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| Description: JISCcolour15 |  |

FASTECH Project  
Final Evaluation Report



Assessment & Feedback Programme

Strand A: Institutional Change  
Duration: 2011-2014

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| **Project Information** | | | |
| **Project Title (and acronym)** | FASTECH Feedback and Assessment for Students with Technology | | |
| **Start Date** | September 2012 | **End Date** | August 2014 |
| **Lead Institution** | Bath Spa University | | |
| **Partner Institutions** | University of Winchester | | |
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| **Programme Name** | Strand A: Assessment and Feedback | | |
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1. **Executive Summary**
   1. FASTECH is a research and development project working within 15 undergraduate degree programmes at Bath Spa University and the University of Winchester to address assessment and feedback challenges using a diverse range of readily available technologies. The educational principles underpinning FASTECH draw on Graham Gibbs’ conditions to improve student learning from assessment, as well as evidence from the HEA-funded TESTA National Teaching Fellowship Project related to student learning from assessment.
   2. **The aims of FASTECH are to:**

* Develop an evidence-base about the use of specifc technologies to address specific assessment and feedback challenges;
* Embed evidence-informed technologies and spread use within and across programmes through strategic networks and partnerships;
* Align technology use with assessment principles;
* Deploy student fellows as partners and change agents to help bring about long-term departmental and institutional changes in technology enhanced assessment;
* Enhance cross-institutional working and strategic partnerships (for example between IT and Learning and Teaching).
  1. **Evaluation questions and purpose of evaluation**

Pedagogic

* + What are the underlying assessment and feedback challenges?
  + How effective has the alignment of technology use with assessment challenges been?
  + How relevant have technology interventons been in solving these problems and what evidence supports this?
  + How have technologies influenced student learning from assessment and feedback?
  + What impact has each innovation had on assessment processes, and what evidence supports this?

Embedding technology

* + What is the extent of coverage of technologies?
  + What technologies have been deployed through FASTECH?

Change Theories

* + What models of change have been adopted?
  + How successful have these models been in bringing about change?
  + What barriers to change have we identified?
  + What strategies to overcome barriers have we developed?

Sustaining and embedding - policy and politics

* + What are the strategy and policy frameworks around assessment and feedback, and e-learning in each of the two institutions?
  + How has the work of FASTECH influenced these?
  + What lines of dialogue between IT and Learning and Teaching has the project opened up?
  + How has FASTECH’s work been integrated in the committee systems and structures?
  + What institutional resourcing has FASTECH liberated?

The purpose of the evaluation is to evidence:

* the influence of FASTECH on students’ learning;
* changes in staff and students’ understanding of assessment and feedback;
* increased awareness, competence and confidence in using technology;
* effective pedagogic use of technology;
* progress on how well changes have been embedded institutionally;
* planned undertakings in the final year of the project 2013-14.

The evaluation also enables reflection on what has been less effective, what myths and assumptions have been exposed from project design to execution, and what lessons we have learnt both from successes and failures which may be of value to future projects.

Finally, the evaluation allows us to trace unintended consequences, surprises, and interesting u-turns which are part of the innovation process: “The biggest impact may not be what you intended – that’s innovation!” (Chatterton 2010).

* 1. **Brief summary of evaluation methodology**

The evaluation methodology consisted of documentary analysis of institutional documents, a short literature review, analysis of online resources and previous JISC funded projects, and CAMEL-cluster discussions on evaluation planning. We held meetings of the project team primarily to share knowledge and insights drawn from members’ experiences of working with particular teaching teams at programme level, and about the work of the project’s student fellows; and to exchange ideas about our key findings, in terms of what the research data were telling us.

Mindful of the need to focus on learners’ experiences and benefits to staff, the evaluation of technology enhanced assessment has had two dimensions. At Winchester, the main evaluation took place through ‘think aloud’ simulated recall sessions with twelve students on two programmes using two technologies, over the course of twelve weeks. Researchers interviewed students in weeks 3,6 and 12 of their modules using a semi-structured schedule and camtasia audio-cum-visual recordings. The theoretical framework for the interview questions in the think aloud sessions was Bloom’s taxonomy of skills. Copies of the ‘think aloud’ framework and questions are available on the Design Studio at:

<http://jiscdesignstudio.pbworks.com/w/browse/#view=ViewFolder&param=Research%20Tools>

At Bath Spa, the main evaluation methodology was through student-led focus groups around particular technologies and assessment, which were video recorded. These focus groups took place on five programmes.

* 1. **Summary of main findings, and implications of these**

The main findings provide provisional indication of our key findings, given that the project has one year to run. A major component of our work in the final year will be to complete the analysis of our various sets of qualitative and quantitative research data, and to integrate the findings so that we can present a fuller and deeper picture of the findings.

***Main findings to date***

**1.5.1. Pedagogy**

* FASTECH interventions addressed the following key assessment principles, aimed at improving assessment pedagogy and enhancing student learning:

1. More and more-authentic formative assessment opportunities (blogging)
2. Increasing time on task (blogging and e-portfolios)
3. Clarifying goals and standards (peer feedback on drafts on VLE forums; video capture and reflection on law ‘moot’ case performances)
4. Increased opportunites for reflection on assessment tasks (e-journals and e-portfolios)
5. Reducing marker variation (collaborative marking using google drive )
6. Improving the quality of feedback through making it more specific, visual, personal, legible and cross-referenced to the text (Grademark; Camtasia and Jing screencasts; audio feedback).

* Early evidence from the ‘think aloud’ interviews shows that students who were part of blogging groups developed their reading, reflection and writing skills, and engaged more fully with course material. Most enjoyed the experience and spent more time-on-task.
* Online drafting using virtual learning environments and requiring tutor and peer review has proved helpful for clarifying goals and standards in American Studies.
* Grademark for giving feedback to students because it is clearer and more specific for students, and it saves lecturers administrative time. Lecturers have become convinced of its value, even though initially it took longer to mark assignments.
* The Law Department at Winchester used video clips of mock trials to help students reflect on their performance. The Student Fellows describe the FASTECH video pilot as “one of the biggest changes the Law programme has ever seen”.
* Social Work students found e-portfolios a useful mechanism for professional reflection, and for organising evidence to meet professional standards.
* History students value screencast feedback but many staff find it too time-consuming to learn how to give screencast feedback. Music staff and students find that audio and screencast feedback personalises learning and helps

**1.5.2. Using Technology**

* Teacher attitudes to technology affect student take-up and enthusiasm for the technologies: for example, if teachers struggle to use grademark and find it time-consuming, students may become negatively disposed;
* Technology which simply replaces or substitutes for paper-based processes draws an ambivalent response from students, who may regard it as convenient but no better; more legible, but full of stock phrases, for example. The benefits here may be from greater ‘efficiency’ of processes, less environmental waste etc, but the ‘effectiveness’ of the assessment and feedback processes in terms of impact on students’ learning may be largely unaffected. However, it could equally be argued that efficient processes free up time for better learning and teaching.
* Technology which augments learning by doing something distinctive and different has more resonance with staff and students because it adds value rather than substitutes for, repairs or appears to replace existing processes.Ttechnologies which allow for faster processes, for example returning feedback quicker, are augmebnting learning by getting feedback back to studentws in time for them to act on it;
* There is a place for both ‘substitution’ type technologies and ‘augmenting’ technologies; substituting technologies may be more efficient, streamlined and ‘smarter’ than traditional means; augmenting through technologies may harness creative potential and new ways of working. Both can encounter resistance from staff and students; both need to get beyond the proof of concept stage for embedding;
* The most successful technology interventions on FASTECH have been:
  + Blogging as a formative process;
  + Audio feedback as more personal, attended to, and informative;
  + Video capture to enhance self-reflection;
  + Screencast feedback;
  + Online marking for more specific feedback.

**1.5.3. Change Theories**

* Projects change as they develop. The programme-focused design of FASTECH shifted early on in the project when it became evident that adopting technology interventions across whole programmes was not a winning strategy, as programme teams were not prepared to innovate uniformly across whole programmes because it was too high risk, too time consuming and pedagogically questionable. Using one form of technology to address an assessment issue across the programme was potentially both high risk and constraining to lecturers.
* Our discussions with programme leaders led us to the conclusion that interventions should have a pilot phase, and that they should take place within, rather than across, whole programmes as small local interventions. The consequence of this shift was that we had to think about locating the interventions as strategically as possible within the programmes (e.g. in core modules), so that we could expect these changes to be experienced by all students at some stage in their course of studies, and about how we could help the departments in the processes of sustainng and embedding a set of grassroots interventions.
* The shift from programme-wide technology intervention to working with members of a teaching team on proof of concept technologies in the pilot phase, and providing case study evidence of effectiveness, has led to more local, grassroots development. On several programmes, once proof of concept was established, the interventions were sustained or expanded to different levels and modules. Programmes with plans to sustain and roll out interventions are: Education Studies Grademark; BA Primary Blogging; American Studies Blogging and Online peer review; Social Work e-portfolios, Music audio and screencast feedback; History e-journals; Law videos for self-reflection on mock trials; Media Studies digital production of seminar materials.
* Teachers who have experienced using the technologies are guiding others to use them. Student Fellows play an enabling and supporting role in the use of these new technologies, training peers and being a bridge between lecturers, students and the FASTECH team.
* The approach to change on FASTECH has operated at multiple-levels, influencing stakeholders from different departments and constituencies. At the heart of the FASTECH development process has been the conversation and discussion between FASTECH team members, student fellows and lecturers, beyond which there have been discussions, troubleshooting and research activities with IT services staff, learning technologists, students. FASTECH’s wider circle of influence has been through the committee structure to promote strategic and evidence-led approaches to using learning technology.
* The project has validated experimentation with technology as much more of a norm than before. It has generated interest and awareness and a ‘go to’ approach among academics, where many feel free to ring and ask about how to trial various technologies.
* Both universities have seen increases in staff calls for help with the use of technology or setting up small-scale pilots. While it is difficult to attribute all of these to FASTECH, the project has created awareness and a climate whereby experimentation is seen as valuable for pedagogy and the common educational good.

**1.5.4. Sustaining and Embedding Change**

* The FASTECH approach of developing technology innovations which align with baseline evidence and assessment principles, and evaluating the evidence of enhancements using a variety of research methods, will be sustained because of the Student Fellow Scheme. The Student Fellow Scheme has been so successful at generating student led innovation and change, that Winchester is funding 60 Student Fellows in 2013/14. The Winchester Student Fellow Scheme is a direct result of FASTECH and builds on its perceived success. This will ensure a high level of continuity in the final year of the project.
* At Bath Spa, FASTECH has influenced the appointment of five full-time learning tehnologists, one per faculty, who will continue the work of FASTECH in a faculty led way, with the support of the FASTECH team.
* Grass roots interventions have been described as ‘high risk’ because they do not always become systemic and embedded, even following proof of concept (Gunn 2009). The FASTECH team have worked hard to integrate project successes, lessons and findings into the committee structure at both institutions. FASTECH is a standing item on the Technology Enhanced Learning Working Group at Winchester, which consists of IT, Learning and Teaching, and Senior Managers. This committee recommends plans and resources for technology enhanced learning to the Senior Management team, for example, the allocation of 50k for a mobile learning devices scheme.
* At Winchester, for the first time, a distinct e-learning Strategy has been developed, and is in the process of being approved. Elements of learning about assessment, feedback and technology are also included in the new Winchester L&T strategy which is also going through approval processes. At Bath Spa, a new policy guideline on assessment and feedback has been heavily influenced by both FASTECH and TESTA findings.

**1.6. Summary of recommendations**

* That the JISC community helps projects that have used students as co-researchers and change agents to develop professional frameworks, guides and models of practice to help to clarify mechanisms and effective ways of deploying student change agents;
* That a network of similar institutions bring together knowledge and experience of employing student change agents under JISC’s leadership to develop these frameworks and guides;
* That the timeframe for reporting on JISC institutional change projects such as this one, is extended to three years as a minimum, to reflect the complex and slow processes of embedding evidence-informed changes linked to technology;
* That evidence-led technologies, which align with assessment principles are more widely used in our institutions, and that the evidence for learning gains is widely disseminated.

1. **Background and context**

**2.1. Purpose of the evaluation and core evaluation questions**  
The purpose of the evaluation was to determine the effectiveness of a range of technologies at addressing assessment issues within our fifteen FASTECH programmes. In summary our core evaluation questions were:  
  
**Learning and Teaching core evaluation questions:**

* What are the underlying assessment and feedback challenges?
* How effective has the alignment of technology use with assessment challenges been?
* How relevant have technology interventons been in solving these problems and what evidence supports this?
* How have technologies influenced student learning from assessment and feedback?
* What impact has each innovation had on assessment processes, and what evidence supports this?

**Sustainainability core evaluation question:**

* What approaches have we adopted to embed evidence-led changes into institutional processes, systems and policies?

**2.2. The project and its context**  
FASTECH operates in two universities, Bath Spa and the University of Winchester, building on our partnership through the TESTA National Teaching Fellowship Project which focused on programme-wide research and development. TESTA expertise, communities and programme data have contributed to FASTECH, particularly through its assessment principles (Gibbs and Simpson 2004), choice of programmes, participation by many of the team members, and some of the baseline data. Section 3.2 of the Institutional Story gives a more detailed overview of the context at both universities.

The two partner universities in FASTECH have different online learning environments; Blackboard at Bath Spa, and Moodle at Winchester. There are various organisational and structural similarities and differences at the two universities. Both are small-sized institutions with about 6,000 students; both focus on arts, humanities, social sciences and education subject areas; both have small Learning and Teaching departments.

The FASTECH project worked on 15 programmes to test proof of concept of a range of technologies linked to various assessment challenges identified through the baseline report. The diagram below shows the range of technologies used on FASTECH.

*Figure 1: Technologies in use on FASTECH*



The Student Fellow programme in both institutions recruited at least one student from each of the 15 programmes. There were 17 student fellows, who have been appointed through formal and joint HR procedures. The students are paid an honorarium of £900 pounds in three payments of £300, for the equivalent of 100 hours work over a 20-month period. The roles and responsibilities of student fellows were to:

* attend meetings for training workshops and discussions (including online conversations) with other members of the project team;
* contribute to the research activities of the project; e.g., by organising and leading student focus groups within her/his discipline;
* liaise with students on her/his degree programme, raising student interest in the project and reporting students’ views about the uses of technology and students’ experiences of assessment;
* work with tutors in her/his discipline to help explore the ways that technology can be used to improve assessment and feedback;
* advise other students on her/his programme about technology-supported changes to assessment practices (e.g., by running a student workshop);
* work collaboratively with other FASTECH student researchers;
* create materials about student views and experience of assessment (such as a personal reflection, a brief case study, a short video, a podcast or blog) for the FASTECH website.

Section 4.3 in the Institutional Story provides more detail about the Student Fellow Scheme.

**2.3 Target population for the project and relevant stakeholders for the evaluation**

|  |  |  |
| --- | --- | --- |
| **Internal stakeholders** | **Wider Community** | **Evaluation stakeholders** |
| Students | JISC community | Student Fellows |
| Lecturers | HEA | Learning & Teaching teams |
| Programmes | SEDA | Learning Technologists |
| IT staff | Educational researchers and developers | JISC programme team |
| Department and faculty leaders | HE and FE sector |  |
| Senior Managers |  |  |

**2.4 Related work/studies in the wider literature or other programmes and projects**

FASTECH has drawn inspiration and evidence from the following projects and programmes:

* University of Exeter’s work on Students as co-researchers and change agents – mainly from Integrate and Cascade projects <https://projects.exeter.ac.uk/cascade/> and collated materials on the Design Studio: <http://jiscdesignstudio.pbworks.com/w/page/31087422/Students%20as%20Change%20Agents>
* The University of Hertfordshire’s ESCAPE project, and the Duckling Project at Leicester gave us some ideas on assessment for learning and using a diverse range of technology innovations.

<http://jiscdesignstudio.pbworks.com/w/page/12458368/Assess>

* London Metropolitan’s student-led work on reflective blogging in the politics department, funded by the HEA subject centre CSAP was helpful for our research on the formative potential of blogging  
  <http://www.heacademy.ac.uk/resources/detail/subjects/csap/Reflective_Blogs_in_the_Classroom>

1. **Evaluation approach**

The evaluation has taken place at two levels. The primary level for our evaluation has been the local intervention on each programme, and has involved detailed research and data collection on the effectiveness of particular technology enhanced learning approaches. The second layer of evaluation has been institutional, in which we have begun analysing the effects that the project has had on each university’s institutional policies, resourcing and strategies.

* 1. **Design of the evaluation**
     1. **Type of evaluation**

The pilot phase of evaluation (2011/12) focused on local interventions. Student Fellows and project developers collected data from programme pilots using focus groups with students and Assessment Experience Questionnaire (AEQ) returns. These qualitative and quantitative data were analysed seperately and in combination, and in many cases in the light of what we had already learned (from TESTA research) about the particular and distinctve features of the assessment environments of each degree programme. We aimed to create a ‘thick description’ (Geertz, 1973, 5-6) of each pilot, to contextualise it in its specific assessment context; and to offer the teaching team a clear view both of what kind of educational and operational challenges the pilot was addressing and of the kind of effects we anticipated through this intervention. Summaries of a selection of pilots were written up in case-study form.

Some of our data proved too generic for use because it lacked specific evidence about the influence of particular technologies on assessment and feedback challenges identified in the baseline report. The data did show the extent to which the technology intervention worked for students, and it demonstrated the extent to which the technology aligned with the assessment challenge. To that extent the data provided the FASTECH team with useful evidence to help lecturers adapt both the technology and align the interventions with their assessment goals and teaching approaches. For example, one lecturer adopted an approach whereby students had to produce video clips in response to seminar readings for presentation to the class. His goal was to increase student effort (‘time-on-task’ principle) which had low scores on the AEQ. The evidence showed that students were attending to the one weekly reading where they were required to produce a video, but not distributing effort across other weeks. The technology did not address the problem because it was not supported pedagogically. The problem was addressed by the lecturer introducing students’ peer review of each week’s video clips, encouraging the students to attend to one another’s work.

The second phase of evaluation has included much more targeted formative evaluation in contrast to the generic nature of the pilot data. The best example of formative evaluation has been a multi-stage capture of ‘think aloud’ data from students on two programmes at three intervals during the semester. The data has been collected using camtasia audio and visual clips of students’ work, on blogging and e-portfolios, around a semi-structured interview using Bloom’s taxonomy of learning as a theoretical template. The formative nature of the evaluation enabled dialogue and discussion with lecturers at each interval, shaping the progress of each intervention.

This second phase of data collection also included meta-analysis of the student fellow programme itself, to assess the learning gains for the FASTECH student fellows participating as partners on the project. The data collection for this component was mainly through video interviews, combining evaluation data with asset development for future generations of students as change-agent type projects. In parallel, the team are collecting data from lecturers about their experience of using various technologies, both its efficacy and efficiency.

The evaluation of institutional embedding is taking place through documentary analysis and review of changes in policy, resourcing and strategies. The methods of collecting this data have been both informal, through conversations, meetings and discussions with colleagues across various departments, and formal, through a documentary review of policies and frameworks.  
  
Research Tools are available on the Design Studio:  
<http://jiscdesignstudio.pbworks.com/w/browse/#view=ViewFolder&param=Research%20Tools>

Research tools are also available on the FASTECH website:  
<http://www.fastech.ac.uk/index.php/toolkitmain/research-tools>

* + 1. **Evaluation Approaches**

Our evaluation has been informed by various qualitative aproaches including action research, with its focus on collaborative problem-solving, often described as research ‘with’ rather than ‘on’ people; ethnographic observation of student behaviour with technology; simulated recall where students talk about their learning processes as recalled by them through various prompts. All of these approaches are qualitative. FASTECH initially also used quantitative survey methods, particularly the Assessment Experience Questionnaire.

* + 1. **How the baseline informed the project and the evaluation**

The baseline helped us to identify enablers and barriers, understand the challenges of our project better, and redefine the scope of the project and its evaluation. The main enablers for the project we identified were the general enthusiasm and motivation of a critical mass of academic staff to use technlogy for pedagogic enhancements; and the potential of student fellows to help support the process of innovation.

The main barriers we identified were:

* + pressure on staff time and workloads;
  + staff perceptions that technology innovations are time-consuming;
  + uncertain and unproven benefits of using technology;
  + fears of loss of individual teacher authority or departmental autonomy and professional discretion in matters of assessment;
  + perceived lack of flexibility in assessment processes (“having to do everything ‘online’”);
  + perceptions about de-personalisation of teaching and learning;
  + distrust of developments that might enable greater standardisation, collection of information and comparison of practices across the institution;
  + general wariness of institutional systems and capacity to support technological innovations.

The main challenges of our project were to leverage wider changes from local innovations, and create linkages between these local innovations and strategy development (Nicol and Draper 2009). Operational challenges included persuading members of programme teams of the value of persisting with innovations without relevant evidence about the learning benefits of the same; garnering sufficient support from our team, student fellows and IT services to help make innovations work as seamlessly as possible; and shaping the kinds of innovations that would align with the assessment goals identified in the baseline & pilot data. Our research on TESTA and FASTECH has shown that particular local evidence is the most powerful component in the adoption of new ways of doing things. In spite of plenty of evidence to support proof of concept ‘out there’ in the literature, many academics want to see how innovation plays out in their context.

Finally the baseline data helped us to reshape the scope of the project and its evaluation so as to conceptualise innovations in clusters or themes; and to modify data collection to be more about having ‘thick data’ with explanatory power on fewer areas innovation; rather than ‘thin’ data on every innovation, providing very little detailed evidence of learning effects and gains.

* + 1. **Evaluation framework**

The following table gives an overview of aspects of the evaluation:

|  |  |  |  |
| --- | --- | --- | --- |
| **Evaluation Level** | **Evaluation Question** | **Stakeholder** | **Evidence** |
| Local innovation | Was it effective? | Students | Learning gains: e.g., engagement; motivation; achievement; collaboration |
|  |  | Teachers | Know-how; competence; confidence; motivation; improved pedagogy; time-saving efficiencies |
|  |  | Wider teaching team | New knowledge; new technological expertise; models of practice; sharing approaches; system change |
| Institutional embedding | How has FASTECH influenced policy, strategy, resourcing? | Departments and faculty | Standing item on committees; working groups; dissemination through internal conferences; changes in practice across teams and departments |
|  |  | Student partners | System-wide deployment of students as co-researchers and change agents |
|  |  | University-wide | E-learning strategy development; A&F strategies; strategic priorities; resource allocation. |

* 1. **Data collection and analysis**

The data collection for FASTECH evaluation followed the phases of the project, with the pilot phase deploying fairly standard techniques such as focus groups and surveys. The second phase of data collection was much ‘messier’ as the team and student fellows explored new and creative ways of collecting data, including ‘think aloud’, video data and meta-data on the student fellow programme. This second phase also included gathering data on institutional embedding of FASTECH outcomes more widely. The data on local interventions with programmes were collected mainly by project developers, the lead researcher and student fellows. In the second phase of the project, student fellows at Bath Spa ran focus groups which were filmed independently.

* + 1. **Methods used and why they were chosen**

The table below describes methods which were adopted:  
  
Methods used on FASTECH

|  |  |  |
| --- | --- | --- |
| **Method** | **Purpose** | **Limitations** |
| Focus Groups | Rich, discursive student ‘voice’ data | Messy, generic, and some off-topic data, peer influence of direction of data |
| Assessment Experience Questionnaire | Able to indicate student perceptons of A&F | Unable to explain reason for student perceptions |
| ‘Think aloud’ simulated recall | Able to capture data about student learning processes, technology artefact or process acts as a trigger | Resource intensive and provides large amounts of data making widespread use difficult; students are able to articulate inner processes to greater and lesser degrees |
| Video capture – ‘talking heads’ data | Highly visual, rich and engaging data with gesture, visual and audio providing texture. | Snapshots rather than deep data, can be impressionistic. Requires huge resource for editing and presenting. |
| Documentary analysis | Provides institutional canvas and overview of context | Volumes of data and problematic institutional repositories can make analysis difficult. Gap between written policy and actual practice. |

Research tools can be found on the Design Studio at:

<http://jiscdesignstudio.pbworks.com/w/browse/#view=ViewFolder&param=Research%20Tools>

They can also be found on the FASTECH website:

<http://www.fastech.ac.uk/index.php/toolkitmain/research-tools>

Examples of ‘talking heads’ video data can be found on both the Design Studio and the FASTECH website:  
<http://jiscdesignstudio.pbworks.com/w/page/68511840/Student%20'talking%20heads>'  
<http://www.fastech.ac.uk/index.php/about-fastech/students>

A full set of videos is referenced in the Institutional Story in Section 5.

* + 1. **Approaches to analysis**

The analysis was conducted by the FASTECH project developers and lead researcher together, followed by independent work on sections of data. The team roles allowed for one project developer in each institution who managed the student fellows and research elements of the project, under the guidance of the project manager/lead researcher. In the pilot phase, the team of researchers and student fellows collected focus group data and AEQ data in tandem. The focus group data were analysed through a process of coding and developing themes from the data. The statistical data were entered into SPSS to derive means, ranges and standard deviations. In writing up case studies the researchers used approaches designed to make case studies readable and digestible, with the result that they are deliberately brief, with plenty of student voice data, and matrices summing up tensions in the data.The second phase of analysis is more complex and messy, and is not yet complete, but it has followed a similar process of distilling themes from a range of data by coding and categorising student-voice data. The ‘think aloud’ data have been collected on camtasia, and researchers have listened to audio clips in tandem with watching the visual of the students’ screens. The first phase of this data analysis has contributed to the disciplinary academics involved presenting a highly successful paper at Winchester’s Learning and Teaching day in May 2013. The team are planning to publish three peer-reviewed outputs from the ‘think aloud’ data, based around different aspects of the student experience.

The student-led focus groups at Bath Spa which were filmed and audio recorded have been analysed by drawing out themes and quotations linked to those themes. The project developer at Bath Spa is also drawing together cross-programme generic themes from these data.

The videos on student fellows’ experiences have been watched and edited into shorter ‘talking heads’ clips. In the third year of the project, the team will use student fellow data to draw up a concept paper, based on evidence, literature and experience, of the Student Fellow Scheme, as a guide and framing document for other universities undertaking projects involving students as formal partners in pedagogical research and development projects.

**3.2.3. Evaluation limitations**

The main limitations in our evaluation relate to the tendency of students in many focus groups to talk quite generically about the effects of the use of technologies on their learning experiences and achievements. We have addressed this limitation by a deeper approach of ‘think aloud’ on two programmes.

Another limitation relates to our relative inexperience in using video data, and potentially, the high risk strategy of getting student fellows not only to conduct focus groups, but also to video these. Video data have not solved the problem of focus groups providing quite general data, although it may have made conducting the focus groups more challenging and interesting for the student fellows concerned.

A third limitation, for the purpose of this report, is that our analysis is incomplete and running into the third year of the project. For our research purposes, we do not see this as a weakness, but it may be difficult for JISC in synthesising findings from all eight A&F projects at this stage in the programme. Our data analysis is running into a third year for many reasons, not least staff changes, but also due to the fact that we have a rich and diverse and still growing body of data and are concerned to make sure we make the most of this resource (and external feedback) for our universities, JISC and the wider community’s benefit.

1. **Evaluation findings**
2. **Pedagogic questions  
     
   What are the underlying A&F challenges?**

* Lack of authentic formative assessment opportunities for students
* Assessment does not distribute student time across weeks and modules - ‘time-on-task’
* Students have insufficient opportunities to internalise goals and standards
* Assessment system does not provide the means for reflection on tasks and feedback
* Inconsistent marking approaches and standards
* Problems with the quality of feedback

**How relevant have technology interventions been in solving these problems and what evidence supports this?**

* **Enhanced formative assessment opportunities**  
  We define formative tasks as required, ungraded and eliciting feedback (Sadler 1989). Two approaches evidenced learning gains for students through more regular formative opportunities with peer feedback mechanisms. One was adopted by American Studies at Winchester, using the online learning environment for peer review of drafts on the Senior Interdisciplinary Studies module. The success of this intervention was partly captured through the NSS as a proxy indicator, showing gains in student satisfaction with assessment and feedback. Attribution issues make it difficult to assign causation, but module evaluation data showed the value of this peer review approach, both in student learning and staff efficiencies, as in previous years, the tutor had borne sole responsibility for commenting on drafts. The American Studies programme at Winchester is small enough to have had a programmatic intervention improve student perceptions of assessment and feedback. Both the use of blogging and online drafts with peer and tutor feedback have improved NSS scores on A&F questions and overall satisfaction:

|  |  |  |  |
| --- | --- | --- | --- |
| American Studies | 2010 | 2012 | 2013 |
| The criteria used in marking have been clear in advance | 64% | 79% | 79% |
| Assessment arrangements have been fair | 83% | 93% | 86% |
| Feedback on my work has been prompt | 64% | 91% | 86% |
| I have received detailed comments on my work | 92% | 81% | 95% |
| Feedback has helped me to clarify things I did not understand | 69% | 74% | 70% |
| Overall satisfaction | 92% | 100% | 88% |

A second approach was blogging which occurred on several programmes: the BA Primary, American Studies and Creative Writing at Winchester. The BA Primary NSS data paints a wonderful picture of A&F improvements but it is misleading to attribute this given that blogging took place on one module in the first instance and it is a large programme. Creative Writing is a small programme and all students were affected by the blogging intervention, and their NSS shows some modest improvements if regarded as proxy data:

|  |  |  |  |
| --- | --- | --- | --- |
| Creative Writing | 2010 | 2012 | 2013 |
| The criteria used in marking have been clear in advance | 74% | 83% | 72% |
| Assessment arrangements have been fair | 78% | 79% | 88% |
| Feedback on my work has been prompt | 72% | 92% | 81% |
| I have received detailed comments on my work | 74% | 87% | 79% |
| Feedback has helped me to clarify things I did not understand | 72% | 71% | 69% |
| Overall satisfaction | 89% | 97% | 93% |

Students on the BA Primary blogging pilot decribed their engagement with course material as more substantial, and the production of blogs helped to share and crystallise arguments and ideas. Students described taking a deeper approach to learning, reading more extensively, thinking more about their readings and topics, and enjoying the buzz of prompt peer and tutor feedback.  
<http://www.youtube.com/watch?v=IVTfDexz0f4&feature=youtube_gdata>  
<http://www.youtube.com/watch?v=OD5Nc7ko_Vo&feature=youtube_gdata>

Evidence from focus groups and ‘think aloud’ data about blogging showed that students took blogging seriously as a formative task and gained confidence about producing blogs and making comments on peers’ contributions. The following quotes from a paper given by the tutors on the BA Primary programme evidence some of the formative learning gains:

***Learning benefits of formative blogging***

*It’s pushed my thinking –it’s kind of bringing everyone’s knowledge together which is incredibly useful.*

*You change your ideas, and maybe something will influence your next post. It opens your mind up to new ideas. It gets you thinking.*

*I was typing and thinking at the same time. It flowed quite well, but then I wasn’t worried about it being marked.*

*It’s nice that the feedback is instant. It’s really helpful to have that personal touch. It’s instant so you don’t have to wait for three weeks when you’ve forgotten it.*

*It’s really got you involved. It’s not all that official. It’s not scary when you hand it in.*

* **Technologies to enhance time-on-task**  
  One approach which was deliberately designed to get students distributing their effort across the weeks within modules was the use of youtube video productions to represent seminar readings on a Media Studies programme. The findings from this pilot were ambivalent, because students focused their seminar reading efforts on the particular week to which they were assigned, but failed to engage with each others productions to the same extent. AEQ ‘Quantity of Effort’ scores actually declined among participants in the pilot. A second iteration of the intervention will include elements of peer review to attempt to harness more student effort across the module.

Several other technologies inadvertently enhanced students’ time on task. These were blogging using weekly posts and elements of peer review and discussion; e-portfolios; and learning logs.

* **Opportunities for internalising goals and standards**The Law programme at Winchester used video capture filmed on iPods as a tool for student self-reflection on their performance in mock trials, known as moots. These were highly successful as reflection events, modelling the ideas of micro-teaching in 1970s when teacher trainees watched their own performance, in order to refine and troubleshoot aspects of their teaching. In discussion over the video clips with their tutors, law students were able to clarify the goals and standards, particularly, following Sadler (1989), through being able to measure their own performance against the benchmark, and through discussion with their teachers about closing the gap. This video clip captures some of the learning gains students experienced on the Law programme, including the idea of internalising standards through self-reflectiion:  
  <http://www.youtube.com/watch?v=P1Eh-KDOi0M>

As a proxy indicator, the Law Programme at Winchester has scored its highest ever NSS scores, with 100% overall satisfaction in 2013. Although there are clearly attribution issues in claiming this as the result of FASTECH interventions, it is interesting to note the improvements in assessment and feedback scores during the project period.

|  |  |  |  |
| --- | --- | --- | --- |
| Law | 2011 | 2012 | 2013 |
| The criteria used in marking have been clear in advance | 37% | 96% | 68% |
| Assessment arrangements have been fair | 50% | 87% | 93% |
| Feedback on my work has been prompt | 73% | 96% | 83% |
| I have received detailed comments on my work | 56% | 79% | 83% |
| Feedback has helped me to clarify things I did not understand | 42% | 79% | 60% |
| Overall satisfaction | 48% | 96% | 100% |

There were no other programmes who had this as their key goal, but those programmes who sought to enhance formative assessment and peer review, were simultaneously tackling this goal. As yet we have no evidence to show whether blogging and online peer review have helped students to understand goals and standards better, but as the roll out progresses and mechanisms for peer review develop to help students be more skilled, critical and searching in their online peer review, we hope to have more evidence. The greatest barriers to useful online peer review both on blogs and the VLE forums, are linked to it being in the public domain and written, so that students feel there is less discussion and dialogue, and the written feedback can seem like a ‘final word’. Students prefer the opportunity to modify and adapt their feedback in conversation with peers, as the written feedback can seem quite hard and fast.

* **Reflection on tasks**There were two interventions which deliberately sought to develop students reflective capacities through assessed tasks. One was the use of learning logs on the online learning environment on the History programme at Bath Spa, which sought to replace paper learning journals with online, individual logs. Students found these a useful repository for their reflections, but were not clear about the purpose of the learning logs. The idea that reflective logs could be carried across all three years of the undergraduate degree went unfulfilled in the pilot phase, because of a technical problem. This has subsequently been addressed, and the lecturer has refined the pilot so that all years are captured and the purpose is made more explicit to students.This intervention showed that technology alone will not address pedagogical challenges, as students need to be clear about the purpose of their efforts for their learning. The pedagogical scaffolding is a vital dimension in innovating with tecnology.

The second intervention was the use of e-portfolios on a Social Work degree, to encourage reflective learning against key skills and competences, particularly while students were on placement. This intervention showed potential for students to integrate their reflections, and link them against core skills but we do not have direct evidence of learning gains. In this case, the e-portfolios were enthusiastically embraced by the lead lecturer and administrator initially, but students were given a very loose framework for adopting the technology. The Student Fellow and FASTECH developer have driven the training, support and evaluation of the rsearch and development, but without strong support from the lecturer, it has lacked sufficient traction over the whole class to get strong evidence of learning gains. Enthusiastic students attest to its value as a reflective tool.

* **Inconsistent marking approaches and standards**One tutor on Graphic Communications at Bath Spa trialled collaborative marking on google drive but the evidence of the success of it was inconclusive. The most conclusive evidence of improvements in students’ understanding of goals and standards was through students experience of more formative tasks and getting higher quality feedback.
* **Improving the quality of feedback**Many of FASTECH’s interventions focused on better feedback.  
  + In Music at Bath Spa, audio feedback was found to enhance students’ motivation and the pedagogic relationship between tutor and students. It was regarded as more personal and personalised feedback, and students attested to using and attending to this feedback more than written feedback.
  + Education Studies, Geography, Creative Writing and Music at Bath Spa all trialled using grademark to improve the legibility, efficiency and transparency of feedback process, and increase specific feedback. In general, students found it convenient, legible and specific, but felt they had lost personal dimensions of feedback which in some cases had been replaced with standardised and homogeneous ‘cut and paste’ feedback. They were also disincentivised by staff’s negative perceptions of Grademark and their lack of facility with all aspects of it. The perception passed on to them was that the system was slow, time-consuming and clunky. The use of online feedback yielded a mixed picture, suggesting the need for focused training and support in the use of the software, and re-emphasizing the pedagogic aspects of feedback over the technological tools to finesse it.
  + In Education Studies, a large programme training teachers, Grademark feedback won over the resistant and more apathetic lecturers by saving on administrative time. The gains in online feedback aligned with assessment principles about clear and specific feedback for students. This has resulted in this large programme adopting Grademark on all of its years and modules. Alan Howe, Programme Leader for Education Studies at Bath Spa talks about its success on this video interview. <http://www.youtube.com/watch?v=msUt6VFWOkQ&feature=youtu.be>
  + On the History programme at Winchester, a group of staff trialled JING and Camtasia software to give students screencast feedback. Although this was time-consuming for staff to learn initially, students really liked this feedback, and staff have persisted with its use. The benefits for students are in seeing and hearing comments simultaneously, with the added dimension of pointers and mark ups on the text. The History programme is looking to use evidence from the pilot to roll the intervention out more widely.
  1. **Reach, spread and types of technology**

**What technologies have been deployed through FASTECH?**

The following technologies have been used on FASTECH:

* PebblePad – for e-portfolios and electronic submission, peer feedback through the sharing of documents and reflections
* Grade Mark – for personalized feedback and electronic submission within the VLE
* Camtasia – audio feedback and screen casts as resources
* Adobe Connect – formative feedback sessions online
* Google Blogger – formative feedback and peer review
* Google Docs – sharing of drafts and peer review, collaborative marking
* Moodle and Blackboard – e-submission processes and e-portfolio capability
* JING – audio and screencast feedback
* iPod – Filmed practice based self assessments

**What is the extent of coverage of technologies?**The FASTECH Project map oulines the coverage of technologies in detail, programme by programme. In summary, 59 lecturers from both universities have directly engaged with FASTECH interventions, and 1047 students have been involved in the innovations, both pilot and second tier roll out. This constitutes about 10% of full-time staff and students at both universities. Plans are in place for successful interventions to roll out by level and across programmes in the third year of FASTECH, for example, using blogging in the first year of the BA Primary, Grademark on Education Studies, e-portfolios in the first year of Social Work; spreading e-portfolios from Social Work to the BA Primary; and using JING screencast feedback with first year History students. These developments, adding a further 500 students to the number of students affected, also indicate a broadening out of the interventions through programmes. A copy of the programme map can be found on the Design Studio.   
<http://jiscdesignstudio.pbworks.com/w/browse/#view=ViewFolder&param=Programme%20information>

**4.3. Sustainability and Embedding Technology  
  
What approaches have we adopted to embed evidence-led changes into institutional processes, systems and policies?**

* The Student Fellow scheme being rolled out from 15 programmes to 60 at Winchester with 4 additional students having key responsibilities for technology enhanced learning projects, ensuring much greater spread, embedding of interventions, and evidence-led approaches to innovation. The cost of the new Student Fellow scheme is being shared by Winchester’s Senior Management team, and the Student Union;
* At Bath Spa, the FASTECH Student fellows ran a Student-led Conference on Assessment and Feedback - for lecturers from the perspective of students. This institutionally supported measure turned the tables on traditional hierarchical patterns of ‘the-lecturer-knows-best’, and was both empowering for students and challenging for lecturers;
* At Bath Spa, five full-time learning technologists, one in each faculty, are using FASTECH as a lever to promote technology enhanced assessment practice on a much wider scale;
* Bath Spa has developed an Assessment and Feedback policy and regulatory framework which builds on findings from TESTA and FASTECH, and has system-wide application;
* At Winchester, the first e-learning strategy is in the the process of approval, having been developed out of the experience, knowledge and lessons learned from FASTECH;
* There is much closer working between IT services and Learning and Teaching in both universities as a result of FASTECH. FASTECH is a standing item on the Technology Enhanced Working Group at Winchester, which has Senior Management and IT representation;
* The University of Winchester has launched the SEED Research Centre (Student Engagement in Educational Development) which has synergies between the Student Fellow Scheme, pedagagic research, and the promotion of students as partners in innovations and research linked to educational development. This has the potential to connect technology enhanced assessment innovations across the institutions, and bring about wider dissemination and cross-fertilisation.
  1. **Unexpected findings**The most unexpected finding has been the value of the Student Fellow Scheme, and the power and influence students have as ‘insiders’ and learners, and as partners and advocates. The value of a student community, informed by a principled approach where there is discussion and reflection on assessment and feedback principles, is inestimable. This is not to say that the Student Fellow scheme is yet a perfect model, but it has the seeds of something systemic which positively influences an evidence-led institutional shift to using technology to improve assessment processes.

1. **Conclusions and Recommendations**

The findings from FASTECH, at year two in a three year project which we are aiming to sustain institutionally beyond the project period, suggest that there are key areas that FASTECH has contributed value:

* In advocating space and resource for bottom-up development, FASTECH has moved beyond technology champions and early adopters to ‘ordinary’ teachers who see the need and value for being more inventive and up-to-date with technology but need the support, guidance and impetus of a dedicated project team to embark on supported experimentation. The resource implications of this support as FASTECH scales up need consideration, particularly at Winchester, where there is one dedicated Learning Technologist, and a few pockets of resource at faculty level.
* Resistance to innovation in both of our institutions commonly occurs when Senior Management mandates or buys the licence to untested software in an *ad hoc* and non-consultative way. The beauty of FASTECH has been that it has been a much more democratic and relational process of working with colleagues to develop appropriate pedagogic and technology approaches. However, in both institutions, we noted resistance from colleagues associated with workload issues, and we would suggest that institutional workload models and resource allocations take account of ways to create space and time for various teachers to have support and training and more time to experiment in a guided way with technology enhanced learning approaches.
* To some extent, FASTECH has demonstrated ways of bridging the divide between local and institutional; individual practice and strategic development, through multiple engagements with different stakeholders. It has shown that bottom-up, grassroots projects can have wider impact – from engaging Student Fellows to leverage programme changes; through to institutional strategy, policy and resource allocations.
* In embracing a range of locally chosen technologies to address assessment challenges, FASTECH has deviated from models of trialling particular technologies to a focus on the alignment of technology to pedagogic challenge – a messy and complex business which attempts to place pedagogy at the centre of technology decision-making. This raises the question of whether technology is simply a means to an end, a smarter, digital and paperless version of a traditional ‘paper’ process, or whether technology augments learning by introducing a different and new way of thinking. Our ‘think aloud’ research shows that students conceive of some nuanced shifts in how they learn linked particularly to the blogging process.
* Using google blogger provides a public space for students to write on a weekly basis and has motivated students to undertake authentic formative tasks. The combined effect of more time-on-task, authentic formative assessment, and peer review, with students required to comment on each other’s posts, and face-to-face discussion in blog groups, is a powerful model for increasing reflection and student engagement. On the basis of our evidence we are recommending wider use of this technology, particularly on Arts and Humanities courses. It is worth noting that some technologies appear to be more fashioned for certain disciplines, although as yet this is an untested assertion.
* In attempting to establish proof of concept from the assessment challenge to the technology innovation, FASTECH has sought to guide teachers about the effectiveness of various technologies and to disseminate case studies and guides to practice – many of these will come to fruition in our third year.

**5.1 Recommendations**

* That in a climate of austerity, workload pressures and cutbacks, the notion of ‘playing’ and experimenting with technological innovations is not lost to hierarchical plans to foist technology ‘on’ institutions and people;
* That our two institutions take seriously the notion of integrating research, teaching *and* innovation resource time into academic staff contracts;
* That sufficient resources are allocated by our two institutions for learning technology support and that this allows both for ‘training’ and one-to-one mentoring;
* That student fellows are deployed to conduct research and development about pedagogy and to act as mentors and guides for students and staff, in the use of software and technology, where this is appropriate;
* That evidence from the synthesis of research projects with students as partners, co-researchers and change agents leads to guides to, and models of practice for other institutions.

1. **Lessons learned**

6.1. Adapting

The evolution of research and change projects means responding to enablers and barriers and adapting the project design in a principled but responsive way. For FASTECH this occurred around working with whole programme teams on innovations which were considered too high risk and uniform in application. We adapted and worked with lecturers and students within programme teams, and we have since seen spread and growth in pedagogically appropriate ways which have promoted ownership of innovations.

6.2. Student Fellow issues  
  
The Student Fellow programme has been successful but we have learnt lessons to improve its efficacy, including that students should have learning contracts, issues about the timing of appointments, and guided support for student fellow network. All of these lessons are being deployed in the roll out. A short guide to the Student Fellow programme, including models of job descriptions and learning contracts, defining roles and responsibilities, providing adequate support, do’s and don’ts, troubleshooting and managing a student fellow programme, is on the Design Studio.  
<http://jiscdesignstudio.pbworks.com/w/browse/#view=ViewFolder&param=Student%20Fellow%20Programme>

6.3. Diversity of technology issues

The challenge of having different technologies in play has meant that we have had to become expert at these, and that our project has been quite messy, time-consuming and complex. It is not a streamlined approach but we are certain that discussing baseline data, thinking about assessment challenges and then thinking about how to address them using technology has given greater alignment between the technology and pedagogy. We have learnt to rein in the technologies and to cluster them, which has also helped us to keep our evaluation from being thin and dispersed. In retrospect we might have circumscribed the number of technologies.

6.4. Recruiting participants  
  
On TESTA we gave programme teams funding to participate in the first round of research. This incentivised programmes. We decided not to do this on FASTECH for reasons of sustainability, and many programme leaders asked us “So what are we getting out of this?” and were not necessarily convinced by all our pitches about development and innovation. In retrospect it might have proved easier to get teams on board if we had had a little bit of pump-prime funding allocated for the teams.

6.5. Refining evaluation methods  
  
Our methods of evaluation have become more sophisticated and creative. We started with quite general and genreric data collection methods (focus groups and surveys) and have moved into using camtasia clips of ‘think aloud’ sessions with students, and more video data. These have been very rich developments, but also resource intensive ones.

6.6. Implications of being a cross-university project  
  
Being one of the only cross-university partnership projects in Strand A has added a wealth of comparability and cross-institutional learning to the project. The two universities had worked together on TESTA and we knew a certain amount about our similarities as organisations. FASTECH has exposed both similarities and differences in organisational culture which have an impact on the embedding of the project in both of our institutions. We have not as yet collected data on this, but it would be valuable to think about the way our organisations are structured, resourced and managed, and what impact that has on technology innovation and embedding.

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