A Role for Technology in Enhancing Student Engagement with Feedback

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Abstract

This paper explores the potential of technology-enabled feedback to improve student learning. '*Technology, Feedback, Action!:The impact of learning technology upon students' engagement with their feedback*' aimed to evaluate how a range of technical interventions might encourage students to engage with feedback and formulate actions to improve future learning. The study used qualitative methods and worked in partnership with 23 undergraduate students to explore their experiences of receiving different forms of feedback with varying degrees of technical intervention including, but not limited to, electronic feedback with grades withheld, online grade publication, criteria-based feedback and more traditional feedback methods. Through a series of semi-structured interviews student participants were encouraged to articulate their experiences of feedback. The online publication of grades and feedback and the adaptive release of grades were found to significantly enhance students' engagement with their feedback. Data were analysed using a thematic approach and the main themes were used to inform the development of a series of good practice guides. The findings are discussed in the context of current literature.

Keywords: Feedback; technology; engagement; reflection; innovation

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Introduction

Feedback is an integral feature of effective and efficient teaching and learning, and can be one of the most powerful ways in which to enhance and strengthen student learning. Feedback enables learning by providing information that can be used to improve and enhance performance. There has been clear evidence (Black & Wiliam, 1998; Gibbs & Simpson, 2004) that changes to assessment practice that strengthen the formative use of feedback, such as peer feedback (Falchikov, 2001) and 'feed-forward' techniques (Hounsell et al, 2007) can produce significant and substantial learning gains.

Through a recent research project, funded by the Higher Education Academy, Sheffield Hallam University explored the potential of technology-enabled feedback to improve student learning. The project considered students' perceptions of their experiences of feedback and how technology encourages students to engage with their feedback and formulate actions to improve future learning. This paper focuses on tutor delivered feedback and how technological interventions can enhance practice, as this is the dominant form of feedback practice at present.

As part of the project, a review of literature (Hepplestone et al., in print) exploring the use of technological interventions that tutors might use to encourage students to engage with their feedback was conducted. The review found that technology does have the potential to enhance student engagement but that literature is limited in terms of the use of technology to support and enhance feedback processes and practices (i.e. production, publication, delivery and students making use of feedback through technology). This literature review (Hepplestone et al., in print) sets the context for this study.

Technology, Feedback, Action! explored three aspects of the feedback process and the extent to which application of technology to each of these might improve student engagement with feedback. It considered the impact of

- online publication of grades and feedback – using technology to provide permanence and ease of access to grades and feedback, presenting grades and feedback alongside other learning materials and activities within the virtual learning environment and enabling students to track their progress within a module
- adaptive release of grades – using technology to provide written feedback ahead of the grade, encouraging students to focus on the content of the written feedback first and formally reflect on that feedback in order to release the grade
- linking feedback to assessment criteria – using an electronic feedback tool to generate consistent, detailed feedback that links directly with assessment criteria and enables students to easily identify strengths and areas for future improvement

The project aimed to explore which elements of each intervention added most value, e.g. the extent to which the timely delivery of feedback supports effective forward planning, and whether withholding grades and aligning feedback to explicit assessment criteria does encourage deeper reflection upon written feedback given.

Methodology

The study took a qualitative approach working in partnership with 23 undergraduate students, 14 females and 9 males aged between 18 and 42, to undertake a comparative study of their experiences of receiving different forms of feedback with varying degrees of technical intervention. This included adaptive release of grades, online grade publication and criteria-based feedback. Participants were drawn from four subject areas; Computer Networks, Psychology, Diagnostic Radiography and Events Management. These subject areas were

selected as they were known to use a range of feedback practices including the online publication of grades and represented a diverse range of students including one cohort from each of the four faculties at the University. All participants were second-year undergraduates to ensure that they had enough experience of receiving feedback. Participants were recruited on a self-selection basis from the identified subject areas. Self-selection of participants relies on participants volunteering to take part. It is acknowledged that using a self-selecting sample can cause a bias in characteristics of participants and those who participate are likely to be more engaged with their learning. As such, this sampling method is recognised as a limitation of the study. It is also acknowledged that this is a small scale study and therefore it is difficult to make generalisations from the data.

Through a series of semi-structured interviews, student participants were encouraged to articulate their experiences of feedback. The research team worked closely with students to explore their understanding of their own experiences to analyse the complex and diverse elements of technology-enabled feedback. During interviews students were encouraged to identify how their feedback was provided, how useful they found feedback both in terms of content and timeliness, and what they had done or intended to do with feedback. This approach relies on the second-hand reporting of behaviour and captures data after a period of time has lapsed. This may have an impact upon the accuracy of data. However, techniques such as 'interview plus' described below were used to overcome this effect. The approach provided insight into the effectiveness of feedback and how students engage with it.

One section of the interview followed an 'interview plus' approach, a term coined in the JISC LEX project (Creanor et al, 2006), where the interview is accompanied by an object or artefact which is intended to stimulate recall to aid debate or discussion. Here participants were shown examples of feedback grids generated by the Feedback Wizard and, coupled with their experience of receiving other forms of feedback grids, they were able to articulate the

potential benefits of this approach. This was particularly helpful as many of the participants, whilst having received feedback grids from their tutors, would not necessarily have been aware that their feedback had been produced using an electronic feedback tool.

Data were analysed using a thematic approach during a two-day workshop attended by five members of the project team. Each transcript was read carefully by at least three researchers and the main themes emerging from each transcript were collated. The themes were discussed and patterns were identified and used to establish a picture of the collective experience of participants. The workshop was interactive and intensive and allowed the team to reach consensus about the outcomes of the research.

Sheffield Hallam University has established research ethics policy in place to ensure good practice. Consent was obtained from all participants, who were fully informed about the nature of the study and were made aware of their right to withdraw. Assessment and feedback can be a sensitive subject for students and as such, all participants were debriefed and provided with information about how to access Education Guidance and Counselling services available at the University.

Findings

Participants were drawn from four subject groups, two of which had experienced feedback through Blackboard Grade Centre. All participants had received a variety of feedback including handwritten and electronic (e-mail or through Blackboard Grade Centre).

Online publication of grades and feedback

The online publication of grades and feedback, through the university's virtual learning environment, enables students to access their grades and feedback at a time and place of their choosing. In common with the use of technology to support learning more generally (Parkin

& Thorpe, 2009), the students in the study recognised and appreciated the flexibility and convenience that this offers, providing support for much of the existing literature in the area (Bloxham & Boyd, 2007; Denton, 2001a, 2001b, 2003; Denton et al, 2008; Gipps, 2005; Price & Petre, 1997).

Students valued the perceived permanence of access to their online feedback. The study revealed that they frequently refer back to it to support future learning and assessments. This was different from the way in which students engaged with feedback when it was delivered hard copy.

> You can store the feedback onto your hard drive or memory stick or whatever to come back to it later.

Students did value hard copy feedback, many stating that they would never throw it away, but few indicated that they had a logical storage system for feedback and the majority rarely referred back to it after an initial read through and so its value was transitory. The study therefore suggests that the storage of online feedback increases the likelihood of students revisiting their feedback and feeding it forward into future assignments.

When delivered through the virtual learning environment, grades and feedback are automatically stored alongside other learning resources and activities, and students found this valuable as they see the virtual learning environment as a learning hub and therefore the logical home for feedback to support learning.

> … you get all the subject matter on Blackboard anyway, so it's easy to get hold of, then you've got your assignments and your answers to them and your feedback. If you want to check something up you can do it all in one go, rather than leafing through bits of paper.

It is conventional wisdom that the return of feedback during face to face sessions is good practice. The study found, however, that students placed significant value on the flexibility to receive and read their feedback in private surroundings that the online publication of grades and feedback can offer. Earlier research (Price & O'Donovan 2008) suggested that receiving feedback in privacy enables students to engage with and respond to their feedback when they are emotionally ready to do so. Students in the current study appreciated this aspect.

> …you don't have to share it with everyone whereas if you in a seminar and everyone's talking about what they got you kind of have to feel the pressure to join in whereas if you get in on Blackboard you can see it at your own leisure.

The importance of the timeliness of feedback is often mentioned in literature (HEFCE, 2007; Mutch, 2003).Students perceived that being able to publish grades and feedback online enabled staff to return their feedback more quickly. The benefits of keeping the feedback and grades in close proximity to the assessment activity were articulated by the student, recognising that this close proximity made the feedback more meaningful. If students do not receive feedback in time for it to be meaningful in relation to the task assessed, the relevance of the feedback is reduced. In addition, the delay can hinder the opportunity to facilitate additional learning by feeding forward into future assessments.

Whilst students responded positively to the quick turnaround possible in receiving grades and feedback online, this did not follow when grades were published online quickly but hard copy feedback was made available for collection later. In some cases students reported that they had experienced a considerable delay between the publication of online grades and the availability of hard copy feedback. When this happened the students perceived

the feedback as being less valuable and were much less likely to engage with, or even collect, feedback (Winter & Dye, 2004).

> I got my marks [grades] back in January [3 months ago] for that module but I haven't got my work back because you have to go and pick it up and get the feedback.

The study recognised that where the online publication of grades is disproportionately easier than the online publication of feedback staff are inclined to publish grades ahead of feedback and that this can have the impact of reducing student engagement with feedback.

The study found that students value the ability to monitor their own progression and to see how they have performed on each assignment during, rather than following, the module (Carless, 2006; Maclellan, 2001). The online publication of collated grades enabled students to track progress and see how their performance on different assessment tasks builds to an overall profile for the module. This enabled them to take ownership and control of their own learning, setting personal goals and planning ahead.

However there in an issue that tracking progress can also lead to students taking a strategic approach to future assessments by focussing on the number of grades needed and using this to determine the degree of effort (Entwistle & Ramsden, 1983). Many students in the study recognised the value of being able to monitor their progression and appreciated the sense of control this gave them but, there was also evidence that some students did demonstrate a strategic approach, using the information available to them to decide where they should focus their efforts in order to pass.

> …it keeps them [grades] all in one place; it means you can see how you're progressing throughout the course of the year and how well you need to do maybe in your next piece of coursework.

Students perceived that online publication of feedback in a typed format also meant that the feedback was more considered and thoughtful than handwritten feedback. Students recognised that tutors could more easily edit and revise their feedback as they read through assignments thus presenting a more cohesive and considered response. A large number of students claimed that they were more likely to engage with feedback when returned in a typed, and therefore legible, format (Bridge & Appleyard, 2005; Denton et al, 2008; Jones & Behrens, 2003; Price & Petre, 1997). However the study also highlighted a perception, indicated by a smaller number of students, that handwritten feedback feels more personal as the tutor had taken time to write comments specifically for them. While there were conflicting views, overall there was a strong preference for typed feedback.

> It obviously makes it a lot more beneficial to me as a student to receive that in a much more legible form … typed feedback is much better than written feedback, because you can read it, normally. Lecturers have a tendency to scrawl.

Adaptive release of grades and feedback

The adaptive release of grades is a process by which feedback is given to students for them to reflect upon prior to them receiving their grade. This can be achieved in a number of ways but the use of technology can facilitate the process and make it viable for a large cohort of students. The adaptive release tool used at Sheffield Hallam University allows tutors to release feedback but withholds the grade until the student has produced a reflective account on their feedback. Once this reflective account has been submitted, the grade is released without further intervention from the tutor.

The project provides evidence to support Nicols (2007) recommendation of putting feedback before grades to encourage students to concentrate on the feedback first. The

students involved in the study clearly articulated the benefits of this process and the way in which it facilitates reflection not simply on the grade achieved but on the feedback received.

> If I have to reflect on the feedback before receiving the grade then it sticks in my mind a bit longer, the feedback I receive, the points that I'm going to use and it's a little bit easier to remember when I'm working on my next assignment.

Broadly, the project found that students understand the educational value of separating the grade from the feedback as a means of encouraging them to read and reflect on their feedback.

> It makes you think about your feedback because it's very easy just to read feedback and think 'oh, I did alright' or 'oh, that's not so good' but if it actually makes you think about it and you have to write about it because that's how you're going to get your grade then I think that's good for yourself.

Students acknowledged the benefits of reflecting on their feedback and recognised that this was important to improve future learning. However, the purpose of reflection and action planning needs to be made explicit in order to prevent students from taking an instrumentalist approach.

During the study it emerged that adaptive release changed the boundaries of the assessment process which is in conflict with the perceptions of the students in the study. Students felt they had fulfilled the assessment task by completing their assignment and writing a reflection was seen as an additional requirement and in some cases this need to engage with their feedback was negatively perceived as 'enforced' reflection. In order for students to fully engage with this approach, the importance of reflecting on their feedback must be identified as a key step in the process right from the start.

While the findings of the study support the notion that disengaging the grade from the feedback enhances student engagement with their feedback (Potts, 1992; Carless, 2006), the process can cause frustrations and anxieties when not fully explained. The study highlighted the assumptions made about student familiarity with assessment practices, including reflection, action planning and Personal Development Planning (PDP). The study found that students were more likely to engage with the process of reflection when they had been told explicitly a) that they would be required to reflect on their feedback before receiving their grade and b) why this would be of value to them.

Many of the students had never encountered the process before and this contributed to the importance of explaining it adequately. The study also highlighted uncertainty around the practice of reflection. Where students were required to reflect on their feedback with little guidance around what to write, who they were writing for and what would happen to their reflections, the intervention was much less effective in terms of encouraging reflection than for those students who fully understood the process.

Surprisingly, some students believed that the key purpose of the reflection was to offer a response to the tutor regarding the quality of their feedback or the validity of the grade. This had the effect of inhibiting their engagement with the process. Others in the study correctly believed that the reflection was for their own benefit, and should be used for action planning.

It is also interesting to note that very few students involved in the study had written formal action plans prior to the introduction of the adaptive release mechanism. During the interviews, many of the responses suggested a tacit, almost sub-conscious, approach to action planning. Ding (1998) suggests that when students read feedback comments, they do little with them. The current study would argue that while students may not demonstrate doing

anything 'formal' with their feedback comments, they do in fact digest the comments and seek to remember them for future assignments.

> Yeah it's just stored in my memory. I don't tend to write action plans down. I tend to retain things in my memory and then if I need to look something up I can usually remember where it is that I found it before.

It is, however, very difficult to establish how effective this is as the process is largely private and unknown. The introduction of the adaptive release mechanism has given students space to formalise this process and one cohort of students in particular are using the reflective accounts to feed in to personal development portfolios.

Whilst students articulated the benefits of receiving feedback first, the study also highlighted their desire to receive their grade as soon as possible. Many perceived the reflective process as a burden or extra work, as discussed earlier. These students tended to be instrumental in their approach, choosing to ignore or rush the reflection on their feedback by submitting blank or surface level reflections.

Linking feedback to assessment criteria

Linking feedback to assessment criteria can help students make better use of the assessment criteria as targets. One approach to linking feedback to assessment criteria is to use feedback grids, which can speed up the provision of feedback for tutors (Bloxham and Boyd, 2007) as well as enabling student to clearly identify the links between what they have been asked to do and the feedback that they have been given on their work.

Feedback grids can be paper-based but the opportunity to use electronically generated feedback from pre-populated comment banks has seen growth in this approach. There are a range of different tools that can be used to facilitate this linking and Sheffield Hallam

University has been exploring the use of an internally-developed electronic feedback tool called Feedback Wizard (Hepplestone and Mather, 2007), which allows tutors to generate individual feedback documents for an entire student cohort. Each document includes an assignment-specific feedback template containing a matrix of assessment criteria and feedback comments, and other remarks individually written for that student. This method is designed to offer detailed feedback to students in a consistent and equitable way.

Within the study few students involved in the study had experience of this tool, although a large number had received feedback, electronically or hard copy that linked feedback comments to assessment criteria.

Students suggested that they could understand feedback better when aligned to the original assessment criteria. The provision of this level of detail in an accessible format with explicit links to the assessment criteria was identified as a valuable approach to providing feedback (Maclellan, 2001). Students could easily identify their strengths and weaknesses against specific areas in a structured way that could lead to the development of action plans.

> You could really clearly see what you had to do for the next one and where you could actually improve.

Given some students' earlier concerns that typed feedback was impersonal, none of the participants perceived the output generated by the Feedback Wizard to be so. This is even after the students were informed that the Feedback Wizard automatically populates the feedback grid from a bank of pre-populated comments, although individual comments can be written for each student.

On each feedback document, the Feedback Wizard can provide an indicative weighted grade for every assessment criterion. Participants in the study perceived this approach to provide transparency in how tutors calculate the final grade for their work.

> If you just get … a percentage for a mark out of 20 or whatever then it doesn't really give you anything. Whereas if you understand maybe the process that the lecturer has gone through with regards to how he's got to that figure … it gives you a bit more of a basis of understanding as to how or why they've got to that point.

In order for this type of feedback to be effective, the study found that providing details of the assessment criteria with the assignment task was necessary. This enables students to make connections between what they were hoping to attain and what they actually attained, and identify personal targets.

Interesting points were raised about how feedback should be presented. Students acknowledged that aligning feedback to assessment criteria and presenting this in a grid form summarised the comments clearly and cohesively. However, there was a competing preference for feedback to be positioned against the specific point in their original work, so they are able to identify easily the context of the feedback.

> It's quite interesting because you see exactly which bits have got their attention, especially if they've crossed something out which usually means a big no-no. It makes it easy to see how you can improve next time because you know what they're looking for, which is an ideal way of doing it.

Conclusions

This study has explored the use of technology to support students' engagement with their feedback. Three interventions were explored: the online publication of grades and feedback through the Blackboard Grade Centre; the adaptive release of grades through Assignment Handler; and linking feedback to assessment criteria using the Feedback Wizard. Whilst the

study looked at the use of these three tools, the findings are transferable to the interventions more generally, regardless of the tool used to achieve it.

It is acknowledged that it is difficult to make generalisations from small-scale research; however the study does make interesting observations about the use of technology to enhance student engagement with feedback and provides foundations for a wider study into the area. This could include alternative methodologies such as diary-based or observational research which would go some way towards addressing the methodological limitations of the current study.

The study concludes that the availability of feedback stored online for future reference augmented by the opportunity for, and expectation of, further dialogue provides the greatest benefit to future learning. The flexibility afforded by publishing feedback online enables students to read and respond to feedback when they are emotionally ready, and in relative privacy. It also enables them to store their feedback alongside the rest of their online learning materials and activities, and unlike hard copy feedback they are more likely to go back to this when completing future assignments.

The study also found that under normal circumstances, students read their feedback and do attempt to retain the information for future assignments, although not formally. The process of adaptive release encourages students to read their feedback and reflect on it before obtaining their grade and the students' interviewed appreciated the potential benefits of disengaging the grade from the feedback. However many were unfamiliar with this adaptive release approach highlighting the importance of explaining the process fully. The most benefit was gained where students understood the process and the purpose. The study noted that whilst students liked to get their feedback and grade at the same time or very close together, they valued the learning benefits of having to engage with the feedback before the

grade was released. Where grades were made available before the feedback, the feedback itself was not valued as having additional learning benefit.

The online publication of grades and feedback and the adaptive release of grades were found to significantly enhance students' engagement with their feedback. Often, logistical benefits such as online storage of feedback, led to greater learning benefits such as repeated viewing of feedback. Linking feedback to assessment criteria, while effective in enabling students to identify strengths and weaknesses at a glance and helping to identify learning targets, was less effective in terms of enhancing engagement with feedback. Students also expressed a competing preference for 'in context' feedback so feedback grids were seen as most useful when presented alongside annotated scripts.

The study identified a series of recommendations around the use of technology to enhance student engagement with their feedback. These evidence-based recommendations have been published as a series of good practice guides aimed at academic staff, students and senior managers. These guides, available online (http://tinyurl.com/tfaproject), show how technology can be used to its full advantage to help students make the most of their feedback. We believe that technology has the potential to significantly enhance learning.

Notes on Contributors

Helen J. Parkin is a lecturer in research and evaluation at Sheffield Hallam University and provides strategically-focussed evidence to enhance the student experience at Sheffield Hallam University, with particular regard to technology enhanced learning.

Stuart Hepplestone is a senior lecturer in technology enhanced learning at Sheffield Hallam University and is responsible for promoting and supporting the appropriate use of technology within the process of assessment and feedback.

Graham Holden is head of Quality Enhancement at Sheffield Hallam University and his responsibilities include supporting professional development for academic staff, promoting different approaches to curriculum design and developing the role of assessment and feedback in supporting student learning.

Brian Irwin is head of Technology Enhanced Learning at Sheffield Hallam University and is responsible for promoting the use of technology to support the student learning experience and exploring effective ways to encourage staff engagement with e-learning.

Louise Thorpe was, at the time of writing, head of Academic Innovation at Sheffield Hallam University and her responsibilities included developing e-learning across the university, promoting digital fluency as a graduate and staff attribute, and exploring the application of new and emerging technologies to learning.

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