Transforming the Student Experience: Manchester Metropolitan University's EQAL Project

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1. ABSTRACT

In 2010, with top level support and direction from its Deputy Vice Chancellor, Manchester Metropolitan University (MMU) set up the EQAL Programme - "Enhancing Quality and Assessment for Learning". The goal was to make a step-change improvement in student satisfaction by refreshing the entire undergraduate curriculum whilst simultaneously reengineering administrative processes and creating a seamless personalised experience that wrapped the university's information and online resources around each learner. The ambitious deadline was to deliver a brand new, technology-supported first year for September 2011 with the new second year starting September 2012 and the new final year September 2013.

The scale and pace of the project was unprecedented for the UK Higher Education sector, but it delivered on time and produced significant improvements in MMU's scores for student satisfaction in national league tables. Study information from across the university is aggregated for every student using web services, and presented in a Moodle VLE and free smartphone App. Every undergraduate had a personal timetable and a personal assignment and examination calendar. Moodle receives over 50 million hits a year and over 27,000 students have registered for the smartphone App. Students have embraced the technology as a two way communication channel with over 10,000 providing over 40,000 comments for tutors each year on the best things about their course and the things they would like to see improved. Consistent use of tags and identifiers used to deliver personalized information is enabling sophisticated learner analytics to provide business intelligence to drive improved student retention, satisfaction and success.

2. GOALS OF THE PROJECT

In 2010, with top level support and direction from its Deputy Vice Chancellor, Manchester Metropolitan University (MMU) set up the EQAL Programme - "Enhancing Quality and Assessment for Learning". The goal was to make a step-change improvement in student satisfaction by refreshing the entire undergraduate curriculum whilst simultaneously reengineering administrative processes and creating a seamless personalised experience that wrapped the university's information and online resources around each learner. In short, EQAL set out to:

Transform the quality of academic life by

- simplifying structures and processes
- delivering integrated organisational support
- delivering a seamless, personalised student experience
- reforming and streamlining quality assurance processes

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Change at this pace and on this scale is unprecedented for the UK Higher Education sector. MMU's new Business Improvement Team worked hard to ensure that activity across the whole university was coordinated effectively. Each strand of activity depended on the others to deliver the project's intended benefits. New rules were required for the new undergraduate curriculum that would dovetail with smarter administrative processes and systems. Quality assurance and enhancement processes had to be redesigned to cope with the simultaneous redesign and approval of every first year module, then every second year and eventually every final year. New web and mobile technologies were required to ensure that all students would receive maximum benefit from the changes.

3. PROJECT CONTEXT

Manchester Metropolitan University is the largest campus-based undergraduate university in the UK with a total student population of more than 37,000. The university offers over 1,000 courses and qualifications, the majority of which have a strong professional bias.

In 2004, MMU embarked on a £350 million (Euro 420 millions) 10 year plan to rationalise its seven sites into two outstanding university campuses, one in central Manchester and one in Crewe, 36 miles (58km) to the south. Financed entirely from existing resources, the 10 year plan represents one of the largest and most ambitious investment programmes of any UK university.

When the EQAL project began in 2010, the building programme was progressing but MMU's scores in the National Student Satisfaction (NSS) survey had fallen behind those of key competitors. The NSS is an annual national survey which gathers opinions from final year undergraduates on the quality of their courses. The survey runs across all publicly funded Higher Education Institutions (HEIs) in England, Wales, Northern Ireland, and Scotland.

Colleagues across MMU were acutely aware of the need to make an effective intervention to improve satisfaction scores, so a detailed statistical analysis was undertaken of the NSS survey data. Analysis showed that students' responses to questions in the category of "organisation and management" were having a strong negative effect on overall satisfaction. Follow-up focus groups revealed that students were finding it difficult to navigate their courses and expected better information, for instance on when work was due, when classes were scheduled, which books to buy and how to contact tutors. They also expected to be notified of any changes to their teaching or assessment schedules.

Workshops were convened with staff to identify changes needed to address students' expectations. The workshops revealed complex interdependencies and varied practice, and it became apparent that radical transformation was needed of an undergraduate curriculum that had grown unwieldy over time. It was clear that such change would affect every undergraduate tutor and every member of administrative and support staff who worked with them, posing a significant cultural challenge.

With major investment committed to the building programme, this radical transformation had to be delivered on a tight budget. Whilst some funding was available for new posts to support improved timetabling and e-pedagogy, the majority of the work had to be carried out by existing staff alongside their normal duties. The challenge was magnified by complex interdependencies between curriculum, systems and processes and the ambitious timeline proposed for radical change.

At the same time as EQAL identified the need for radical change, a major review of the university's learning technology had concluded that it should migrate from an in-house Blackboard system to a hosted Moodle Virtual Learning Environment (VLE) integrated with Talis Aspire reading lists and an EQUELLA repository. It was decided that the new Moodle VLE should become an aggregating hub to improve students' perceptions of course organisation and management by providing the information they had asked for in the focus groups. The vision of seamless, personalised information complementing an engaging blended learning experience meant that organisational boundaries between teaching teams, registry, timetabling, quality assurance, library and educational technologists had to be set aside. Software that had served the needs of individual departments had to be reconceptualised as services that could be assembled around the learner. With only a few months planning and without the luxury of additional staff, a service-oriented architecture needed to be grafted on to existing systems and data conventions had to be established to ensure everything joined up.

The ambitious scope and timescale for the project required unprecedented innovation, excellent project management, support from the highest level and the wholehearted engagement of almost every member of MMU.

4. RESULTS OF THE PROJECT AND ITS IMPACT ON THE INSTITUTION

Six months of planning, consultation and preparation culminated in new curriculum rules, which set up the first twelve month implementation cycle. Academic Board approved a new curriculum framework that changed the size of undergraduate modules and set limits on the number of learning outcomes and assessments. The implication of the Board's decision was that every undergraduate module had to be re-written, reviewed, approved and set up in supporting systems. With over 800 modules in each year of study, the scale of the task was daunting, and the traditional approach was unsuitable of drafting module specifications in Microsoft Word, critiquing paper copies at review events and then manually entering relevant data into systems that used it. Something different was required, and quickly.

Agile methods were used to design a web form that could capture all relevant information about new modules, expose it for suitable scrutiny and ensure relevant sections flowed to all systems where it was needed without further manual data entry. Strict adherence to the Pareto (80/20) principle and rapid prototyping produced a form that was easy to use for module leaders entering new curriculum and also ensured that what they entered was complete and fulfilled the new curriculum rules, for instance ensuring a maximum of five clear learning outcomes and a maximum of two summative assessments. Validation rules within the form required constructive alignment of learning outcomes and assessment. Module leaders were prompted to categorise and tag assessments to highlight the skills students would gain from completing them. These tags also facilitated review of the balance of assessment types and skills students would discover on a programme.

Programme teams and module leaders really stepped up to the challenge of creating a new undergraduate curriculum, meeting to design new modules for coherent programmes of study and entering their newly designed curriculum into the forms so that they could be approved after suitable internal and external scrutiny. Specialist learning and teaching staff acted as 'critical friends' for all module reviews. In less than six months, 800 brand new first year modules had been designed, reviewed, approved and set up in the student records system, timetabling system, library reading list system and Moodle.

In February 2011, the new timetabling team set about scheduling first year modules for delivery in September. The team worked closely with tutors to ensure that teaching schedules for the new modules were captured in Scientia's Syllabus Plus software, and personalised timetables were created for every first year student. In parallel, the library team worked with module leaders to review proposed reading lists and ensure they were tagged with the module identifier in Talis Aspire, and categorised as either recommended for purchase, essential or further reading. Newly appointed E-Learning Support Officers, specialists in e-pedagogy, worked with module leaders to ensure they had the confidence and competence to use Moodle effectively to support their intended teaching, learning and assessment strategies.

The Learning and Research Technologies team worked with the Moodle hosting partner (the University of London Computing Centre) to synchronise courses and enrolments in the VLE with modules and programmes in the student records systems. Each Moodle course was tagged with the module or programme identifier it supported and the team wrote a custom Moodle block to use this tag and the user's ID in a call to a "mega-mashup" web-service which aggregated the administrative information students had requested, such as submission dates and recommended reading, and presented it within Moodle. In only a few weeks, the team used or created endpoints so that the "mega-mashup" could aggregate data from a number of systems:

- EQUELLA – for gathering a list of past examination papers tagged as relevant for a particular module;
- Talis Aspire – for gathering items recommended for purchase, essential and further reading for a particular module

- In-house Coursework Receipting system – for gathering information on a student's assignment submissions, extensions, expected return dates and preliminary marks for a particular module
- Scientia – for providing a student's personal timetable
- Live@Edu/Office365 – for providing single-sign-on to a student's email

A local web design company (called magneticNorth) that had worked extensively with the BBC was employed to create a clean and professional theme for Moodle to maximise the impact of its content.

In September 2011, the new first year went live, exactly on schedule, and work began immediately on entering the new second year modules for September 2012. The EQAL team worked closely with the first year students to understand what they thought of the new services. It became apparent that students were struggling with the format of timetable information provided by Syllabus Plus, which listed teaching in terms of week-numbers rather than dates. The Learning and Research Technologies team devised a way to consume Syllabus Plus as a web-service and transformed the output into a more familiar Google-Calendar-style display. The team also created an online survey tool that was personalised based on a student's enrolments, which asked for feedback about aspects of their course and modules that were significant predictors of overall satisfaction in the NSS.

Over 10,000 students responded to the survey and provided tutors with over 40,000 free-text comments about the things they liked best and the things they would most like improved. The combination of focus groups and the online survey proved invaluable in understanding how best to target improvements and the need for full mobile access to Moodle and timetable information quickly emerged as a priority.

Over the summer, the Learning and Research Technologies team partnered with oMbiel to customise its CampusM smartphone App to consume the "mega-mashup" web-service and provide personalised study information on students' mobiles.

In September 2012, the new second year went live, supported by both Moodle and the CampusM smartphone App, which was free to students and saw rapid adoption, climbing quickly to 7,000 active users a day. The number of hits on Moodle was staggering, peaking at over 450,000 a day, and the Student Union awarded a special prize to the Learning and Research Technologies team for Moodle. Video assignments and revision clips were integrated with Moodle using Kaltura. Students continued to give amazingly rich feedback via the online survey, again with over 10,000 providing over 40,000 comments for their tutors.

In September 2013, the new final year went live, completing the rewrite of the entire undergraduate curriculum exactly on schedule. Every undergraduate had a personal timetable and a personal assignment and examination calendar. Moodle was now averaging over 50 million hits a year and adoption of the CampusM App continued to grow with over 27,000 registrations and over 15,000 active users a day, and access to Moodle and personal timetables being its most popular features.

4.1. IMPACT ON THE INSTITUTION (AND BEYOND)

Delivering university-wide change at this pace has given MMU a new confidence about its ability to make institution-wide improvements. It has demonstrated to the whole UK HE sector that change on this scale is possible and Jisc funding has enabled MMU to share lessons from its curriculum design, "mega-mashup" and assessment and feedback work with universities throughout the country.

Although the new final year only went live in September 2013, results from the annual NSS have shown progress in MMU's organisation and management, assessment, learning resources and overall satisfaction scores.

- **NSS 2012**: organisation and management up 7%; assessment up 6%; learning resources up 6%; **overall satisfaction up 6%**
- **NSS 2013**: organisation and management up 2%; assessment up 2%; learning resources up 1%; **overall satisfaction up 3%**

Response rates for the internal online survey (which has become known as the ISS) show that students have really embraced EQAL technology as a two-way communication channel:

- Nov 2011: Respondents 10,717 | Comments 58,049
- Nov 2012: Respondents 10,186 | Comments 48,347
- Nov 2013: Respondents 9,533 | Comments 42,808

Moodle has become embedded as a core piece of learning technology, receiving over 50 million hits each academic year, and tutors hold in high regard the support they receive from the E-Learning Support Officers (ELSOs):

- In 2013, the ELSO team delivered 183 formal staff development events, 28 curriculum design workshops, 250 hours of drop-in provision and over 600 hours of one-to-one e-pedagogy advice on MMU's core+ learning technologies

Systems across the university are using a common set of identifiers, which facilitates aggregation of content for students and tutors and lays the foundations for the second, learning-analytics, phase of the project:

- The EQUELLA repository now contains over 11,000 past examination papers tagged with module codes
- The Kaltura video repository now contains over 5,000 videos tagged with module codes
- Talis Aspire now contains over 2,000 reading lists tagged with module codes
- The ISS now contains over 500,000 data-points on student satisfaction tagged with module or programme codes

5. THE STATE OF DEVELOPMENT OF THE PROJECT

Systems delivered in the first phase of EQAL are now in the embedding phase: Moodle, Syllabus Plus, CampusM, Talis Aspire, EQUELLA, Kaltura, the "mega-mashup" web-service, the online survey (ISS) and the module specification web form are all moving to business-as-usual support arrangements.

The second phase of EQAL is well underway, building on foundations laid in the consistent use of tags and identifiers to provide business intelligence to drive improved student retention, satisfaction and success. Doctoral and post-Doctoral research on learning analytics has been used to design a data warehouse, visualisations and dashboards to power Student Engagement Monitoring (SEM) and Continuous Monitoring and Improvement (CMI) of programmes and modules. The warehouse is being developed with an external partner (Waterstons) using Microsoft's Business Intelligence suite and SharePoint workflows to structure follow-up actions from tutors.

6. PLANNED FURTHER DEVELOPMENTS

First releases of the new SEM and CMI systems are scheduled to go live with tutors in September 2014 to support workflows designed to improve student retention, satisfaction and success. MMU hopes to partner with Jisc and HEIDI (the UK's Higher Education Information Database for Institutions) to acquire sector data for benchmarking, and increase the sophistication of its learning analytics work for targeting interventions. The warehouse is already capable of joining learner demographics with satisfaction, engagement, submission, retention, marks, VLE and resource usage data, and prototype learning analytics reports have highlighted patterns and correlations worthy of investigation. MMU plans to embed a data-driven approach to continuous improvement in its quality enhancement processes, and is looking to create a supportive action-research culture for identifying and evaluating interventions designed to improve student outcomes.

MMU is also working with its mobile partner, oMbiel, to extend the CampusM smartphone App to address two institutional objectives: gathering attendance data and facilitating more interactive classroom sessions. A pilot is planned for September 2014 that will combine QR-code based self-registration with in-class voting.

7. THE APPLICABILITY OF THE PROJECT TO OTHER INSTITUTIONS

Not only is the project highly applicable to other institutions, but it has been sharing lessons learned along the way for the benefit of other institutions, for instance:

- Rationale for the choice of learning technologies
  http://lrt.mmu.ac.uk/ltreview/2010/03/04/outcome-of-learning-technologies-review/

- Background to curriculum redesign:
  http://jiscdesignstudio.pbworks.com/w/page/29224166/Supporting%20Responsive%20Curricula%20%28SRC%29%20project

- Monthly updates on the EQAL project:
  http://blogs.mmu.ac.uk/eqal/

- Candid interviews with key stakeholders partway through the EQAL project:
  http://jiscdesignstudio.pbworks.com/w/file/54373376/In%20the%20Throes%20of%20Change_release.docx

- Reflection on the EQAL project management approach:
  https://sas.elluminate.com/site/external/jwsdetect/nativeplayback.jnlp?sid=2009077&psid=2012-11-20.0108.M.429B2124FC94CAC8371A338C2B143D.vcr

- Mobile, timetable and "mega-mashup" extensions to Moodle:
  http://lrt.mmu.ac.uk/w2c/

- Process and technology developments around assessment and feedback:
  http://jiscdesignstudio.pbworks.com/w/page/50670987/TRAFFIC%20Project

- Details of the service-oriented integration approach have been shared with other institutions through user groups for the software products involved, eg ULCC's Moodle community, CampusM's user group, Talis Aspire's user group, Kaltura's user group and Pearson/EQUELLA's user group, see for instance presentations on:
  http://www.slideshare.net/markstubbs or
  http://mmutube.mmu.ac.uk/media/Enhancing+the+Student+Experience+with+Kaltura+Video/1_agay001b

The EQAL project team is very grateful for the support of Jisc and MMU's directors for making it possible to share these lessons for the benefit of others.

8. AUTHORS' BIOGRAPHIES

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Mark is Professor and Head of Learning and Research Technologies at Manchester Metropolitan University in the UK, where he works closely with Library, IT Services and academic colleagues to provide, arrange and recommend learning technologies for staff and students. His team is responsible for learning systems, student systems, systems integration and learning innovation.

Mark joined academia from management consultancy in 1992 and has taught, designed and led undergraduate and postgraduate courses as Principal Lecturer in Business IT.

Mark has supervised and examined PhDs in the areas of systems integration, mobile learning, systems evaluation and learning analytics. His own PhD, from Cranfield in 1998, was an action-research study, bringing together stakeholders from across organizational boundaries to address environmental issues. He has been Principal Investigator on a number of projects and has been involved in international standards work on metadata for learning opportunities and learner mobility.