practitioners.

In general, the OULDI have been well received by this group of non-lecturer teaching and learning staff. This may partly be because staff in this group often, and quite readily, identify with the need to change pedagogic and curriculum design practice. Indeed, they often see it as their role to help facilitate this. For example, as a member of the OU Library Services team records:

> *'the legacy courses loom large… where [the course team] think 'well, we did it this way last time so we are going to remake it the same way… I think that is quite an issue really.'*

The narrative case studies show that OULDI tools have helped support teams better frame and present their suggestions to academic teams. Support experts report that the tools have helped to empower them in conversations with module teams - in part because they perceive the tools as having provided them with 'theoretically' informed frameworks that confer a greater credibility to their contributions. As one OU Librarian explained, a big part of the job was 'not just sounding like [we] know what you're talking about because *we* know what we're talking about' but 'going in with theories, with learning design, with the activities we have already.' Another said that adopting a learning design approach helps 'give me that confidence I think, when I go into a module team [meeting].' The Library Pilot Report gives an example where a librarian used a learning design approach to 'repeatedly challenge' the fact that student were not routinely given the opportunity to practice skills prior to assessment and to 'enable change' (Galley, Reedy et al., 2012).

The tools also appear to have been used to help informally renegotiate roles and internal relationships. In one Library Pilot narrative, a participant explains:

> *'I think [our role] is definitely moving much more towards being involved with pedagogy. For a lot of courses that I've been involved with you were seen much more as someone who sorts out the [University's] external website… and the access to resources rather than the actual learning and teaching…'*

Use of tools is just one indicator of this renegotiation. Other indicators include support professionals now being invited to early design stage workshops or meetings and non-academic staff being involved in writing specific activities and wrap around text. Academic teams appear to have broadly welcomed this ('it was also excellent that people from the library and [media development team] were able to be there') and this has helped strengthen working relationships. As one participant notes:

> *'Another benefit [of the pilot] has been to help [librarians] understand the bigger picture and actually see where a module team is coming from… putting yourself in someone else's shoes is quite a valuable exercise… especially if you need to work with them and … persuade them.'*

Changing the way relationships are understood appears to have also changed working practice. One Information Literacy specialist since using the Digital Literacy cards developed by Library Services in collaboration with the OULDI has noticed there has been change:

> *'There was a compartmentalisation in thinking about skills and content. So [the academic team] would talk about having a service/[skills] module … separated from the real… subject. I think these are coming together now.'*

Whilst curriculum design can potential provide a shared language, there remains the difficulty of groups interpreting 'learning design' or 'curriculum design' in different ways. A meeting convened by the OULDI project of representatives from four units found both overlap and difference in terms of the perceived definition, purpose and role indicating there remains challenges in ensuring agreement and academic staff engagement with the tools.

6.4 Senior Management

We interviewed several senior managers whilst evaluating our pilot projects. The Pro-Vice-Chancellor for Student Experience and Staff Development at Brunel University talked in positive terms about the project benefits and described how, after conversations with the pilot lead at his university, he had helped champion the project work. He thought his lending this kind of support was 'absolutely vital … [for if] it it's not got buy in from the top then you're always going to struggle to get it going across the university' and he was also affected by the pilot lead 'really having a passion about it.' The focus here is on reaching enough academics who are then able to raise learning and curriculum design issues when necessary; to have 'enough academics within [a] school who would say 'we need to embrace [curriculum and learning design] and this is the way it comes through in the curriculum.' More specifically, he described how the project had helped him and the university by:

- Informing their new learning and teaching strategy: 'although not explicitly… it is undoubtedly the case that the project has informed the [programme design and delivery] theme and will do going forward'
- Helping change academic practice and 'spread the word' – so, for example, he sees staff saying things like 'hang on a minute we're not enhancing the learning opportunities for students' and this following on to discussion about 'what needs to happen'
- Gaining a more objective and critical understanding about where it was in relation to technology and design for learning,
- Recognising that learning design workshop are 'particularly effective in engaging people'. This was in part because participants 'felt they hadn't had the opportunity to share, understand, think reflect, in relation to the various components [before]'

An interview with an Associate Dean who supported the OULDI work throughout the FELS Pilot (and who had a prior interest in integrating learning design with

business/production processes) talked about the benefits she had seen to both the faculty and to her role. These benefits included:

- Financial: a shorter and more reliable approach to designing a module. She notes 'if they had been using a real traditional way of designing it would taken them a much longer time…'
- Student Experience/Pedagogy: greater focus and time spent thinking about the student experience; as she notes 'I think there has been much more thinking about the student and the learning experience.'
- A clearer process that helps prevent teams from starting to write learning resources before designing the learning and reduce thinking behind closed doors.
- Helping the faculty recognise that they would like help from the university in terms of changing current practices and supporting their view that the REP03 can get in the way of thinking about pedagogy.
- Direct outcomes: such as a progress report based on the pilot written for the faculty executive, developing a template to help module teams chose learning design tools, recognising another 'two or three exercises of this kind are required to tweak the process.'

This senior manager also talked about the challenges to further roll-out. She noted that the pilot was atypical because 'we don't have time to do all the hand holding that happened with this [pilot]' and that a different approach would be required with each module team;

> *'we will have to make it transferable but it will have to be different according to the team. So for instance [one team I know] is very good in learning design … so with them I have to have a light touch… but there are other teams that are really hard work'.*

This quote indicates how important the skills and composition of the module team is seen to be. However, as she explains elsewhere in the interview, it can be 'very hard' to evidence the positive, or negative, contribution a module chair has on the process. Whilst she is not clear how she defines 'hard', in other pilots we certainly know it can be hard to voice criticism lest it be considered a critique of someone's professional practice.

It is to those staff that have resisted, disagreed or refused to engage as expected in project activities that we now turn. The following analysis is intended to critically explore the discourses of resistance and challenge rather than claim that the project, or indeed any view, is the correct one.

6.5 Owning the Pedagogy

From the beginning of project, a recurring question has been 'who owns the pedagogy?' Whilst, as the Support Pilot report discusses, all groups involved in module production claim, in some way or other, to represent the learners' interests or viewpoint, this is different from the teachers/tutors view and to owning this pedagogy. There are some good examples in the pilots of where the module designers, as a team, talk in a fashion that suggests they assume collective responsibility, as this quote illustrates: 'the pedagogy dr[ove] the process not the bits and pieces, and we actually integrated what we could call progression…' However, in many cases, we have found articulation and justification for a pedagogy, and defence of it over another, is less forthcoming and it cannot be clear which individuals or checks in the design process are intended to oversee pedagogic concerns (Galley, 2012c, p.30 & p.26).

Taking of ownership of pedagogy is often not an overtly conscious act, but instead is demonstrated in how individuals or teams engage with, use and even adapt design tools. The evidence presented in Section 5 and elsewhere, such as the case study narratives, shows that using a tool successful requires taking ownership of the aspects of design – and the pedagogy - that tool relates to. This benefit is not gained by those who resist or make token efforts to engage although they may demonstrate taking ownership in other ways.

6.6 The Discourse of Resistance

One of the greatest difficulties in implementing change has been in understanding and managing objections raised by individual and groups of staff. An objection can represent a positive engagement with a proposed change by seeking to refine, improve and even challenge, however, objections can also be used as devices to resist, delay or avoid change.

A constant challenge for this project has been untangling the objections presented by staff from the underlying reasons and motivations for giving them. In particular, we have been interested in how those seeking to resist a new design tool or approach frame their objections. We shall term this the 'discourse of resistance' – the words, language and stories people tell in order to resist uptake of new design tools or approaches.

Such a discourse will often appropriate and use the language of seemingly valid objections and appeal to normative conceptions of what is fair or reasonable. For example, one common reason not use a tool is that 'I haven't the time.' This seems reasonable because it is unfair to ask too much of an individual. However, this reason may not just be used when someone legitimately has no time; it may be used when someone feels overworked and *perceives* themselves as having no time, or when they'd rather not try to make time, or when they want to avoid engaging altogether. This one same phrase therefore can hide a spectrum of reasons; from

someone keen but with no time to someone looking, for whatever reason, not to engage.

In this section, we identify five broad categories of objection that we have found surfacing within and used by the discourse of resistance. We attempt to unpack these a little more so as to consider what some of the underlying issues may be. These categories are time, value, evidence of effectiveness, personal perspective, and need. In so doing, we do not wish to portray all resistance as negative, far from it, but instead we hope that by encouraging greater scrutiny and review of objections a more nuanced understanding of why these are being offered can be achieved.

One of the most familiar objections we have encountered concerns lack of time; 'I haven't enough time to do this.' There may be a number of reasons that staff perceive themselves to have 'not enough' time. Firstly, they perceive themselves to be less skilled or, compared to someone else, relatively inexperienced or inefficient in using the tool or approach. The use of 'I' may be important here; i.e. '*I* haven't the skills or knowledge to do this in the time available' rather than '*there* isn't time for someone with sufficient skills or knowledge to do this.' Furthermore, the estimate of the time an individual requires may include the time needed to first *learn* the new skills or knowledge. This extends the reason but not to engage but continues to pin the reason for resistance against an external factor (limited time) rather than to an individual specific factor (less skilled).

Yet even depersonalising the claim (to 'there isn't enough time') is not a reason to disengage, only a statement of fact. In fact, there are several options available, for example: (1) stop doing something else less important and do the proposed change instead; (2) do other stuff more efficiently so as to find time; or (3) expend more time by adding the change to existing practice. Invariably, the discourse of resistance favours the latter. This is perhaps in part because the first option requires an appraisal of the current process and a determination of the relative value of the new tool or approach in question - compared to other tasks what priority should the change be given? Is there time, once more important tasks have been completed, to use the tool/approach? Of course this requires effort and engagement. Depending on the circumstances, determining priority may be the role of the module designer or design team. If it is, then the issue may be to do with how choices are made (and potentially how the team is lead and managed) and require a formal reappraisal by the individual or team of their design process. If priorities are set by the institutional level (such that it requires some tasks meaning there is no spare time) then there may be a process related issue for which a process manager is required and adequate feedback channels from module designers so as to alert them of time resource issues and encourage a reappraisal. Similarly, the second option – which focuses on seeking efficiency gains in the present system – also requires effort and engagement. In our pilots we have many examples of staff choosing to somehow 'find time' – presumably due to higher levels of personal interest in the tool or approach (i.e. they are interested in it as a staff development opportunity or are convinced this is a good idea). Our FELS Pilot provides an example of a faculty

seeking efficiency gain by 'front loading' their design process whilst integration of variants of the module map and activity profile in to the CBM activities 'expected' of module teams demonstrates how these are seen as more useful that other tools and also the ad hoc methods of representation used by teams before. The fact that tools or approaches may save time overall is often overlooked by those under pressure and focused on the 'right now.'

The third option – that 'more time' needs to be found for the new tool or approach - tends to move discussion away from thinking about existing practices and inefficiencies (i.e. situating the change in the context of current processes) and towards a more bounded and easier to oppose question - is the proposed change worth the *extra* resource? The result is a discussion focused on contrasting the 'extra time expended' with the 'value' of the benefits achieved. Certainly, it is difficult to definitively demonstrate that benefits outweigh the additional time or resource required. This difficulty may provoke positive discussions focused on finding solutions (such as in our FELS Pilot) yet such innate uncertainty and subjectively also provides ample space for exploitation by those seeking to resist the change.

A second category of objection relates to the perceived value that the design tool or approach. Objections may be presented in terms of the low use value to the individual concerned (i.e. the objection is again personalised: 'it doesn't help *me*') or concerns with the theoretical or empirical provenance, rigour, or perspective represented by the tool or approach. Such concerns are important, however, there is discernible strand in the discourse of resistance that presents arguments about value that appear ill thought through, not properly articulated, or focus on relatively superficial issues. For example one module team member disliked the module map because '[it] didn't really function as a map' whilst elsewhere we have witnessed such a prolonged discussion about which words should be used to head each column in the Activity Profiler that the team ran out of time to actually try to use it. As a project observer notes after one more session; 'I was really surprised by the level of resistance to engaging with this activity… and also the resistance in the discussion afterwards to properly engage in a critique of the tool' (Galley, 2012c, p.16).

Furthermore, the objections appropriated in to the discourse of resistance tend to relate to individual personal experiences (which of course are far harder to argue against). These may, for example, be opinions formed before using a tool or approach, the personal experiences of use and the value of the immediate output/impact to the individual. This is important to note because, in contrast, more positive discourses associated with value tend to refer more to experiences gained through extended and applied use of the tool or approach, the benefits to others (such as colleagues or the institution) and the benefit to students. For example, an academic involved in the FELS pilot commented '[I] had *no* awareness of the learning design tools before so this has been a real eye opener for me … I would very much like to [use this approach again] as I think it's a very useful starting point' (Galley, 2012a, p.43).

A third category of objection is epitomised by the question 'where is the evidence' or 'prove to me this works.' Initially these appear fair and reasonable requests, however, the link between demonstrable evidence of impact and convincing someone to use a tool or approach is not straightforward. For example, we have encountered an example of an academic piloting a new teaching idea with almost no evidence beyond their own 'hunch' and an academic arguing against sharing unit learning outcomes with students before a unit begins despite this now recognised sector-wide as good practice (and both explained and justified in the institutions teaching guidance). So why do we encounter such requests for evidence and anomalies in behaviour? The answer, we argue, in part lies in the desire of the change adopter (the academic or other expert design professional) to understand the risks involved. Changing practice involves risk. Using valuable time to trial a new tool or approach involves risk. And conversely, doing nothing also involves a risk. Therefore, individuals seek reassurance that the risk is worthwhile and, presumably, the greater the perceived risk the greater the demand for evidence to 'prove' it will work and the greater the trust the individual or team must have in that reassurance. We have observed cases where those resisting change continue to ask for ever more evidence or guarantees.

There may also be a second factor at play here also; that module designers are concerned about the downside risks of adopting a change – for example, that it makes more explicit poor design in a module already created or that the designers will experience loss of autonomy, etc. However, feedback from staff in trials such as the B2S Pilot (see Section 2.3) and Support Pilot indicates that using a tool or approach can provide reassurance (i.e. that a team understands each other and is designing a robust module) so OULDI tools or approach can have a positive role in managing the inherent risk in module design.

A fourth feature to the discourse of resistance is discussion and questioning of whether a tool or approach is needed. This can include whether the designer really 'needs' to use the tool and on what basis has a problem (and therefore a need) been identified. In some cases, it may be a contractual requirement or part of the institutional process, yet as our baseline research demonstrates, even will not guarantee effective or productive use. Demonstrating need is also difficult because many of the current measures of quality have emerged to measure current practices (not new practices) meaning there remains an imbalance away from monitoring the quality of the design process. It is therefore difficult to argue, for example, for greater collaboration across module production teams if no one has data to show this is an issue or if management has not recognised it as such. Furthermore, teams seem reluctant to allow their module design to be scrutinised or assessed and institutions content to allow teams the power to decide if this should happen. Without such evaluation, issues that 'need' addressing cannot be surfaced.

Finally, the broader institutional and Higher Education context is important. Some staff have spoken of 'initiative fatigue' reminding us that from an individual's perspective new curriculum design tools and approaches may comprise one of many changes taking place internally and externally. The perception that new tools or

approaches represent a broader shift to top-down control of teaching and learning and greater management of the risk of innovation has also been noted. This can distort how staff understand and respond to the case for adapting design practices is presented.

6.7 What Makes a Good Tool

There appears no single set of features for a good tool. Indeed, evidence from our pilots seems to show people look for different, often contradictory things from a design tool or approach. For example, a participant in the Reading Pilot wanted a tool that aligned well with current practices – where 'it can be used with very little instruction' and 'you do not need to think about or question the tool when using it…' However, for an academic in the FELS Pilot, it was the role of the tool as a disruptive force that was important. They reported finding the OULDI approach 'a very positive and enriching way of working; [and it was great]… to have *many of my assumptions challenged*' (Papaefthimiou, 2012, p.13 (our italics); Galley, 2012a, p.44). In other words, in order to change practice, a tool must challenge rather help replicate or consolidate existing practice. This theme of a tool needing to challenge has been discussed earlier in Section 6.1.1.

We have also found an apparent contradiction in whether participants are looking for a tool that 'speeds' up the process and those looking for a tool to 'slow' the process down. The pilots do demonstrate that providing space to think – slowing the process to allow sufficient opportunity to design – can improve the quality of designing. The benefits of thinking more carefully through a design have already been recognised in other design disciplines (Koktovich, 2008). Furthermore, the converse of this, one may conclude, is that doing anything to reduce the amount of time available to think about, analyse and reflect on the design may have a deleterious impact on design quality, especially if focused on helping teams generate the design outputs required for process documentation.

Another measure of a good tool may be in what it adds to the design process and practice currently used by a designer. This requires a more holistic view and an appreciation of where each tool or approach fits in. An indirect outcome of this project has been the development of the Lattice Design Problem Space Framework (Fig. 23) (Cross, 2012).

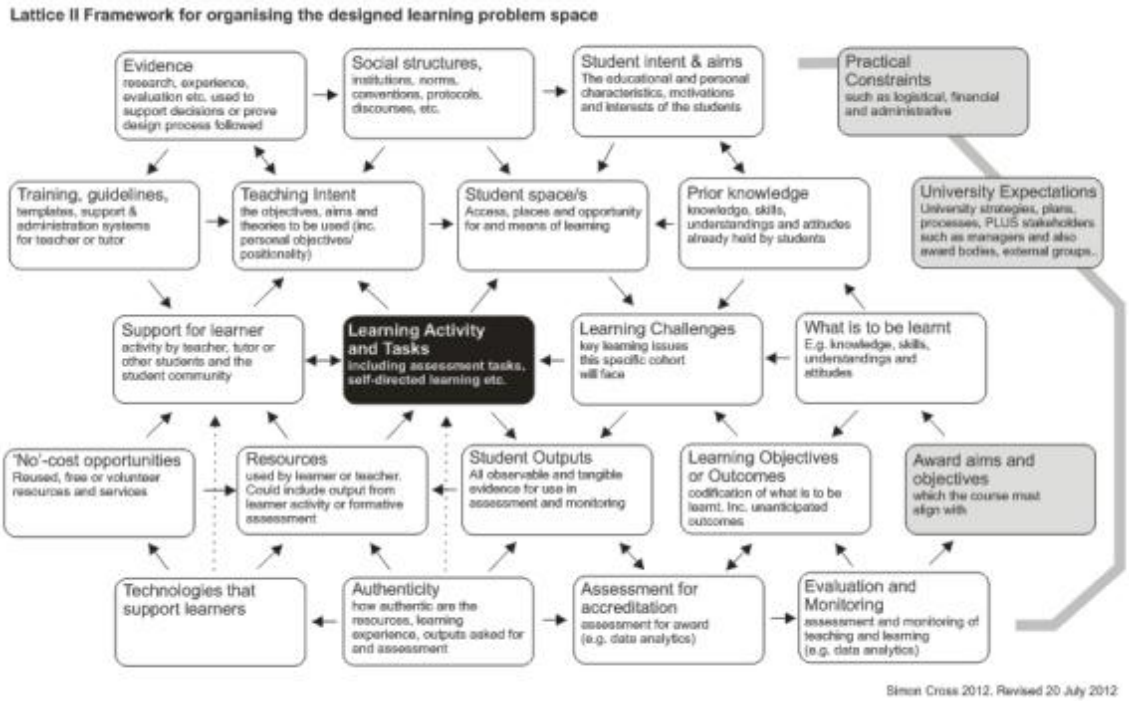

Figure 23. Design Problem Space Lattice

This is a representation of which key aspects, or domains, of a learning design need to be considered when defining the design problem (and, from there, developing a suitable solution) and a broad indication of relationships between these domains (thereby forming the lattice). Individual tools will help designers with particular domains or combinations of domains. For an effective overall process the sum of tools and approaches adopted should collectively cover all these domains (and even the appreciation of linkages between them). Mapping the OU module design process to this framework is beyond the scope of this project, however, it is clear the tools and resources discussed in Section 5 would help designers consider many of the domains outlined.

7. Conclusions

Successful Delivery of All Project Objectives

The OULDI-JISC project has achieved all nine of its original objectives. These are given below in Table 8 (along with details about where relevant evaluation can be found).

Project Objective	Where it is evaluated
1. To develop working relationships with units in the OU and to explore the transferability of elements of our approach by working with four other UK universities and two pan-communities, capturing barriers and enables by appropriate data recording mechanisms	For details of the pilots see Section 3.4 and also the individual Pilot evaluation reports (the outcome of working with five other UK universities and several communities of practice). Section 3.3 for an explanation of the data recording mechanisms used and Section 5 and 6 uses data captured during the pilots.
2. To review the existing curriculum design processes at the OU in the first year of the project including describing and modelling the curriculum design process	For details about the baseline review see Section 4. The full Baseline Report is available as a separate document.
3. To work with stakeholders at the OU to identify key moments in which enhancement or change in curriculum design process could lead to improved quality of design, and to work with partner institutions to undertake a similar process	The introductory sections of each pilot evaluation report (see Section 3.2) explain the specific aims of that pilot – these vary because they were agreed between the project and the pilot stakeholders. Also see the Baseline Report.
4. To pilot learning design methodologies, tools and techniques in at least eight trials and to document and evaluate this experience	Section 5 evaluates key OULDI tools including Cloudworks, CompendiumLD, Module Map, Activity Profiler, Course Features Cards and Information Literacies cards. Also other resources and techniques developed and used in the pilots including workshops as a design tool. This evaluation is based on individual evaluation reports produced by each of the pilots.
5. To engage with, build or enhance a range of communities and develop their capacity for self-sustainability particularly focusing on organised events, key topic or subject areas, existing operational units and conferences or special interest groups	Section 5.2 evaluates the use of Cloudworks, this includes using it as a tool to engage and enhance communities of practice. See the separate Summary Report for Cloudworks Development Phases 1 and 2 and Case Study: Using Cloudworks at Conferences for further evaluation.
6. To increase, monitor and evaluate exchanges of learning and teaching ideas and experiences in appropriate communities	Section 5.2 evaluates the use of Cloudworks, whilst the evaluation of other tools in Section 5 demonstrates how these too have been used for developing and exchanging learning and teaching ideas
7. To undertake and review annually enhancements to the website(s) being used to support the community building and activities planned (e.g. Cloudworks)	Cloudworks is evaluated in Section 5.3. Two other separate reports outline the development undertaken during Phase 1 and 2, and during Phase 3.

8. To undertake and review annually enhancements to the visualisation software used to support the pilot and design mapping tasks (e.g. CompendiumLD)	Use of CompendiumLD is evaluated in Section 5.3. A separate Report on CompendiumLD, along with the six monthly reports submitted to JISC, explain the development and review carried out.
9. To continue to broaden in scope, content and definition the OU learning design methodology.	The OULDI project has significantly extended the scope and content of its work since 2009. Section 5.1 explains how the workshop itself has been developed as design tool and a method of promoting a structure or practice to designing. Section 5.4 evaluates newly developed OULDI tools such as the Module Map, Pedagogy Profiler, Course Features Cards and Digital Literacies Cards and how these tools perform when used in conjunction non-OULDI tools. Section 6 discusses the impact of the project on changing design practices and cultures.

Table 8: Project Objectives achieved

The project has also succeeded in delivering all six of its key outputs (Table 9) in addition to a substantial number of additional outputs (see Sections 5 and 6).

Project Output	**Evidence output achieved**
1. A record and evaluation of our approaches to implementing institutional change through adopting a LD approach	Throughout, the project has used its website, Cloudworks and the Design Studio to publish a public record of our work. Key documents are the evaluation report you are currently reading (especially Section 5 and Section 6), individual pilot reports, Cloudworks Reports and the CompendiumLD report. In total, over 800 pages (over 200,000 words) of evidence and evaluation has been published by the project (excluding interim reports, guides and papers)
2. A clearer understanding of using learning design successfully in curriculum design innovation, strategies and approaches to embedding LD as an approach across a range	
3. A set of resources and guidance on different aspects of learning design and outlines for associated design activities and tailored workshops	The project has produced a substantial quantity of resources and guidance. Key resources are: Module Map representation and Excel tool; Pedagogy Profiler (paper, Excel and widget versions), Learning Design Teaching and Learning Guide, Course Features Cards and Boxset, Digital Literacies Cards and Boxset; Cloudworks tool and guidance; CompendiumLD software; CompendiumLD Tutorials and guidance; and CompendiumLD post-it Boxset.
4. A self-sustaining learning design community providing a forum for exchange of ideas and designs, along with guidelines for success factors identified to make such a community work	An evaluation of Cloudworks, including specific consideration about how 'self-sustaining' and 'evolving' it is and the degree to which there is a critical mass of learning designs is included in Section 5.2. See the Cloudworks website itself for evidence of this community and the guidance developed by the team. Success factors are discussed in Section 5.2, and other separate Cloudworks reports.
5. A sustainable and evolving, user-generated site (Cloudworks) for collaborative learning designs with a critical mass of learning designs, as well as tools and resources for design. Target: 4000 clouds by end of project	
6. Evidence of use of a software application designed to support learning design and visualisation	See Section 5.3 and the separate CompendiumLD report

Table 9: Project outputs delivered

Key Achievements and Findings

- We have demonstrated that it is *possible* to achieve success in changing or improving the process, practice and perception of curriculum design yet this requires a combination of elements working together: selection of effective design tools, well configured institutional and informal design processes, proper opportunity for collaboration, reflexive working and dedicated time away from the day-to-day to work on a design, positive and real management endorsement, staff with positive attitudes and adequate tacit knowledge of the art of teaching and the discipline of designing learning, and an expert consultant role to guide and advise teams. The success of embedding learning design is therefore dependent both on the internal quality of the particular design approach or tool and on the capability of the (institutional/professional skills) context to 'receive' it.

- We have created an online tool called Cloudworks which enables those working in learning and curriculum design to: view, add and comment on ideas/ work/ experiences of learning design (each object added is termed a 'cloud'), to organise these online clouds in to groups ('cloudscapes') and to build personal public profiles of contributions. Between the tool launch in March 2009 and December 2011 there were 1.03 million page views, over 230,000 visits, 4,500 clouds added, and 5,500 comments posted. Cloudworks now has a strong brand image boasting over 4,600 registered users from across the world and use by several learning design related conferences and communities of practice.

- We have delivered eight pilots across five UK HE institutions. Each pilot has sought to present and embed learning design tools and approaches. In total over 275 staff have attended our workshops. These pilots have shown how different contexts can impact on use and has shown that tools and approaches may often need to be partially re-versioned in order to become sufficiently relevant to a particular university process and culture. These pilots have required specific expertise in the practical and academic discipline of learning design, especially where there is a range of current design approaches used by individuals.

- We have customised OU-originated visualisation software to make it more usable in a learning design context. This software has been named CompendiumLD. We have also used this opportunity to explore how learning design can be represented, the benefits of doing so, and barriers to the use of visualisation technologies. Many benefits have been identified – for example, one user noted 'all in all, I think this way to represent does have advantages with respect to more verbal approaches: it perhaps takes more time to learn to use it, but the final result is more 'readable'". CompendiumLD is open source, has been downloaded over 2,000 times and has been included in at least two university education courses.

- We have been fully engaged in disseminating the practical and research aspects of the project. The project team has directly contributed to over twenty conference papers, several journal papers and a book chapter. We have delivered over forty presentations to external audiences, maintained a regular blog and made resources, reports, tools and guides available on its website and the Design Studio.

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Glossary

Module	The term 'module' has been used throughout this report to describe a piece of learning. This aligns with the changes made at the Open University in 2011 where the term 'course' was changed to 'module.' In most cases, where a quotation includes the term 'course' it has been left unchanged in order to preserve the language of the respondent. In some cases this is because the statement was made prior to 2011, in others because it was not an OU staff member making that statement, and in others because the staff member had yet to use the new terminology.
Qualification	Similar terms would be 'programme' or 'award'
Pilot	A trial of OULDI tools, resources and approaches undertaken jointly by the core OULDI team and unit, faculty or external university. A pilot may consist of several parts.
Case study	In the context of the OULDI, this term refers to a document that presents a case study of tool, resource or approach use. Personal narratives (see below) are one example of case studies. Other examples would include a case study of an event, a pilot, a specific user experience or longitudinal trial.
Personal narrative	A two-three page account of how an individual member of staff involved in the pilots has used OULDI tools, resources or approaches. Case studies have usually been created by the project team based on an interview and correspondence with the individual. During the project additional case studies have been self-posted by staff.
OULDI	Open University Learning Design Initiative. Supported by institutional funding between 2007 and 2009 and by JISC between 2009 and 2012. The term OULDI can refer to the project team associated with the JISC funded project or to a broader umbrella that has been used institutionally to present a series of learning design related activities/work.
Activity Profile	Also (originally) termed the Pedagogy Profile. When talking about the tool used to create the profile, the terms activity profiler or pedagogy profiler may be used.

References

Agostinho, S. (2008) Learning Design Representations to Document, Model and Share Teaching Practice in Lockyer, L., Bennett, S., Agostinho, S. and Harper, B. *Handbook of Research on Learning Design and Learning Objects.* Information Science Reference, New York.

Alberts, P., Sharma, A. and Parnis, N. (2011) *Learning Design Initiative at Brunel University: Using a blended learning design approach to optimise the use of technology; Brunel Pilot Final Report*. OULDI Project, Milton Keynes.

Alevizou, P., Conole, G., Culver, J. and Galley, R. (2010) 'Ritual performances and collective intelligence: theoretical frameworks for analysing emerging activity patterns in Cloudworks'. *Proceedings of the 7th international conference in Networked Learning,* 225-2. 3-5 May 2010. Aalborg, Denmark.

Baylor, A.L., Lee, Y. and Nelson, D.W. (2005) Supporting Problem-solving Performance Through the Construction of Knowledge Maps. *Journal of Interactive Learning Research* 16, 2.

Beetham, H. and Sharpe, R. (2007) *Rethinking Pedagogy for a Digital Age: Designing and Delivering E-Learning.* Routledge, London.

Bouman, W., Hoogenboom, T., Jansen, R., Schoondorp, M., de Bruin, B. & Huizing, A. (2007). The realm of sociality: Notes on the design of social software. *PrimaVera Working Paper Series*. Amsterdam: Universiteit Van Amsterdam.

Brasher, A., (2010) *Use of CompendiumLD in H800 – a report informed by analysis of postings by students to H800 tutor group forums*. Milton Keynes, OULDI Project.

Brasher, A. (2012) *CompendiumLD: A tool for creating shareable models of learning designs, A Final Report of the OULDI-JISC Project*. Milton Keynes, OULDI Project.

Brasher, A., Conole, G., Cross, S., Weller, M., Clark, P. and White, J. (2008) CompendiumLD – a tool for effective, efficient and creative learning design in *Proceedings of the 2008 European LAMS Conference.* 25-27 June 2008. Cadiz, Spain.

Brown, J.S. and Duguid, P. (2001) Knowledge and Organisation: A Social-Practice Perspective. *Organization Science,* 12(2), 198-213.

Buckingham Shum, S. and A. Okada (2008) Knowledge Cartography for Open Sensemaking Communities. *Journal of Interactive Media in Education*, 10.

Brown, R. (2012) *London South Bank University Pilot: Draft Report*. Milton Keynes, OULDI Project.

Clifton, R.A. (1999) The Education of University Students: A social capital perspective. *College Teaching*, 47(30, 114-118.

Conole, G. (2008) New Schemas for mapping pedagogies and technologies. *Ariadne article*, July 2008.

Conole, G. (2010). Facilitating new forms of discourse for learning and teaching: harnessing the power of Web 2.0 practices. *Open Learning*, 25(2), 141–151.

Conole, G. and Culver, J. (2009) *Cloudworks:* Social networking for learning design. *Australasian Journal of Educational Technology*, 25(5), 763-782.

Conole, G. and Culver, J. (2010) 'The design of Cloudworks: applying social networking practice to foster the exchange of learning and teaching ideas and designs' *Computers and Education*, 54(2), 679 – 692.

Conole, G. and Mulholland, P. (2007) Using the concepts of design and narrative, *PI Working Paper No.2.* Milton Keynes, OULDI Project.

Conole, G. and Oliver, M. (1998) A Pedagogical Toolkit for Integrating Learning Technology. *SEDA Learning Technology Conference*. Southampton.

Cross, S. (2010a) *Exploring spheres of sharing: Analysis of contributions to Cloudworks – Part 1*. Blog Post. 7 March 2010 .

Cross, S., (2010b) Exploring spheres of sharing: Analysis of contributions to Cloudworks – Part 2. Blog Post. 9 March 2010.

Cross, S. (2011) *Exploring Spheres of Sharing: Analysis of Cloudworks Part 3*. Blog Post. 2 February 2011.

Cross, S. (2012) Defining the Learning Design Problem Space: Creating a Better Learning Solution, Paper presented at *International Blended Learning Conference*, June 2012. Hertfordshire, UK.

Cross, S., Clark, P. and Brasher, A. (2009) Preliminary findings from a series of staff surveys on perceptions, attitudes and practices of learning design. In: *ALT-C 2009 "In Dreams Begins Responsibility": Choice, Evidence and Change*, 8-10 September 2009. Manchester, UK.

Cross, S. (ed.), Conole, G., Mundin, P., Galley, R., Clark, P., Brasher, A., and Culver, J. (2009) *A Review of Curriculum Design at the Open University 2008-09: OULDI-JISC Project Baseline Report.* Milton Keynes, OULDI Project.

Cross, S., Galley, R., Brasher A., and Weller, M. (2012) OULDI-JISC Project Final Evaluation Report. Milton Keynes, OULDI Project.

Cross, S., Masson, A., Everett, J., Bartholomew, P. (2011) What needs to change in curriculum design? *JISC Innovating eLearning 2011 conference*, November 2011.

Colwell, C. (2010) Cloudworks Accessibility Audit Phase 2: June 2010. Milton Keynes, OULDI Project

Dalziel, J., (2007) Learning Design: Sharing Pedagogical Know-How in Toru Iiyoshi and M. S. Vijay Kumar, eds., *Opening Up Education: The Collective Advancement of Education through Open Technology, Open Content, and Open Knowledge*. Cambridge, MIT Press.

De Baets, A. and Sheppard, D. (2011) *University of Cambridge Case Study Final Report: 13 Things for Curriculum Design*. Milton Keynes, OULDI Project.

Engeström, J. (2005). *Why some social network services work and others don't Or: the case for object centered sociality*. Blog posting, 13 April 2005

Falconer, I. and Littlejohn, A. (2007) Designing for Blended Learning, Sharing and Reuse. *Journal of Further and Higher Education*, 31(1), 41-52.

Freear, N. (2012) CloudEngine: creating networks for professional development and research, *SEDA Conference,* Birmingham, 17-18 November 2011.

Galley, R. (2010a) *Case Study: Using Cloudworks at Conferences*. Milton Keynes, OULDI Project.

Galley, R. (2010b) *End of Phase 2: Cloudworks User Survey May to June 2010*. Milton Keynes, OULDI Project.

Galley, R. (2010c) *Summary report for Cloudworks Development Phases one and two*. Milton Keynes, OULDI Project.

Galley, R. (2012a) *The impact of early learning design on the efficiency and effectiveness of curriculum design processes and practices: Faculty of Education and Languages Studies Case Study Final Report*. Milton Keynes, OULDI Project.

Galley, R. (2012b) *Applying standardised representational frameworks for the pedagogical benchmarking and review of a module: B2S Pilot Final Report*. Milton Keynes, OULDI Project.

Galley, R. (2012c) *Using a learning design approach to support evolving design practices at the OU: Support Units Pilot Report*. Milton Keynes, OULDI Project.

Galley, R., Conole, G. and Alevizou, P. (2010) *Case Study: Using Cloudworks for an Open Literature Review*. Milton Keynes, OULDI Project.

Galley, R.; Conole, G.; Dalziel, J. and Ghiglione, E. (2010). Cloudworks as a 'pedagogical wrapper' for LAMS sequences: supporting the sharing of ideas across professional boundaries and facilitating collaborative design, evaluation and critical reflection. In Alexander, A.,Dalzeil, J., Krajka, J. and Kiely, R. Cyprus (eds.) *LAMS & Learning Design volume 2* Eds. University of Nicosia Press.

Galley, R., Conole, G. and Alevizou, P. (2012) Community indicators: A framework for observing and supporting community activity on Cloudworks, *Interactive Learning Environments*.

Galley, R., Papaefthimiou, M., Alberts, P., Parnis, N., Sharma, A., and Phillips, A. (2010) Embedding learning design processes: responding to context. Short paper presented at *the ALT-C conference*, Nottingham 7-9 September.

Galley, R., Reedy, K., Parker, J. and Thomas, J. (2012) *Using a learning design approach to embedding an information literacy framework; OU Library Services Pilot Final Report*. Milton Keynes, OULDI Project.

Garrison, D.R., Anderson, T. and Archer, W. (2000) Critical Inquiry in a Text Based Environment: Computer Conferencing in Higher Education. *The Internet and Higher Education*, 2(2-3), 87-105.

Gibbons, A.S. and Brewer, E.K. (2005) Elementary principles of design languages and design notation systems for instructional design. In Spector, J., Ohrazda, C., Van Schaack, A. and Wiley, D. (eds.) *Innovations to Instructional Technology.* Mahwah, NJ.

Inglis, A. and Bradley, A. (2005) Using conceptual mapping as a tool in the process of engineering education program design. *Journal of Learning Design,* 1(2), 45-55.

Jelfs, A. (2009a) *Cloudworks Usability Testing Phase 1*. Milton Keynes, OULDI Project.

Jelfs, A. (2009b) *Cloudworks Usability Testing Phase 2*. Milton Keynes, OULDI Project.

Kokotovich, V. (2008) Problem analysis and thinking tools: an empirical study of non-hierarchical mind mapping. *Design Studies,* 29(1), 49-69.

Koper, R. and Oliver, B. (2004) Representing the Learning Design of Units of Learning. *Educational Technology & Society*, 7(3), 97-111.

Nie, M., Witthaus, G., Conole, G., and Armellini, A. (2012) *Learning Design Initaitve at the University of Leicester: OULDI Carpe Diem 7Cs pilot workshops: Leicester Pilot Final Report*. Milton Keynes, OULDI Project.

Novak, J.D. & Cañas, A.J. (2008) *The Theory Underlying Concept Maps and How to Construct Them, Technical Report IHMC CmapTools 2006, 01-Rev 012008.* Florida Institute for Human and Machine Cognition.

Papaefthimiou, M. (2012) *Learning Design Initiative at the University of Reading: Pedagogy and technological choices; Reading Pilot Final Report*. Milton Keynes, OULDI Project.

Wenger, E. (1998) *Communities of Practice: Learning, Meaning, and Identity*. Cambridge, Cambridge University Press.

Whitehead, H., Sharpe, R., Galley, R. and Culver, J. (2010) Seeding the Cloud. *ALT-C Conference*, 8 September 2010.

Whitelock, Denise and Cross, Simon (2011) Academics understanding of authentic assessment. In: *2011 International Computer Assisted Assessment (CAA) Conference, Research into e-Assessment*. 5/6 July 2011, Southampton.

Whitelock, Denise and Cross, Simon (2012) Authentic assessment: What does it mean and how is it instantiated by a group of distance learning academics? *International Journal of e-Assessment*. 2(1), Article 9.

Wittel, A. (2001) Toward a Network Society, *Theory. Culture and Society*. 18 (6), 51-76.