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## Does the Type of Assessment Feedback I Give Make a Difference?: The Impact of Qualitative and Quantitative Assessment Feedback

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# DOES THE TYPE OF ASSESSMENT FEEDBACK I GIVE MAKE A DIFFERENCE?: THE IMPACT OF QUALITATIVE AND QUANTITATIVE ASSESSMENT FEEDBACK

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## **Abstract**

Feedback provided to postgraduate students about their assessment tasks influences the way in which they reflect on their learning and themselves personally. In particular, the nature of the feedback and sequence and timing of its dissemination can further impact how students incorporate, or don't incorporate, assessment advice into their future learning, a process referred to by Duncan (2007) as "feed-forward". Despite the value placed on assessment feedback by academic teaching staff, it often has minimal impact on students' learning (Sadler, 2010). Past research into the impact of qualitative and quantitative feedback on student learning established that quantitative feedback (for example, marks, grades, scores) impacts students' egos whereas qualitative feedback (for example, advice-giving comments) impacts students' understanding of the learning task (Butler, 1987, 1988; Butler & Nisan, 1986). The impact of assessment feedback continues to be investigated in higher education (The Higher Education Academy, 2012) but it remains a contentious issue (Boud & Molloy, 2013). Pulfrey, Darnon and Butera (2013) suggest that the practice of giving grades to students continues to be an area of disagreement among educators.

The reported project extends on previous research about the nature of assessment feedback and its impact on students' learning and self-perceptions. This study investigates students' responses to assessment feedback (Bell, Mladenovic, & Price, 2013), specifically focusing on postgraduates enrolled in online courses. The study investigates how these students responded to the sequenced release of qualitative and quantitative assessment feedback using online assessment tools within the institution's Learning Management System (LMS). Students responded to a series of online prompts that elicited their comments about what they did and how they felt when they received, firstly, qualitative feedback and, secondly, quantitative feedback about their assessment tasks. To gather holistic data and in-depth information about each case (Flick, 2004), a qualitative research approach was adopted in which students' responses to varied types of data were gathered. These data were then analysed through a process of constant comparison to determine how each type of feedback influenced the students' perceptions of their learning and of themselves.

The findings of the study revealed that students focused on themselves and their learning, depending on the feedback they were given about their assessment tasks. Furthermore, the type of feedback received influenced the nature and specificity of their responses to the feedback. The findings of this study have implications for how: a) assessment tasks are designed; and b) assessment feedback is provided to students. Findings from this research provides ways to promote deeper engagement of students through assessment feedback.

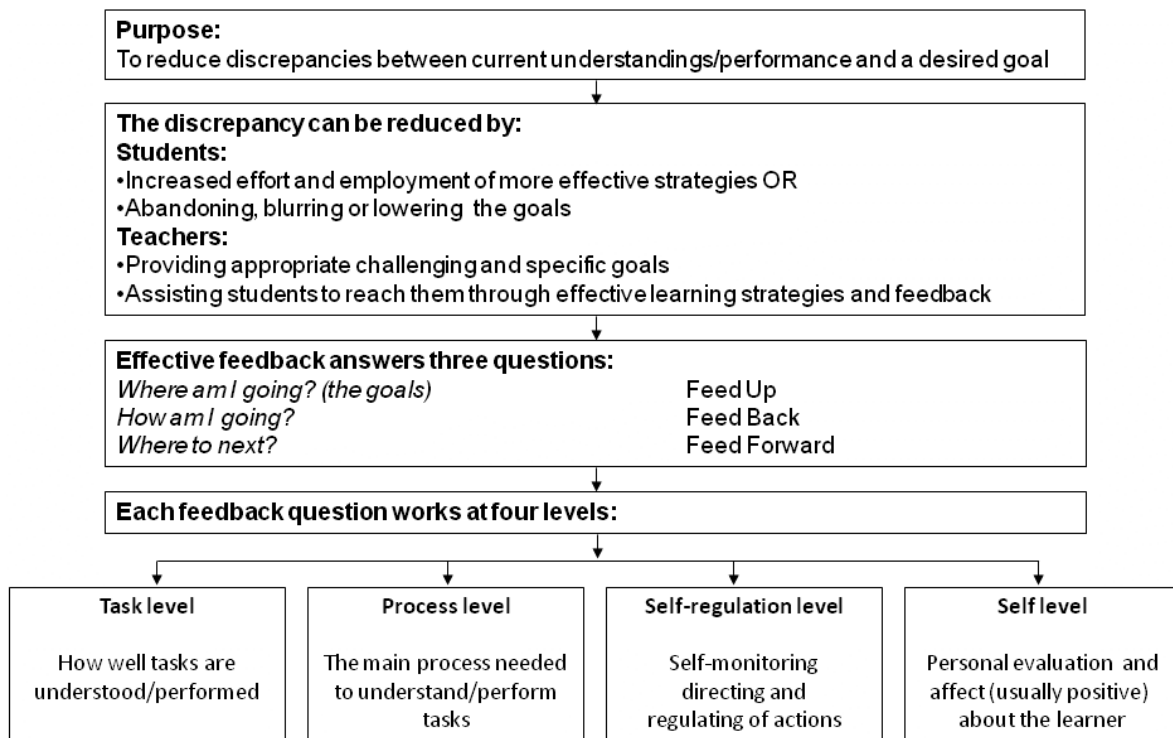
Keywords: online assessment, qualitative and quantitative feedback, adaptively-released feedback.

## **1 INTRODUCTION**

Feedback provided to postgraduate students about their assessment tasks influences the way in which they reflect on their learning and themselves (Marsick, Volpe, & Watkins, 1999). In particular, the nature of the feedback and the way in which its dissemination is sequenced and timed can further impact how students incorporate, or don't incorporate, assessment advice into their future learning, a process referred to by Duncan (2007) as "feed-forward". Despite the value placed on assessment feedback by academic teaching staff, it often has minimal impact on students' learning (Sadler, 2010). This paper addresses how the nature of feedback provided to postgraduate students enrolled in coursework components of a research masters degree can impact on their perceptions of themselves as learners and researchers.

## 2 BACKGROUND

Educators in the higher education sector devote considerable time to designing assessment tasks, providing frameworks that guide students in their assessment tasks and ultimately providing students with comprehensive feedback to support their future learning. In the time-poor context of academic life it is important to maximise the outcomes of the time devoted to academic activities, specifically the outcomes associated with providing assessment feedback to students which in turn provides insights into their performance. Assessment feedback provided by academics assists students in a number of ways, providing them with information on their performance in the assessment task compared with the assessment criteria and enabling them to establish how they have performed in the achievement of the subject learning outcomes. Also, this process enables the student to receive insights on how to improve their performance in subsequent assessment tasks. This process is illustrated in **Figure 1**.



**Figure 1: A model of feedback to enhance learning (Hattie & Timperley, 2007, p. 87)**

Figure 1 breaks down the assessment activity to its simplest terms. Specifically for the purposes of this study, the concepts of “Feed up, Feed Back and Feed Forward” are important considerations. Asking questions from the feedback they receive enables students to determine how to improve their learning in the future. How do we actually compel students to engage with the questions?

### 2.1 Higher education assessment

Teachers have traditionally been involved in the process of correcting students' work through providing feedback without necessarily understanding its effectiveness or impact. Put simply, marking was the process of students being informed of their progress with the hope that students take on board the feedback and apply it to their learning, though the common belief among academics is students do not usually take the feedback on board, preferring to just observe the mark and move on: “This notion of feedback has a strong behavioural emphasis that focuses on the external provision of information based on observable performance (Boud & Molloy, 2013, p. 700).

#### 2.1.1 An Imperative for Change

In the past, attention has been focused on the role of assessment and, specifically, the positive impact of assessment feedback on students' learning and satisfaction with their overall experience at university. James, McInnis and Devlin's 2002 study of Assessing Learning in Australian Universities, identified a range of factors that impact on the role and practice of assessment. Though conducted in 2002, their work is still pertinent, as evidenced in three identified influences:

- heightened awareness of the importance of assessment requirements in establishing expectations and guiding student learning, particularly in more flexible, independent learning environments;
- the emergence of new technological possibilities for assessment, including the potential to integrate assessment in new ways with other teaching and learning activities; and
- the changing nature of the students themselves, in their diverse backgrounds, abilities, expectations and engagement with the learning process.

(James, McInnis, & Devlin, 2002, p. 1)

As educators, there is a significant impact that we can have on student learning through the assessment tasks we set and the feedback we provide. What is apparent, from the above, is the capacity to further improve the effectiveness of our feedback to enhance the effect it has on student experience. This paper considers the type and the timing of the qualitative and quantitative components of assessment feedback and its potential impact on students and their learning.

## 2.2 The nature of feedback and its impact on learning

James, Krause and Jennings' (2010, p. 58) Australian study of first year student experience found that only 35% of the participants ( $n = 2422$ ) believed they received 'helpful feedback'. This is interesting when considering the impact that assessment has on students, their learning and their perceptions. Further to this, Ferguson's (2011) study investigated students' perspectives on the effectiveness of written feedback. Unsurprisingly, this study found that students prefer written feedback to be specific and timely, and feedback quality has a significant impact on student perceptions of their learning experiences, though potentially it can be demoralising. Poulos and Mahony (2008) identified a strong association between emotion and students' perceptions of written feedback. This concept is supported by Dowden, Pittaway, Yost and McCarthy (2011) who link emotion with cognition. Particularly, students' emotions reconcile their perceptions of written feedback.

The 1980s work of Ruth Butler (1987, 1988) considered the impact of qualitative and quantitative feedback on students' learning. This research extended into not giving grades at all (Butler & Nisan, 1986; Kohn, 2011) and, more recently, the impact of assessment feedback has begun to be investigated in higher education (The Higher Education Academy, 2012). Further research has established that quantitative feedback (for example, marks, grades, scores) impacts students' egos whereas qualitative feedback (for example, advice-giving comments) impacts students' understanding of the learning task (Butler, 1987, 1988; Butler & Nisan, 1986). The impact of assessment feedback continues to be a contentious issue (Boud & Molloy, 2013) and an area of disagreement among educators (Pulfrey et al., 2013).

To date, issues associated with the impact of types of assessment feedback on student learning are under-researched in postgraduate education and this research project aims to contribute further to our understanding of how qualitative and quantitative feedback is received by postgraduate students, and the impact of this feedback on their perceptions of themselves as learners and researchers.

## 3 METHODOLOGY

This research aimed to firstly, determine how the provision of qualitative and quantitative feedback influences postgraduate students' perceptions of themselves as learners and researchers and secondly, to establish how students respond to feedback in future iterations of courses within the Master of Education (Research) degree at one higher education institution.

### 3.1 Research design

To gain insight into the relationship between assessment feedback and perceptions of 'self' as learners, the research design was based in the precepts and operations of the qualitative paradigm, thus the choice of data collection and analysis were hermeneutic, emergent, pragmatic, strategic and self reflective. As Flick (2004) states, it is an approach "that endeavours to catch an holistic perspective as well as capture the depth of understanding of the respondents" (p. 229). Following the explicit online research process developed by Burnett and Roberts (2005), this form of research design aimed to be one of co-learning between respondents and researchers, while learning and teaching together in an online learning context. The research participants (postgraduate students)

learned about themselves as learners and developing researchers while the researchers learned about the impact of varied types of assessment feedback on students who receive it.

By investigating students' responses to assessment feedback (Bell et al., 2013), and specifically focusing on postgraduate students enrolled in online courses, this research project extends previous research about the nature of assessment feedback and its impact on students' learning and students' self-perceptions. The researchers who conducted this study examined how postgraduate students, enrolled in an online course as part of a masters degree, responded to the sequenced release of qualitative and quantitative assessment feedback. Feedback about each assessment task was distributed to students through the use of online assessment tools within the institution's Learning Management System (LMS). Students responded to a series of online prompts that elicited their comments about what they did and how they felt when they received, firstly, qualitative feedback and, secondly, quantitative feedback about their assessment tasks. The data collection also took place through the institution's online LMS (that is, Moodle). Analysis of the students' responses provided recommendations for course design, and assessment design and management.

This small-scale study has been designed as a pilot study to lead into a project on a larger scale, involving higher numbers of enrolled students in postgraduate and undergraduate courses. The design of this study enabled the researchers to seek answers to the following two research questions:

How does the provision of qualitative and quantitative feedback influence students' perceptions of themselves as learners and researchers?

How can the students' perceptions of themselves as learners and researchers influence the design of future iterations of courses in the Master of Education (Research) degree?

To gather both holistic data and in-depth information about each participant (Flick, 2004), a qualitative research approach was adopted in which students' responses to varied types of data were gathered. These data were then analysed through a process of constant comparison to determine how each type of feedback influenced the students' perceptions of their learning and of themselves.

### **3.2 Research participants**

The study focused specifically on a cohort of postgraduate education students. Firstly, ethics clearance was sought and gained through the institution's Human Research Ethics Committee (HREC). Next, students enrolled in a research methods course component of a postgraduate Master of Education (Research) degree were invited to take part in the study. All four students enrolled in this course accepted the invitation to participate in the study, all having previously completed undergraduate degrees and with more than five years of employment before enrolment in this degree. Selection of participants in this pilot study was based on their enrolment, age (above 18 years of age), their ability to reflect on assessment feedback in an informed and objective manner, and their willingness to be involved in the study throughout a one semester period.

### **3.3 Data gathering and analysis processes**

As stated, data were gathered from postgraduate students about their responses to receiving: 1) qualitative feedback about their assessment tasks; and 2) quantitative feedback about their assessment tasks. A selection of directive statements were posed to students after they received qualitative and quantitative feedback, including:

Describe what you did after you read through the qualitative/quantitative feedback (comments) provided to you about the assessment task.

Describe your immediate reaction to the feedback you received – your thoughts, feelings, emotional and cognitive reactions.

Describe how you plan to use this feedback in your future learning and research.

This data collection took place six times within a semester period to align with the two types of feedback provided to students' three assessment tasks within one course component of their degree. Firstly, students were provided with qualitative feedback in the form of commentary about their assessment task including comments about what they had done well plus comments about the areas of their work that required attention. The qualitative comments provided to individual students were accompanied by overall comments about the achievement of the student cohort as a whole. Construction of these comments were guided by pre-determined learning criteria that were incorporated into the assessment task's marking rubric. These criteria were drawn directly from the

course's learning outcomes. Secondly, the students were provided with quantitative feedback in the form of a numeric mark (out of 30 or 40), a grade (fail, pass, credit, distinction, high distinction) and quantitative ratings on rubric criteria (not evident, pass, credit, distinction, high distinction). After receiving each set of feedback, students were invited to provide responses about how each type of feedback influenced their perceptions of themselves as learners and researchers. Their responses to the qualitative feedback were sought prior to the receipt of the quantitative feedback, reflecting the order in which the two types of feedback were received by the students.

A two-pronged nested phase approach to the analysis of data was utilised. Firstly, the two sets of data, including the students' responses to their qualitative data and their responses to receiving quantitative feedback, were collated and qualitatively coded using Thomas' (2009, p. 199) constant comparison method of network analysis to reveal a set of key emergent themes. Secondly, a software program, NVivo, was also used to assist in the allocation of codes to each piece of data. The codes that emerged from analysing the two sets of data were then collapsed, categorised and classified to form a thematic map which represented the participants' responses to qualitative and quantitative feedback. Findings from this stage of the analysis process were used to answer the first research question: How does the provision of qualitative and quantitative feedback influence students' perceptions of themselves as learners and researchers? Subsequently, the combined analysis of the two sets of data (participants' responses to qualitative feedback and participants' responses to quantitative feedback) were considered as a whole set of data to determine answers to the second research question: How can the students' perceptions of themselves as learners and researchers influence the design of future iterations of units in the Master of Education (Research) course? Answers to both of these research questions are outlined in the following sections of this paper.

## **4 FINDINGS AND DISCUSSION**

The students responded to a set of prompt-type questions which revealed their reactions to the process of receiving qualitative feedback (advice and commentary) about their assessment tasks and receiving quantitative feedback (grade, numeric mark and rubric criteria ratings). Analysis of this data enabled us to answer the following research question: How does the provision of qualitative and quantitative feedback influence students' perceptions of themselves as learners and researchers?

### **4.1 Overview of findings**

The students' responses to their quantitative and qualitative assessment feedback were analysed and coded to identify key themes and sub-themes within the data. Additionally, recurring words in these responses were reported in the form of word clouds, providing insights into student reflections. It was evident that when there was a numerical value attached to a student's work, their responses were more emotive and their responses were composed of fewer words than their responses to qualitative comments. Students used the word 'emotional' when discussing their quantitative result and expressed either positive or negative feelings depending on how their mark aligned with their expectations. Students displayed the continuum of emotions about their results, ranging from despair over their mark or being please with the good mark they were awarded. Neither the word 'emotional' nor the word 'work' came up in the students' responses to their qualitative feedback.

Students often referred to marking rubrics when responding to their numerical assessment result, but did not reference rubrics when responding to the qualitative feedback. The context of these comments was that they compared their numerical mark to their rubric ratings in a clinical way. It appears that providing a simple percentage mark brings about a methodical inspection of the marking criteria to examine where they are ranked against the course learning outcomes and the performance of other students, while the feedback they gave on the qualitative comments was more focused on examining the feedback and being determined to implement the ideas in the next assessment task.

To build on the idea of the emotional response to quantitative feedback, the word 'self' was evident in these responses while not being present at all in the response to the qualitative feedback. Students used words like 'self-imposed', 'self-analysis' and 'self-doubt' when discussing their raw numerical result. Again it seems that while qualitative comments encourage reflection and improvement, quantitative feedback in the form of marks influences students' analysis of their own capabilities.

To help justify the delivery of qualitative feedback to the students before they receive their actual mark, the word 'learning' appears in the student responses. It is evident that receiving comments about their work helps students to reflect about improvement in a formative (assessment *for* learning)

sense, but as soon as the actual mark is received, it is taken as a summative (assessment of learning) result. The impact of this is that receiving the quantitative result serves to polarise in either giving confidence or causing self-doubt.

## 4.2 Revealing the students' voices in the data

The content of the students' responses about receiving varied types of assessment feedback were further analysed in terms of the regularity, specificity and intensity of their comments to further reveal their voices in the data gathered during the study. Representative quotations are provided to reveal in this section of the paper to illustrate the students' voices in the data.

The students' responses to the qualitative feedback were typically numerically higher, more lengthy and complex than the responses they provided about receiving quantitative feedback. Overall, just over 3000 words of comments were received from the participants about their qualitative feedback whereas 2000 words of comments were received about their quantitative feedback. Overall, students were more responsive about the qualitative feedback they received than the quantitative feedback. All participants responded every time they were asked to respond to receiving qualitative feedback (100% response rate) whereas not all students responded when they were asked to respond to receiving quantitative feedback (67% response rate).

The students' responses to receiving both types of feedback, qualitative and quantitative, were positive overall. This sentiment was reflected in comments such as: "I'm glad I am on the right track" (Robert), "I was happy with the feedback I received" (Yolanda) and "I was happy to have mostly positive comments" (Katherine). However, the type of feedback received did influence the way they felt about themselves and their learning.

When each of the students' comments were qualitatively coded, the following major themes emerged:

- **actions:** indicating students behaviour immediately after receiving feedback;
- **commentary:** comments made by students about the task and the context of the task;
- **comparisons:** how students compared themselves to previous feedback or other students;
- **types of responses:** including mixed or neutral, positive and negative comments; and
- **reflections:** about past, current and future issues.

The sub-themes that emerged indicate the nature of the students' responses to qualitative feedback were more diverse and numerous than their responses to quantitative feedback. On receiving feedback about their assessment tasks, they tended to compare their feedback with others when they received quantitative feedback whereas they mainly compared their feedback to their own previous work when they received qualitative feedback. Their responses to qualitative feedback were also more definite than their responses to quantitative feedback in that hardly any sub-themes emerged from coding the data that indicated mixed or neutral feelings about receiving qualitative feedback but half of the students expressed some neutral responses about receiving quantitative feedback.

There was evidence in the findings from this study that reinforces previous research, indicating students tend to respond in an ego-focused manner to quantitative feedback but respond in a task-focused way to qualitative feedback (Butler, 1987, 1988; Butler & Nisan, 1986). However, students in this study showed less of these tendencies than have previously been reported. This may have been because of their postgraduate status and, as qualified teachers, they were more skilled in the craft of giving and receiving feedback. One of the main differences to how they responded to different types of feedback was that the majority of the students' comments about receiving qualitative feedback were focused on their future plans for improvement within the context of their studies and their careers compared to their responses about quantitative feedback which tended to be more past-focused. They tended to respond to qualitative feedback by reflecting their willingness to be accountable for their own future learning progress. Less reflection was prompted by receiving quantitative feedback indicating that their comments about the qualitative feedback were more future focused, in the spirit of feeding-forward (Duncan, 2007). Furthermore, their comments about qualitative feedback were noticeably more specific with all students incorporating constructive plans for improving their future learning.

*Re-reading my work is obviously the next new skill I am going to have to develop.* (Robert)

*I plan to have my assessments proof edited by someone else that is a bit more proficient in spelling and grammar.* (Yolanda)

*So far a consistent theme of feedback is that I am better at describing things than synthesising ideas. I like to pick things up and put them in the box they belong in, nice and tidy. I might have to take a tutorial on how to write more analytically and synthesis ideas and concepts better ... So my focus in the future will be to try and work out how to link ideas and apply concepts across topics. (Katherine)*

*I also believe that I will need to find a way to improve my critical analysis and evaluation skills. This will not simply happen through increased effort, so I will need to find a way to learn strategies and skills in this area. (Narelle)*

There was some evidence that students reflect on themselves and their own learning more readily after receiving qualitative feedback than when they received quantitative feedback. They were inclined to blame external factors and people when they received a lower numeric grade than they expected, sometimes questioning the assessment task instructions provided by their lecturers. Students offered positive responses to both qualitative and quantitative feedback, although overall, proportionally, their responses to quantitative feedback were more negative.

Students demonstrated an awareness of the value of qualitative feedback and the need for quantitative data, possibly formed by their previous conditioning. As Narelle explained: "I know objectively, that is, that marks are not of great concern, but that the skills I need to be able to conduct quality research are the end goal. Still - there's that child within looking for some form of extrinsic value for the effort." Katherine further explained how quantitative feedback was more difficult to apply for reasons associated with improving her learning, but easier to apply for emotional reasons:

*The quantitative feedback will be harder to use in future learning and research, as it is just a number and doesn't detail how I could improve ... This quantitative feedback will be more helpful in the future for emotional reasons. As it is just a number, there are no hints as to what to improve, the qualitative feedback will help there. But the quantitative 'mark' will help me with my confidence levels and feelings of competence as the number is higher than last time ... I really will find the qualitative feedback more useful than the quantitative. (Katherine)*

Paradoxically, some of the students' remarks about receiving a high numeric grade were negatively tinged: there was evidence of worry associated with fears of not being able to continue such levels of success. Despite receiving a very high mark, Narelle perceived her quantitative feedback negatively, as a "burden" that was "self-imposed by self-doubt" about her ability to repeat such a feat in the future.

*Suffice it to say, I was quietly happy to have paid respect to the task, and got across in writing the mind-journey this assignment took me on. Along with that good feeling, came a sense that I would be expected to get high marks into the future, and that feels like a burden, self-imposed by self-doubt, and an objective understanding that if I am to take learning risks, they will not always end smoothly. (Narelle)*

Interestingly, when receiving a Distinction grade for her assignment, Narelle described her achievement as "middle ground". Another student, Katherine, who increased her grade from one assessment task to the next ("the number is higher than last time") also expressed a negative reaction to receiving an improved grade: "I was also a little disappointed that I didn't get a higher 'number'." It is no wonder that assessment in higher education, especially the practice of allocating numeric grades to tasks that are often very qualitative in nature, remains a controversial area of our work as lecturers and course designers (Boud & Molloy, 2013; Pulfrey et al., 2013).

One area of our research, not evidenced in previous literature is the unprompted comparison students made between their responses to receiving qualitative or quantitative assessment feedback, most likely due to the participants being postgraduate students with extensive teaching experience.

*How will I use the quantitative feedback? Perhaps I need to somehow assimilate the two and become better at self-identifying the quality of my output a little more realistically to reduce anxiety and encourage me to continue to step into areas that may not be in my current strength zone, but that are within my reach, given persistent and focused effort. (Narelle)*

### **4.3 Summary of findings and discussion**

The findings of the study reported here revealed that students focused on themselves and their learning in response to the type of feedback provided on their assessment tasks. Furthermore, the type of feedback received tended to influence the nature of their responses to the feedback in terms of regularity, intensity and specificity. Postgraduate students' responses to qualitative feedback in this



study were typically more focused on how they could improve their learning in the future which appears to reverse the common phenomenon of students neglecting assessment feedback provided by academic teaching staff (Sadler, 2010). Overall, provision of quantitative feedback evoked a comparison with other students, students' responses were typically more emotive, negative and self- and effort- focused. Conversely, responses to qualitative feedback initiated lengthier reflective comments which typically outlined specific plans for improving future learning. Some recommendations for future practice in assessment task design and feedback are now provided.

## **5 RECOMMENDATIONS FOR PRACTICE**

Results of this study provide evidence of how a small group of postgraduate students responded to receiving qualitative and quantitative feedback about three assessment tasks. Specifically, our findings have provided answers to the following research question:

How can the students' perceptions of themselves as learners and researchers influence the design of future iterations of units in the Master of Education (Research) course?

Details of the results are provided below - including practical recommendations about assessment design and the provision of assessment feedback.

### **5.1 Assessment task design**

The outcomes of this research study have implications for how assessment tasks are designed for students enrolled in coursework components of a postgraduate degree. Although small in sample size, the implications for tertiary education in general and post-graduate tertiary education in particular may be much larger. The evidentiary warrant provided by these students indicates that universities appear to be still captured by an old paradigm of teaching and learning. The result of this study suggests that the teaching-learning-assessment cycle needs to be revisited with further research in light of what we know about the conditions of optimal adult learning. It is clear that this cohort of students were engaged in the learning process and also wanted to then be engaged in its assessment. While still captured by the old competitive paradigm of wanting to know their marks, they also wanted to use feedback as an integral component of their learning. Hence, assessment tasks should take on board the students' understanding of their learning through a more collaborative approach. Assessment tasks could possibly move beyond the notion of self assessment to incorporate a genuine feedback loop between lecturers and students. It goes without saying that the term and praxis of lecturing would become one more akin to facilitator. In this form of facilitative loop, the nature of the feedback could be discussed between students and facilitators, who could then determine what has been learnt, the depth of the learning and what needs to be learnt in the future. Thus an authentic outcomes-based framework could be established where the outcomes match the requirements of the subject, but could also be progressively negotiated to suit individuals' specific needs. This would require a major re-thinking of tertiary education, when students such as the ones detailed in this study use language such as "finding a new way to learn" (Narelle), showing clear evidence of a desire to engage in authentic learning and the corollary of engaging in authentic assessment.

While tertiary institutions in Australia are still linked to traditional understandings of assessment, issues such as assessment instructions can be framed to genuinely meet students' needs. While explicit instructions always provide greater understanding of what is required, instructions could also provide for greater reflective responses as well as the detailing of an individual's growth along the tacit to explicit awareness-knowledge spectrum. In doing this, students could respond to what they really need to gain control over on an individual level, together with unpacking how they reached these understandings. Therefore, qualitative aspects and indicators come to the fore as critical means of determining overall learning outcomes. It remains to be seen if these could be translated, or need to be translated into numerical forms.

Another outcome of this study relates to providing the means for students to work cooperatively and critically. Students' responses in this study reveal that an integral component of the "learning to take risks" (Narelle) and the lack of "hints to improve" (Katherine) is the need for the subject design-assessment task nexus at the post-graduate level. This would provide an even greater learning-assessment connection through critical examination or comparison of other's developing understandings. Thus rubrics or assessment outcomes frameworks could also provide opportunities for lecturers and students to peer more closely into what was learned, what changes the learning entailed and what new realisations were clearly developed.

In summary, the authors of this paper have to come to realise that authentic learning can be deflected by the assessment procedures. An essential component of the assessment process should be a feedback loop that includes the student's voice in dialogue with that of their facilitators.

## 5.2 Providing assessment feedback

This research study identifies implications for how assessment feedback is provided to students enrolled in coursework components of a postgraduate degree. While the provision of feedback has been discussed, above, the concept of "mind journey" (Narelle) supplied by a respondent in this study has specific implications for both assessment feedback and processes. While admittedly the following elements and paragraphs are in the realm of 'imaginative possibilities' we believe they are worth considering if authentic learning is to truly come into play at the university level. Typically, tertiary assessment consists of two or three components strategically interspersed throughout a semester. However, if the concept of 'mind journey' is to be taken seriously then assessment feedback has to be much more aligned to a circular and more consistent model. Thus, while admittedly creating more work for the teacher, in order to understand how a student has transferred and extended the course material and instruction into an authentic set of personal understandings, then the assessment process has to match when students reached 'ah-ha' moments. The 'three assessment tasks model' followed by a qualitative-quantitative response does not match the developmental approach that would appear to be needed to match the 'strong emotions' Poulos and Mahony (2008) experienced by those deeply engaged in learning. More feedback is required that is specific, individual, negotiated and revelatory rather than retell based on a homogenised and limited set out outcomes.

Clearly, more research needs to be undertaken into what assessment looks like for what Menon (2014) has termed the "deeply placed self" (p. 9). This is especially the case as tertiary educators move into the e-learning space, and into the realm of twenty-first century research methods.

## 6 CONCLUSIONS

Research has been conducted in the past on how different types of feedback affect student learning. It was found that giving quantitative feedback to students impacts their feelings about themselves and the process, while qualitative feedback has more of an impact on their understanding of the task. This research is quite dated however (Butler, 1987, 1988; Butler & Nisan, 1986) and does not include postgraduate students involved in research-based assessments.

This study had the objective of seeking reactions from four postgraduate students immediately after they received qualitative feedback and then after they received their final mark (quantitative feedback). These two types of feedback were provided sequentially with an intervening time period. The findings from this study and the students' reactions to different types of feedback has demonstrated that qualitative feedback is very carefully read by students and acted on when it is not attached to their actual mark or grade for the assessment. Providing a numeric mark at any point is interpreted as an end-point for that assessment and it appears that students then believe there is nothing to be gained by interacting with any form of feedback. Questions are therefore raised about the types and timing of assessment feedback that will facilitate the deepest levels of learning.

This research has many possibilities for expansion. The sample of four postgraduate students provided interesting and revealing data about the way assessment feedback is provided and the students' reactions to it. A more expansive sample and the inclusion of undergraduate students will add vital data to this area of research. If a wider sample results in similar outcomes, the traditional methods of providing qualitative and quantitative assessment feedback simultaneously will need to be re-evaluated. Findings from this research may interest university lecturers, course designers and supervisors of postgraduate students who are looking to promote deeper engagement of their students with their assessment feedback.

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