

RESEARCH-INFORMED GUIDELINES FOR THE DEVELOPMENT OF ADAPTIVELY-RELEASED ASSESSMENT FEEDBACK (ARAF) STRATEGIES IN HIGHER EDUCATION

Lindsay Morton, Alexandra Johnson, Anthony Williams and Maria Northcote
Avondale College of Higher Education, Cooranbong

Abstract

Assessment feedback has the potential to significantly impact on learning; this can be in the form of quantitative or qualitative feedback, or both. While assessment feedback is intended to provide students with insight into how their learning has progressed against learning outcomes, exploratory research into the impact of assessment feedback has found that students pay more heed to numeric grades than qualitative comments, despite the latter having more potential to positively impact learning.

This paper reports on a project, funded by the Office for Learning and Teaching (OLT), to determine the impact of feedback strategies on students' learning. Academic staff and students' perspectives were sought about the manner in which assessment feedback was provided to establish the impact feedback had on learning.

This study considered differentiated types of assessment feedback and the way in which they were distributed, to determine the quality of students' post-assessment learning and students' ability to reflect on past learning to enhance future learning. The potential of Adaptively-Released Assessment Feedback (ARAF) strategies was considered for the purpose of engaging both lecturers and students in assessment *for* and assessment *as*—rather than assessment *of*—learning.

Introduction

Because assessment plays a significant role in learning for higher education students, the value of assessment feedback has the potential to influence students' intentions to modify their learning, after they receive assessment feedback. The way in which feedback is designed and provided, therefore, has the potential to influence the quality of student learning. The research described in this paper was conducted in a single-institution as a small scale project. The project further builds upon research findings that have illustrated how the provision of qualitative and quantitative feedback impact on students' engagement with assessment feedback. Through the development of innovative models of Adaptively Released Assessment Feedback (ARAF), used with undergraduate and postgraduate students, the project examined how developmental and diagnostic assessment feedback can influence students' intentions to modify their future learning approaches.

The project involved investigating student responsiveness to receiving ARAF about their task performance. The current research involved both undergraduate and postgraduate students and, thus, extended past research conducted on undergraduate students. When assessment feedback is adaptively released, students receive the feedback in portions according to type and purpose. For example, quantitative feedback in the form of numeric marks and rating scales may be provided separately from qualitative feedback which may be provided in the form of annotated comments on students' assessment tasks. The following metaphase (referred to as metaphase learning) is characterised by the students' ownership of their learning during which they articulate their intentions to modify their future learning practices, based on the feedback they receive about their assessment task.

The project outlined in this paper aimed to contribute to a better understanding of how qualitative and

quantitative feedback is received by undergraduate and postgraduate students, and the impact this feedback has on their perceptions of their learning and on their perceptions of themselves as learners. Through focusing on the potential action that may be catalysed by receiving feedback, the value of which has also been noted by Parkin, Hepplestone, Holden, Irwin and Thorpe (2012), this project explored how best to close the loop of assessment by enabling students to modify their behaviour and more effectively apply feedback to their previously gained knowledge and, thus, to improve their learning from the assessment experience and its subsequent feedback.

Background

It is generally agreed that assessment plays a vital role in learning within higher education, and that feedback is an important aspect of the assessment process. It is not surprising, therefore, that there is much debate around the design, completion and evaluation of assessment within higher education contexts (Boud & Molloy, 2013). Yet assessment feedback continues to be overlooked by students and under utilised in the learning process. Student populations often do not understand the use of feedback, or find the feedback they are given to be unhelpful. Subsequently, assessment feedback is often ranked consistently low on university evaluation forms (Maggs, 2012; Pickford, 2010; Wren, Sparrow, Northcote, & Sharp, 2008). On average only 50% of students feel they have received sufficient, quality assessment feedback at the end of their first year of study (Beaumont, O'Doherty, & Shannon, 2011; Brinkworth, McCann, Matthews, & Nordström, 2009). Beaumont et al. (2011) further explored this issue, finding that students are generally dissatisfied with university feedback as it differs significantly from what they have become accustomed to receiving during secondary education.

While developing a framework for feedback Rae and Cochrane (2008) found three key themes that students considered important for quality constructive criticism. The first theme dealt with learning, suggesting students are often confused as to the purpose of feedback, a finding which is in line with the results of other studies (Maggs, 2012; Sopina & McNeill, 2015). Students often see qualitative feedback as grade justification and disengage with it after seeing their grade. The second theme dealt with processes; here students reported a lack of consistency with feedback delivery and timing. Timely feedback was desired by students to maximise relevance. The final theme was making sense of feedback; students felt that many annotated comments were too vague, lacked helpful advice, explanations, examples and encouragement. They wanted clear and constructive comments. Taylor and Burke da Silva (2014) also found that students prefer individualised feedback, with the preferred delivery method varying between academic disciplines. With the issue of timing in mind, Bayerlein (2014) looked at the extent to which students' perceptions of feedback timeliness varied. They found that the majority of students perceived feedback to be timely if it was received between 12 and 14 days post submission.

An additional theme was proposed by Boud and Molloy (2013), who have argued that, if feedback that does not have a "discernable effect" (p. 702), it is merely information. They have presented two potential models of feedback, Feedback Mark 1 and Feedback Mark 2, each with its unique properties and conditions. Feedback Mark 1 is an engineering based model of feedback, in which the onus is on teachers to devise a feedback loop that must be completed for feedback to have an effect. Feedback Mark 2 is based on the idea that students are active participants in their own learning and that feedback should be sustained and useful beyond the immediate task. By creating an awareness of what is high quality work, students can use feedback to assess future work. Boud and Molloy's (2013) research highlights how feedback (in either model) is only useful if students engage with it, which begs the questions: how can students be encouraged to engage with their feedback? And, what conditions are most conducive to create effective feedback loops?

Past research has focused on the quality of feedback and how it impacts various aspects of student experience, finding that the provision of qualitative and quantitative feedback has a direct impact on students' learning (Butler, 1987, 1988; Butler & Nisan, 1986). While quantitative feedback (marks and/or grades) is generally considered to motivate students, there is no solid proof of this effect to date

(Pulfrey, Darnon, & Butera, 2013). However, the social-affective dimension of feedback has been found to impact student motivation (Yang & Carless, 2013). Quantitative feedback may only provide a superficial view of a student's work and, as such, may only play a minimal role in the learning process. Boud and Associates (2010) also recognise that while quantitative feedback often garners the most attention from students, it fails to provide sufficient detail about the quality of the student's work, and therefore cannot support learning in the same way as qualitative feedback. Butler and Nisan (1986) also investigated the possibility of not giving quantitative feedback at all. Their research concluded that "most pupils seem to prefer normative information to no information; however, they also prefer grades over the kind of constructive, specific information about competence provided by the written comments" (216).

The adaptive release of feedback has been trialled by Parkin et al. (2012). The adaptive release system employed in their case study provided students with qualitative feedback followed by a reflection task which, once submitted, gave students immediate access to their quantitative feedback. Interviewed students described three main benefits of the adaptive release system: more engagement with their feedback; the ability to remember feedback for longer; and the ability to set targets for subsequent tasks. This study showed that the adaptive release of feedback has the potential to be a valuable influence on student engagement, even to the extent of positively altering future learning behaviour. Although their overall finding was that: "The most benefit was gained where students understood the process and the purpose" (Parkin et al., 2012, p. 971), they reported that some students were not clear on the purpose of receiving feedback in an adaptively released manner which "had the effect of inhibiting their engagement with the process" (p. 969). Even so, their study demonstrated the potential for an adaptive feedback release system to be used as a powerful tool to promote student engagement and support learning.

The research

An Office for Learning and Teaching Seed Grant (2014-2015) provided the opportunity to implement strategies to deliver student feedback in a non-traditional manner for the purpose of determining the impact of the implemented strategies upon students' learning. Specifically the project focused on the impact of adaptively releasing feedback and grades, extending early work by Parkin et al. (2012). The belief is held that, by improving the way in which feedback is structured, provided and received by students, it has the potential to increase student satisfaction about and use of assessment feedback (Butler, 1987, 1988; Maggs, 2012). This project enabled a shift in focus from teacher-distributed to student-received feedback and the findings of the project provide insights into how to replicate similar practices in other undergraduate and postgraduate learning contexts.

The project was implemented at Avondale College of Higher Education as it provides a unique context for a Seed Project of this type. The College has approximately 1500 students who are enrolled in programs ranging from Vocational Education and Training (VET) to PhD level. With a history of engagement with teaching and learning innovation, the College has consistently scored highly in the *Good University Guide* for the teaching category. The College offers courses of study across the Education, Humanities, Nursing, Business, Science, Theology and the Creative Arts. It boasts a very low student to staff ratio and, as such, is an appropriate environment in which to introduce innovations such as those proposed in this paper. This study is a case in point where a selection of students were invited to engage in the research project by contributing to an online journalling activity that sought their attitude and responses to receiving different types of feedback. The College provided the project team with ease of access to a range of disciplines and, because of its size, the research team was readily able to provide workshopping and support to academic staff to enable them to develop and implement the strategies.

Prior to the implementation of the study reported here, a pilot study was conducted in 2014, for the purpose of determining how the provision of qualitative and quantitative feedback influenced the way in which students engaged with the feedback received about their assessment tasks (Northcote,

Williams, Fitzsimmons, & Kilgour, 2014). The pilot study established that students' learning behaviour, post receipt of assessment feedback, changed with the type and timing of feedback type. The 2014 pilot study established that students' responses to receiving qualitative feedback were more focused on constructive issues relating to improvement of their learning whereas their responses about receiving quantitative marks and grades tended to be negative and less future-focused. The findings of the pilot study informed the design of this research project by providing insights into the particular strategies that showed potential to change students' learning intentions and behaviour. The pilot study identified that through a staged approach to providing assessment feedback to students, university lecturers have the capacity to enhance student's intentions to modify their future learning. This potential exists when students are supported to increase their understanding of how to utilise feedback in future assessment tasks. The project's approach has been purposefully designed to ensure the research processes could be applied in other higher education institutions.

Informed by the outcomes of the pilot study, conducted in 2014, a series of aims were developed to guide this study. These aims were to:

- investigate how the variation in presentation of qualitative and quantitative assessment feedback influences student's intention to modify their future learning;
- determine if a student's response to ARAF strategies results in metacognitive learning;
- determine if there is a relationship between the learner's experience over time at university and their responsiveness to ARAF strategies;
- determine if a student's seniority at university changes the way they respond to assessment feedback; and
- identify the implications of using an ARAF approach to provide feedback to students.

To achieve these aims the project's design comprised three stages, and each stage consisted of a number of activities. The stages and activities are shown in Table 1:

Table 1: Research project stages and activities

Project stages	Research activities
Stage 1: Gather data in Semester 1, 2015 to develop recommendations for how to develop ARAF strategies	1. Define student population from Education, Arts and Humanities, including first year, third year and postgraduate students. 2. Focus groups to identify students' current use of feedback and willingness to engage in alternative assessment feedback processes. 3. Analyse feedback from focus groups to inform subsequent phase. 4. Development of practical guidelines to develop ARAF strategies.
Stage 2: Use of recommendations that emerged from Stage 1 to develop ARAF strategies to implement in Semester 2, 2015	5. Identify appropriate assessment activities in which to implement the ARAF strategies. 6. Development of tailored ARAF strategies for each course, informed by practical ARAF guidelines. 7. Contextualise ARAF strategies for selected units and courses. 8. Trial initiative by: • providing students with adaptively released qualitative and quantitative assessment feedback; and • analysing qualitative data representing students' responsiveness to varied types of ARAF. 9. Monitor student engagement via Learning Management System (LMS) analytics. 10. Repeat Activities 2-4 with a focus on students' experience of ARAF. 11. Utilise analysis of student feedback from implementation of Stage 2 involving modified ARAF. 12. Repeat activity 9.
Stage 3: Analysis of data after ARAF strategies have been implemented in Semester 2, 2015.	13. Evaluate the project. 14. Develop and disseminate project deliverables.

Stage 1 of the project, at the time of writing this paper, is complete. The courses chosen for the ARAF

initiative cover first year, third year levels and postgraduate levels, as well as crossing disciplines of Education and Arts. The project incorporated a range of assessment types as well as face-to-face, blended and online learning modes of instruction. Implementing the ARAF initiative in such a diverse range of disciplines, instruction modes and course levels provided insight into how students respond to receiving feedback using a staged approach. The results of the initial stage of this study provided a significant insight into both the effectiveness of ARAF strategies but also its applicability to different learning contexts. Outcomes of this initiative have the potential to inform the development of assessment feedback in university contexts.

Findings and recommendations for practice

Based on an analysis of the data gathered from focus groups with lecturers and three groups of students, including both undergraduate and postgraduate groups, we were able to establish their knowledge and views of varied types of feedback and the degree to which they were willing to engage in the use of adaptively-released assessment feedback (ARAF) strategies in the future. A total of 77 students were enrolled across the three courses identified for inclusion in this study. A selection of students (n=18) and all staff (n=3) from three courses participated in the study. See Table 2 for further information about the study's participants and the courses in which they were enrolled.

Table 2: Information about participants and courses

	Course 1	Course 2	Course 3
Level of study	Undergraduate	Undergraduate	Postgraduate
Type of course	Bachelor of Arts	Bachelor of Education	Master of Teaching
Year of course	First of 3 year course	Third of 4 year course	First of 2 year course
Topic of course	Media studies	Health education	Mathematics education
Mode of delivery	On-campus	On-campus	Blended and distance
Discipline	Arts	Education	Education
No. of staff	1	1	1
No. of students enrolled	29	37	11
No. of students in study	6	8	4

In the focus groups that were conducted during Semester 1 2015, lecturers and students across the three courses described the typical forms of assessment feedback that were given to and received by students about their assessment tasks. Feedback was described as being provided to students mainly in the form of comments and scores within the structure of a marking rubric. If a rubric was used, it was often classified according to marking criteria and usually made available to students prior to them beginning work on their assessment task.

Mine [feedback] often is in a rubric, and it's in sections and there's a place to comment for each section of that rubric. (Jon, Lecturer)

It depends on the assignment, so if it's been just like a theory assignment that we have to hand in online or we have to hand it in through Turnitin...then...generally we'll get a rubric back from that. (Ella, First year undergraduate student)

[W]e're given a rubric before we submit the assignment and then usually the rubric will be marked as to how we went and that will give us a better indication of how we went. (Cameron, Third year undergraduate student)

I love having a rubric. This is the most effective way to help prepare for the task. (Harley, First year postgraduate student)

Verbal feedback was generally given for presentations or practical work but rarely for written work, such as essays.

If it's an oral presentation they sit you down and talk you through it. (Josh, First year

undergraduate student)

Verbal feedback...so that's usually straight after we do a presentation...usually something practical, after something practical...teaching mini lessons for the class but mostly presentations. (Aimee, Third year undergraduate student)

Written feedback was more commonly provided on essay-type assessment tasks and such feedback was described as being received in the form of annotations throughout the body of work or a summative comment towards the end of the assessment task.

For essays generally you get the essay back with the things on the side of or through your essay plus the rubric with information down the bottom and general comments. (Sarah, First year undergraduate student)

Notes throughout the assessments have been the most helpful. Some of the general comments have seemed cryptic and I have had to ask lecturers to elaborate. (Miranda, First year postgraduate student)

Varied views were offered about the value of assessment feedback for learning purposes. Constructive and encouraging feedback was most favoured by the students, but the preferred mode of feedback varied: some preferred verbal and some preferred written feedback. Some undergraduate students did not see the value of feedback and claimed that they found it difficult to relate feedback from one task to how they worked on another task or in another course. On the other hand, the postgraduate students were more likely to see the value of feedback and use it in their future learning.

Well I find you mostly get one type of assignment per course, all the assessment tasks are generally so different that they're not really related to each other and then you typically go on break and you come back and have a whole new course. (Harry, First year undergraduate student)

I use my assessment feedback to adjust future assignments. Before I start another assignment in a course I will look back at past assignments and the feedback I received to help guide the assignment writing process. I will also refer to feedback while writing to make sure I'm working on areas that need improvement and not making the same errors. (Sharn, First year postgraduate student)

The lecturers believed that the process of providing students with verbal feedback was one of the best ways to gauge students' immediate reaction to the feedback. However, the lecturers found that written feedback had the most potential for student development. While the lecturers in this study believed feedback to have a high value in the learning process, they often found it difficult to know if the students had used their feedback for the purposes of modifying their future learning approaches.

Verbal feedback has...immediacy...and on that level I'd say it's probably the most helpful for them. But I'd like to think that written [feedback] in the body of the essay has the most potential in that area. (Annette, Lecturer)

Probably I said the verbal first because you have a guarantee with your own eyes that they've actually heard what you've said, however with the written there's no guarantee they've taken it to heart. Certainly the written has the most potential if they are going to use it. (Jon, Lecturer)

It's hard to know, how much they have utilised your commentary when you have big classes. (Ruth, Lecturer)

During the focus group discussions, a wide range of views were presented about how students use feedback, both in the short term, in relation to their reactions to feedback, and in the long term, in relations to how they use feedback for their future learning. An analysis of the focus group data

indicated that the majority of students first looked at their quantitative mark and then, providing their mark was not too disappointing, they would read over the qualitative comments. A small amount of students admitted to only ever looking at their quantitative mark. Students felt that the usefulness of feedback depended on the extent to which it was task-specific and content-specific. Lecturers believed that some students actively used their feedback, and that the results could be seen in future assessment tasks but, in other cases, it was impossible to know if they had used the feedback or not. The lecturers further agreed that this was particularly difficult if they only taught students for a single semester:

... with your comments on that, it helps you, or tells you...which parts of your writing were, like, fluent and where your strengths were and you can learn to apply them. (Timothy, First year undergraduate student)

... the sooner the feedback is received the more that I care about what's being said, like if it's soon, I'm like, 'okay, sweet, I need to...'. Because, say I do a presentation and you get marked on anything, I want to know what mark I got and you take the feedback on a bit more I think, whereas if...you're getting feedback at the end of the semester, you're like, 'oh well...' (Imogene, Third year undergraduate student)

So I only have them for one class, how do you know how they have continued and how that feedback has actually benefitted them beyond? (Ruth, Lecturer)

Overall, a wide range of issues was revealed across the data sets from the three groups of students and the three lecturers. Most of these issues about the type of feedback, raised by both students and lecturers, related to the timeliness of receiving feedback and the impact that feedback had, or did not have, on learning or future learning intentions.

Recommendations for practice

From these findings, we have developed a comprehensive set of recommendations in the form of practical guidelines to inform the design and development of ARAF strategies to suit particular course contexts. These practical guidelines are currently being workshopped with three lecturers to develop three sets of tailored ARAF strategies in three separate courses - two of which are undergraduate courses and one of which is a postgraduate course. Our analysis indicated that, as well as the practices around feedback creation and provision, there was also the need to specify when these recommendations for practice would be implemented and to provide students with a rationale for the strategies, an issue cited as important by Parkin et al. (2012). As such, the guidelines, presented in Table 3, have been categorised according to the stages of a typical semester when these strategies would be applied. Depending on the context in which the readers of this paper design and teach courses, some of these practical recommendations may be more relevant than others. A selection of the recommendations for practice are presented here for consideration by higher education academic teaching staff. A more detailed account of these practical guidelines will be published separately.

Table 3: Practical guidelines for design and development of ARAF strategies

Pre-semester
Decide on: • type and amount of feedback to be given (e.g., quantitative scores, qualitative comments, diagrams, verbal feedback, audio feedback, peer feedback, diagrams, annotations, written feedback, overall comment, format of feedback given to individuals and the whole cohort); • location of feedback (e.g., on rubrics, on assessment task, via email, on LMS); • rubric design (e.g., availability, weightings, length, criteria); • timing of feedback (e.g., time taken to return feedback to students after assessment tasks are submitted, when individual feedback is distributed to individual students and to the cohort); and • sequencing of feedback (e.g., verbal feedback followed by written feedback, qualitative feedback before, after or with quantitative feedback). Create: • instructions for completing assessment task; and • rubric content, structure and provision method.

During the semester (provision of feedback)
Decide on: • self-assessment activity - whether students are required to submit a set of responses to reflection questions with their assessment task; • who will provide assessment feedback (e.g., lecturers, other students, other experts); and • how student responses about receiving feedback will be gathered (e.g., an online survey or paper format, analysis via LMS learning analytics). Communicate to students: • how rubric will be used by students (e.g., submit with assessment task, as a self-reflection activity); • when and how assessment feedback will be distributed; and • why assessment feedback will be adaptively released. Implement: • timing and frequency of how varied types of assessment feedback will be distributed.
During the semester (gathering responses from students about feedback given)
Communicate to students: • data gathering and tracking methods of how students' responses to receiving different types of feedback will be collected. Implement: • timing and frequency of when students will be requested to respond to different types of feedback (e.g., immediately after or within one week of receiving feedback).
During the semester (metaphase learning: learning that occurs after students receive feedback)
Implement: • tracking method to gather information about student actions after receiving feedback; and • data gathering method to gather student responses about receiving feedback. Analyse: • differences between students' quality of work and grades, based on ARAF strategies used.

Discussion

The first stage of this project has been an attempt to address dissatisfaction with university feedback (Beaumont et al., 2011) and close the assessment loop by supporting students to more effectively apply new knowledge to new assessment tasks. While others such as Parkin et al. (2012) have taken up some of the challenges posed by Boud and Molloy (2013) to rethink the concept of feedback “from a prime focus on timely and detailed information to one in which the focus is on the appropriateness of timing and the nature of information for fostering self-regulation” (p. 711), a key focus of this study is the development of metacognitive processes to maximise the feedback loop’s efficacy. As such, the first stage of the study has attempted to disrupt learned or unconscious responses to feedback, and initiate the building of a metacognitive framework to support reflexive learning for both staff and students.

Findings from Stage 1 of this project both support and extend previous studies on engagement with feedback. The type and timing of feedback are, for example, key concerns for students. Two issues of timeliness arose: the first is consistent with Bayerlein’s work (2014) who found that the post-date needed to be timely to be effective. In addition to the issue of post-dates, responses in this study indicated that feedback given close to the end of the semester produces a double disincentive to active engagement. Firstly, at the end of the semester, students are primarily concerned with quantitative results, therefore engagement with qualitative feedback is likely to be superficial. Secondly, students report a lack of incentive to transfer guidance from one assessment to a like-assessment if a semester break interrupts the sequence of assessments, or if the like-assessment task is undertaken in another course. Our findings indicate that support needs to be given to students in the metaphase of learning, post-feedback, to develop reflexivity and ensure transferability of new knowledge and skills to new tasks. This finding, however, was prevalent amongst undergraduate students rather than postgraduates, indicating that there may be a correlation between the learner’s experience over time at university and their responsiveness to ARAF strategies. Undergraduates in particular should be targeted in the metaphase of learning to develop the competency of using feedback to feed-forward into their future

learning (Duncan, 2007).

Another key finding of this study supports previous research that links emotive responses to feedback with levels of engagement with quality feedback. Outcomes of this study suggest that disappointment with grades will often deter students from engaging with qualitative comments about their assessment tasks. This is consistent with Yang and Carless' (2013) finding that the social-affective dimension of feedback impacts student motivation. Consequently, an important consideration when developing ARAF strategies is to disrupt learned patterns of disengagement from qualitative feedback.

Each of these points indicates that undergraduate students seem to conceptualise learning in discreet units, with summative assessment being a 'completion' point rather than one step in an integrated process of learning. The metaphase of the feedback loop is vital, then, in transforming students' perceptions of their learning and themselves as learners. This step has perhaps the most potential for supporting learning in this process, as it is here that students' ownership of learning becomes evident. Metaphase learning is consistent with Boud and Molloy's (2013) second model of assessment: Feedback Mark 2, which positions students as active participants in their own learning and highlights that feedback should be useful beyond immediate tasks.

Given these key issues, there are some limitations of this study. While results will be gathered in regards to students' intentions of how to apply feedback to other assessment tasks, data gathering will only occur during one semester, limiting access to comparative data and the potential to evaluate future transferability. Action that may be catalysed by feedback will necessarily be potential in nature, described by Parkin et al. (2012) as "action planning" (p. 968). Future research could build on this project, however, by investigating the impact of metaphase learning over successive semesters to further explore the impact of ARAF strategies on students' intended *and* actual learning approaches, and their lecturers' observations of such impact. Other potential limitations include the range of disciplines represented and the number of students involved; both of which could be extended in further iterations of the ARAF project. Nevertheless, this paper highlights that conditions conducive to create effective feedback loops are not limited by mode or type of feedback given, but are instead reliant on students engaging in learning process and recognising their own role and agency in metaphase learning.

Conclusion

This paper reports on an investigation into three higher education courses in which the process of delivering assessment feedback was explored from both students' and lecturers' points of view. The main aim of the research was to determine how students used adaptively released assessment feedback (ARAF) in their learning. Varied types of feedback were provided to students in varied sequences. By improving the way in which feedback is structured, provided and received by students, this project addressed issues associated with student satisfaction about assessment feedback and especially focused on improving the potentially useful impact that feedback can have on student learning or students' intentions to improve their future learning approaches. This project enabled the shift in focus on feedback from teacher-distributed to student-received and produced recommendations about how to replicate similar practices in other undergraduate and postgraduate learning contexts.

References

- Bayerlein, L. (2014). Students' feedback preferences: How do students react to timely and automatically generated assessment feedback? *Assessment & Evaluation in Higher Education*, 39(8), 916-931.
- Beaumont, C., O'Doherty, M., & Shannon, L. (2011). Reconceptualising assessment feedback: A key to improving student learning? *Studies in Higher Education*, 36(6), 671-687.
- Boud, D., & Associates. (2010). *Seven propositions for assessment reform in higher education*. Australian Learning and Teaching Council (ALTC).

- Boud, D., & Molloy, E. (2013). Rethinking models of feedback for learning: the challenge of design. *Assessment & Evaluation in Higher Education*, 38(6), 698-712.
- Brinkworth, R., McCann, B., Matthews, C., & Nordström, K. (2009). First year expectations and experiences: Student and teacher perspectives. 58, 2(157-173).
- Butler, R. (1987). Task-involving and ego-involving properties of evaluation: Effects of different feedback conditions on motivational perceptions, interest, and performance. *Journal of Educational Psychology*, 79(4), 474-482.
- Butler, R. (1988). Enhancing and undermining intrinsic motivation: The effects of task-involving and ego-involving evaluation on interest and performance. *British Journal of Educational Psychology*, 58(1), 1-14.
- Butler, R., & Nisan, M. (1986). Effects of no feedback, task-related comments, and grades on intrinsic motivation and performance. *Journal of Educational Psychology*, 78(3), 201-216.
- Duncan, S. (2007). 'Feed-forward': improving students' use of tutors' comments. *Assessment & Evaluation in Higher Education*, 32(3), 271-283.
- Maggs, L. A. (2012). A case study of staff and student satisfaction with assessment feedback at a small specialised higher education institution. *Journal of Further and Higher Education*, 38(1), 1-18.
- Northcote, M., Williams, A., Fitzsimmons, P., & Kilgour, P. (2014). Does the type of assessment feedback I give make a difference?: The impact of qualitative and quantitative assessment feedback. In L. G. Chova, A. L. Martínez & I. C. Torres (Eds.), *Proceedings of the 7th International Conference of Education, Research and Innovation (ICERI)* (pp. 4531-4540). Seville, Spain: International Academy of Technology, Education and Development (IATED).
- Parkin, H. J., Hepplestone, S., Holden, G., Irwin, B., & Thorpe, L. (2012). A role for technology in enhancing students' engagement with feedback. *Assessment & Evaluation in Higher Education*, 37(8), 963-973.
- Pickford, R. (2010). First-year assessment: Aligning perceptions and practice with purpose. from http://www.heacademy.ac.uk/assets/documents/ntfs/projects/Leeds_Met_Final_Report_2008.pdf
- Pulfrey, C., Darnon, C., & Butera, F. (2013). Autonomy and task performance: Explaining the impact of grades on intrinsic motivation. *Journal of Educational Psychology*, 105(1), 39-57.
- Rae, A. M., & Cochrane, D. K. (2008). Listening to students: How to make written assessment feedback useful. *Active Learning in Higher Education*, 9(3), 217-230.
- Sopina, E., & McNeill, R. (2015). Investigating the relationship between quality, format and delivery of feedback for written assignments in higher education. *Assessment & Evaluation in Higher Education*, 40(5), 666-680.
- Taylor, C., & Burke da Silva, K. (2014). An analysis of the effectiveness of feedback to students on assessed work. *Higher Education Research & Development*, 33(4), 794-806.
- Wren, J., Sparrow, H., Northcote, M., & Sharp, S. (2008). Higher education students' perceptions of effective assessment. *The International Journal of Learning*, 15(12), 11-24.
- Yang, M., & Carless, D. (2013). The feedback triangle and the enhancement of dialogic feedback processes. *Teaching in Higher Education*, 18(3), 285-297.