

Embedding a selection of feedback mechanisms into innovative curriculum to enhance the first-year experience

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Introduction

Professor Mike Prosser, former Director of Research and Evaluation at the Higher Education Academy, has argued that many students perceive that their feedback on assessment is inadequate (Prosser, 2005). This may be because they are not getting sufficient feedback or because they do not appreciate the feedback they are getting. This is a key concern on which we need to focus from the first year onwards so that adequate time is spent on improving student perceptions of feedback.

A significant driver for change at Leeds Metropolitan University has been its Assessment, Learning and Teaching (ALT) Strategy 2005-2008. Its aims include:

1. Fostering a supportive learning environment to enhance learning and teaching
2. Rebalancing assessment practices to improve formative assessment and feedback to students
6. Fostering creativity in curriculum design.

Since 2005, all Innovation North (INN) Level 1 courses have been implemented in five blocks where modules are delivered in 'carousel' style (Figure 1). Each module is currently delivered in two three-hour sessions per week, providing students with a varied learning experience. There were challenges in delivering innovative User Interface Design (UID) content and assessment in an intensive yet engaging manner within a short and sharp seven-week per block 'carousel' delivery and delivering it effectively to Level 1 students who come with different experiences. UID is a vital computing module in Level 1, since user interface concerns such as interaction design, user support

and evaluation are explored to ensure students understand and appreciate the significance of design issues that are fundamental to the success of any interactive system (Dix et al, 2004).

The very nature of UID ensures seamless integration of the ALT Strategy aims referred to above into module content over seven weeks.

Aim 2 of the ALT Strategy sets a challenging but achievable agenda for action. In the case of UID, early experimentation using different feedback mechanisms and multimedia-based teaching artefacts yielded highly favourable student feedback and ensured that students interpreted the feedback and used it appropriately.

Embedding feedback mechanisms effectively

Comprehensive module material with assessment methods, marking criteria and feedback stages is detailed in the module guide and handbooks and on X-stream to guide students through the tight delivery schedule and assessment deadlines. The first three weeks involve students engaging in teamwork and being taught to use tried and tested conceptual design methods that offer creative problem-solving (Denning, 2004). Students create and present designs to their tutor, receiving prompt written feedback based on the summative assessment criteria. This individualised formative feedback strengthens and consolidates learning and is timely enough to be incorporated into the summative assessment, an approach advocated by Brown and Smith (1997).

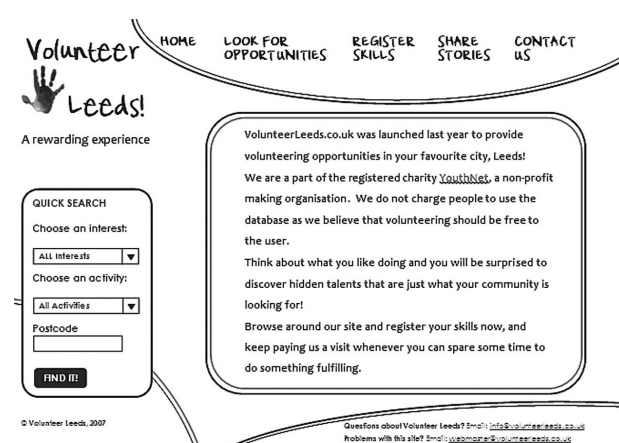
Figure 1: Blocking structure used for BSc Computing Level 1

3 weeks	7 weeks	7 weeks	7 weeks	4 weeks
Foundation	Introduction to Databases	User Interface Design	Computer Systems and Networking	Progression
Project	Systems Modelling	Website Development	Introduction to Programming	Project

Students receive additional written feedback based on marking criteria, reinforced orally on their first summative assessment within three days, and incorporate it into the preparation of their second assessment, based on paper prototypes (Figure 2).

Paper prototypes are design mock-ups constructed using very simple tools like paper, scissors, and Post-its®, either hand-drawn or created using a computer graphics application.

Figure 2: A paper prototype outlining the front page of a volunteering website



Paper prototypes are an excellent learning activity design tool that is not confined to screen layout design and actively involves users, regardless of their technical expertise, and explores innovation in the context of their workplaces rather than in labs (Brigham, 2005). Students channel their creative energy, engaging in teamwork without anxiety, as the module evaluation results suggest. At this stage, paper prototypes are formatively assessed through verbal feedback. A selection of still images and video demonstrations are made available on X-stream as learning objects (Barritt and Alderman, 2004) and augment the tutorials so that tasks that are difficult to explain can be demonstrated easily.

Incorporating video feedback for collaborative evaluation processes

The progress of the teams is monitored frequently through reinforced feedback whereby students receive a tutor-facilitated opportunity to evaluate the usability of their prototypes collaboratively with peer teams in role-play, guided by an evaluation plan.

It is often a problem for systems users to explain exactly what they want, but when they see something and actively use it, they soon discover what they do not want! Questions are posed by the tutor to encourage peer evaluators to provide feedback and justify their views. This exercise is designed to promote active collaborative learning, where findings such as preferences for a particular design alternative are carefully documented for further prototype development. The design of the exercise follows Laurillard (2008), who defines active learning as a process where learners engage in goal-oriented tasks, explore and experiment, use feedback to adapt what they do and articulate what happens. The high level of interactivity involved in the evaluation process is captured on video for feedback to students at the following tutorial.

Nicol and Macfarlane-Dick (2004) have formulated seven principles of good practice in formative assessment and feedback to develop learner self-regulation, which, they assert, should enhance students' responsibilities for, and control over, their own learning. Guided by these principles, teams are taken through the videoed scenes, which assist them in interpreting their behaviours and actions so that feedback becomes contextualised and meaningful. This highly visual feedback proves to be most effective in reinforcing techniques and visual perception of evaluation. It stimulates conversations, the sharing of techniques and ideas and learning from peers. Students incorporate new findings with little difficulty, rebuilding their prototypes and iterating through several versions before the summative presentation. They are able to play back the videos as often as they like, considering any advice that might have been missed. A revision tutorial with structured feedback prior to a test ensures that a blend of assessment methods rewards students on the achievement of specific module learning outcomes. A series of

formative multiple-choice questions, delivered via X-stream, encourages learner autonomy by being accessible at any time with instantaneous feedback (Swain, 2008). A full set of moderated assessment marks is fed back to students within four days to complete the feedback loop.

Student attitude and achievement

The following results were derived from the module evaluations received from 134 Level 1 students:

1. 86% concurred that the module information was clear and useful to them
2. 83% found that the presentation/delivery of formal teaching had been good and that the learning activities and support materials had helped them to understand UID
3. 80% agreed that the assessments had allowed them to demonstrate what they had learned
4. 75% agreed that the module had helped them develop skills that will help them in their careers
5. Most importantly, 93% of students indicated that the guidance (feedback) from the tutor had helped them to improve their understanding of the subject.

The average UID overall mark achieved by these 134 students was 65.5%. The statistics reveal marked improvement between the first prototype and the final prototype, indicating that the blend of formative feedback had been effective. Positive comments received included:

"Feedback on storyboards and prototype ... tutor's help was always available".

"I like particularly working in teams to produce the prototype and have participants use it and give feedback."

"Fascinating to watch how we behaved on video feedback, very useful!"

"The X-stream videos allowed for repetition of learning."

"Amazing content on X-stream, friendly staff and it makes you think outside the box."

"Working in groups allowed me to communicate with other members, sharing ideas etc which is something you don't get to do a lot in other modules."

Transferable knowledge

Interactive module content and plans ensure that students are able to engage in teamwork quickly and produce the desired results.

The tight deadlines compel teams to be motivated to produce designs quickly and receive constructive feedback from tutors, while deriving enjoyment from collective achievement. Video feedback, combined with structured online and written feedback, provides clear advantages both to tutors and students:

1. Demands on tutors' time for providing feedback decrease with online and video feedback
2. Assessment is quick to turn around and straightforward to mark
3. Visual feedback of evaluation is effective for mass feedback, encouraging both peer and self-assessment (Nicol and Macfarlane-Dick, op cit)
4. Videos provide ample content for learning objects such as podcasts that engage students in learning through demonstrations.

Further work and conclusion

A curriculum that encourages creativity using a blend of assessments offers opportunities for integrating a mix of feedback mechanisms at appropriate stages, communicating high expectations and developing competencies among students.

UID video content has been packaged as learning objects in an online repository as part of the pilot REPLIKA Project supported by the EU Leonardo da Vinci programme with an objective of widening understanding of e-learning in a European context. It is also currently being adapted for the Higher Education Academy-funded podcasting project and the JISC-funded Streamline project:

http://www.jisc.ac.uk/whatwedo/programmes/programme_users_and_innovation/streamline.aspx

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