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Exploring the Emotional Responses of Undergraduate Students to Assessment Feedback: Implications for Instructors

ABSTRACT

Summative assessments tend to be viewed as high-stakes episodes by students, directly exposing their capabilities as learners. As such, receiving feedback is likely to evoke a variety of emotions that may interact with cognitive engagement and hence the ability to learn. Our research investigated the emotions experienced by undergraduate students in relation to assessment feedback, exploring if these emotions informed their learning attitudes and behaviours. Respondents were drawn from different years of study and subject/major. A qualitative approach was adopted, using small group, semi-structured interviews and reflective diaries. Data were analysed thematically and they revealed that receiving feedback was inherently emotional for students, permeating their wider learning experience positively and negatively. Many students struggled to receive and act upon negative feedback, especially in early years, when it was often taken personally and linked to a sense of failure. Negative emotional responses tended to reduce students' motivation, self-confidence, and self-esteem. Some students, especially in later years of study, demonstrated resilience and engagement in response to negative feedback. By contrast, positive feedback evoked intense but fleeting emotions. Positive feedback made students feel cared about, validating their self-worth and increasing their confidence, but it was not always motivational. The paper concludes with recommendations for instructors, highlighting a need to communicate feedback carefully and to develop student and staff feedback literacies.

KEYWORDS

assessment feedback, emotions, thematic analysis, feedback literacy, learning attitudes and behaviours

INTRODUCTION

There has been growing attention paid over the last 15 years to the role of emotions in learning at all stages of education (Pekrun 2019; Pekrun and Linnenbrink-Garcia 2014; Schutz and Pekrun 2007). Emotions can be viewed as relatively brief and context-specific responses that arise from an individual's subjective interpretation of a situation (Felten 2017). Emotions influence an individual's perception of an activity and therefore their approach to any learning experience, including the way they

respond to social learning contexts as a part of an inter-personal, meaning-making process. As such, emotions are fundamental to learning and linked intrinsically to student academic performance (Felten, Gilchrist, and Darby 2006). The more positively engaged learners are with their emotions, the more likely it is that they will be able to learn (Weiss 2000). Nevertheless, if learners perceive a learning situation to be threatening, and experience emotions such as insecurity and anxiety, they are less likely to learn.

Within the learning experience, summative assessments tend to be viewed as high-stakes, stressful episodes by students, which directly expose their capabilities as learners (Dowden et al. 2013). Recognition of this situation has led to emerging interest in the emotional responses of students to assessment feedback (Shields 2015). Feedback on assessments should be an integral part of learning in higher education because it can help students to close the gap between actual and desired performance (Hattie and Timperley 2007), enhance motivation (Orsmond and Merry 2011), and encourage reflective, self-evaluative behaviours that support deep learning (Carless et al. 2011). Studies have suggested, however, that feedback often does little to improve student learning (Boud and Molloy 2013; Carless and Boud 2018). Part of the difficulty for students is that their emotional responses play a significant role in determining how they receive and act on feedback (Pitt and Norton 2017; Ryan and Henderson 2018; Shields 2015; Small and Attree 2016). Emotional reactions can be positive, motivating students to improve by facilitating reflection and self-evaluation (Lizzio et al. 2003; Pitt and Norton 2017). They can also be negative, acting as an impediment to improvement of work and preventing the educational benefit of feedback from being realized (Forsythe and Johnson 2017; Winstone et al. 2017).

Emotions are incorporated in the concept of student feedback literacy, defined as "the understandings, capacities and dispositions needed to make sense of information and use it to enhance work or learning strategies" (Carless and Boud 2018, 1316). Student feedback literacy is underpinned by four inter-related abilities: appreciating feedback; making judgments; managing affect; and taking action. Affect refers to emotions, and if students are feedback literate, they are able to manage their emotions when receiving negative feedback, helping them to make sense of information and to secure positive outcomes (Boud and Molloy 2013). The more recent concept of instructor feedback literacy also acknowledges students' emotions and can be summarized as an instructor's awareness and skills in developing students' cognitive and social-affective capacities necessary to enable effective feedback processes (Xu and Carless 2017).

The relationships between emotions and assessment feedback are complex, but they can be made sense of through an understanding of control-value theory (Pekrun 2006). This theory identifies a suite of emotions associated with achievement activities and outcomes in educational settings, which can be positive or negative, and activating (initiating learning effort) or deactivating (inhibiting learning effort). In general, positive emotions tend to be activating except for those associated with a sense of accomplishment. For example, enjoyment and pride are positive and activating emotions, whilst relief is positive but deactivating. By contrast, negative emotions are almost equally split between those that activate efforts to improve (e.g. anxiety and shame) and those that are associated with decreased effort (e.g. sadness, disappointment and frustration) (Pekrun et al. 2002). Such emotions are important as they reciprocally influence an individual's cognitive attention to tasks, learning strategies, motivation, self-regulation, and achievement (Pekrun et al. 2011).

Recent research across the physical and social sciences and humanities has sought to examine the relationship between emotions and feedback in higher education (see, for example, Fong et al. 2016; Francis, Millington, and Cederlöf 2019; Kim and Lee, 2019; Ryan and Henderson 2018). A study of pre-

service teachers at the University of Melbourne discovered a preference for individualized written feedback, focusing on the specific work presented rather than generic comments about the grade awarded, because it helped to inform future work (Ferguson 2011). But, by being personal, it was important for the instructor comments to strike a balance between being supportive and critical. Too much negative critique was upsetting to the trainee teachers, causing some to ignore the feedback and having a detrimental impact on their motivation. Similarly, instructor verbal feedback was found to exert a significant influence on the emotions of second-year nursing students at a university in South Korea (Kim and Lee 2019). Whilst positive feedback elicited positive emotions and attitudes, negative feedback evoked negative emotions and reduced students' confidence.

Shields (2015) undertook semi-structured interviews with first-year undergraduate students from the Humanities and Social Sciences in the UK, charting their emotional responses to positive and negative feedback. The findings identified how the emotional impact of feedback was related to students' prior experiences of education, the significance they attached to the feedback received on their first assignment, and how their interpretations of feedback comments were linked to beliefs about themselves as learners.

Reception of instructor feedback commentary can also vary according to learner self-efficacy. An examination of students from two Australian universities found that those who were more secure in their attainment levels were more receptive to negative feedback. By contrast, for students who received grades lower than expected on a particular assessment task, negative feedback was more likely to cause negative emotions of sadness, shame, and anger (Ryan and Henderson 2018). Similar results were found in the UK where pre-university students at two Further Education colleges reported high levels of feedback use in part because they held a stronger sense of self-efficacy (Winstone, Hepper, and Nash 2019). These findings indicate that students may show limited use of feedback not because they are disinterested in using it, but because they do not feel capable of doing so. It is clear that in order to encourage students to learn from feedback, instructors need to consider carefully the effects of students' emotional responses and the impacts of 'emotional backwash' (Pitt and Norton 2017).

The research we present here extends and strengthens extant literature about the importance of understanding students' emotional responses to feedback in order to enhance their proactive recipience (Winstone et al. 2017). We develop the literature by offering recommendations for practice that are relevant to a broad range of faculty, wherever assessment feedback needs to be enhanced.

RESEARCH AIMS AND OBJECTIVES

Our research aimed to investigate the emotions encountered by undergraduate students in relation to assessment feedback, sampling respondents from across different years of study, subject/major, and country in order to ascertain similarities and differences. The specific objectives, derived from the broad principles of control-value theory (Pekrun 2006), were:

1. To identify the nature, strength, and persistence of emotions the students experienced after receiving formal instructor feedback on individually produced assessments;
2. To explore if the students' emotional experiences of feedback informed their attitudes and behaviours related to ongoing and future assessments (specifically their motivation, comprehension and utilization of feedback, self-efficacy, and self-esteem);
3. To examine whether the emotions experienced by the students in response to instructor feedback influenced their learning overall.

We asked students to share their feelings and actions subsequent to receiving what they perceived to be positive or negative feedback associated with work submitted individually for formal grading. The students interpreted 'positive feedback' and 'negative feedback' as they wished, but it was clear from their responses that they referred to both specific instances of instructor commentary embedded within a larger set of feedback comments, and to the overall tone they interpreted from a full set of feedback comments. Students spoke mainly about written feedback as formal assessment feedback was predominantly received in this way, but a few referred to verbal instructor feedback through small-group classes or catch-up meetings.

In this paper, we view self-efficacy (self-confidence) as students' beliefs about their capabilities to accomplish specific tasks (Ritchie 2016), and self-esteem as students' judgments of self-worth and degree of self-acceptance (Young 2000). We also refer to self-regulation, as the ability of students to plan, monitor, and evaluate progress, and to adopt strategic approaches to their learning (Nicol and Macfarlane-Dick 2006).

The research reported here comprises part of a more extensive project investigating the impact of relational (instructor-student dialogic) assessment feedback on students' emotions, attitudes, learning behaviours, and wellbeing. The methods and results below pertain to the initial phase of this wider project (prior to relational feedback interventions with the students).

METHODS

Sampling framework

We adopted a qualitative approach, collecting data during the 2019-2020 academic year from three universities of similar size and mission (one module, i.e. individual unit of study, at each institution) (table 1). The modules represented different levels of undergraduate study and different subjects. This framework represented a convenience sample of modules that were adopting a relational feedback intervention.

Table 1. Sampling framework

UNIVERSITY	LEVEL OF STUDY	MODULE (SUBJECT)	SAMPLE PROPORTION
Indiana University Purdue University Indianapolis, USA	Year 1	Health Sciences	49% (19 from 39 students)
University of the West of England, UK	Year 2	Geography	20% (6 from 30 students)
MacEwan University, Canada	Years 3 and 4	Nursing	16% (5 from 32 students)

We obtained ethical approval from all institutions prior to commencement of data collection. We provided students with a detailed participant information sheet and they all signed an informed consent form, which clarified that they could withdraw their consent at any time without penalty. We made clear to participants that their answers would in no way influence the marks they received for the module as their responses were unrelated to the judgement of quality of their final assessed pieces. Given that assessment and feedback can be sensitive subjects for students, participants were provided with

information about how to access education guidance and counseling services available at each institution.

Capturing student responses

Students in each of the three modules were recruited to one of two activities. Firstly, small group, semi-structured interviews were conducted on campus as teaching commenced on each unit. These small group interviews were largely comprised of three to four students, with one gathering the responses of eight students. Prompt questions were synthesized from the literature and agreed via group discussion. A pilot small group interview was run to check for clarity and validity of questions and no changes were made to the schedule before full deployment (Appendix). A total of six small group interviews were convened across the three modules (including the pilot), capturing the voices of 24 students. The majority of respondents were studying full-time and there was a small number of mature students (aged over 21 years). Approximately three quarters of the respondents were female, reflecting a gender bias in enrolment across the full cohorts. The interviews lasted between 40 and 60 minutes, securing rich student narratives.

With student consent, the small group interviews were recorded digitally and transcribed verbatim, with respondents numbered to protect their identity. Twelve open-ended questions encouraged students to reflect in a structured way about the emotions they experience related to instructor feedback on work they have completed individually, and the impact of these emotions on their learning behaviours and attitudes (Appendix). All interviews were conducted by research assistants who did not teach on the modules. This was designed to reduce the likelihood of teacher familiarity conditioning participant responses. Using research assistants should have encouraged students to discuss their feelings honestly rather than saying what they believed their instructor would want to hear.

The interview transcripts were analysed inductively using thematic analysis (Braun and Clarke 2013), although it should be noted that identification of themes was influenced by the research objectives and concepts known to the researchers from the literature. All researchers undertook pre-analysis coding to confirm inter-rater reliability. This involved each member of the research team separately reading one transcript and manually coding phrases as the unit of analysis. A calibration phase was then undertaken where emergent categories and themes were identified and agreed by the whole team. Subsequently, the remaining transcripts were coded manually by a pair of researchers using the constant comparative method (Strauss and Corbin 1994). After additional cross-reading, finalized themes were identified and agreed post-coding. The analysis process was supported by memoing (Miles and Huberman 1994), with the researchers noting their thoughts about codes and their relationships as they emerged from the data. The codes and memos were shared not only across the pair of researchers, but with the full research team in order to verify final themes and to strengthen analytical reliability.

The second data collection activity was personal reflective diaries, captured electronically over the duration of the module in the students' own time. Students were prompted to contribute to their diaries at the start of the module (coinciding with the small group interviews) and after relational feedforward with the instructor (the latter data are not examined here). The entries reported here were structured around the same prompt questions used in the small group semi-structured interviews (Appendix). The diaries offered participants a private space to capture key reflections about their emotional responses to feedback. As with the interview responses, the diaries were entirely voluntary and anonymous, submitted to the research assistants who numbered them and removed any identity indicators. In total, six diaries were received from across the three modules, and they varied between one

and three pages of text. The respondents were all female, undertaking full-time study, and aged between 18 to late 20s. The identification of themes followed the same process and timescale as for the interview transcripts, with coding of a single diary taking place by all researchers, followed by paired coding, and final group verification.

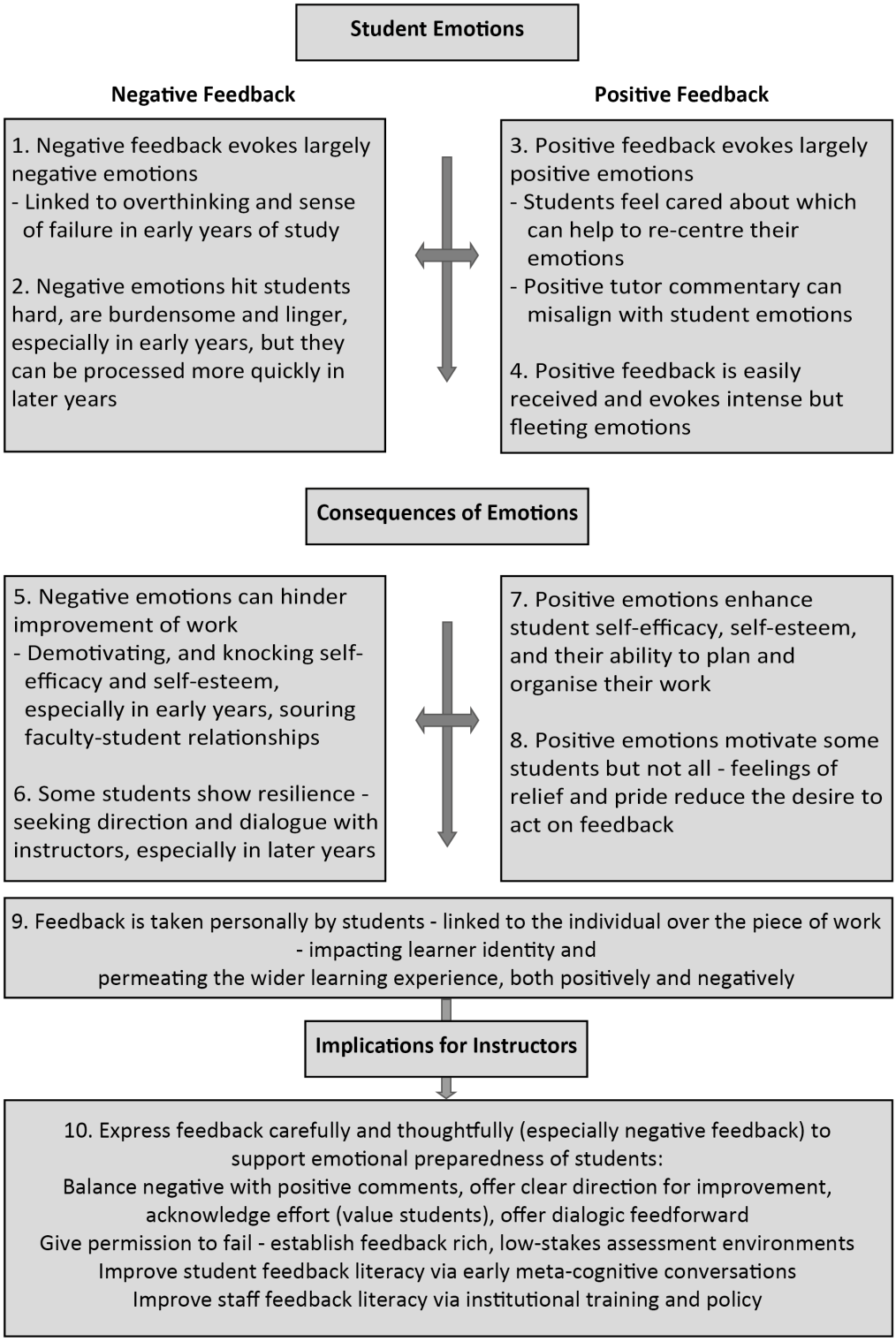
Data limitations

It is important to note the limitations of our small group interviews and diaries. Firstly, the data were self-reported and retrospective, representing students' recollections of their emotions, rather than direct and immediate observation of their responses in the feedback context. Such measures suffer from potential weaknesses. Students may lack the reflective capacity to answer in a truly accurate and sensitive manner. They may not always understand the meaning of questions, or they may be predisposed to answering in a particular way, such as responding to all questions by drawing only on one particular experience. Secondly, although students' own words were used to convey the meanings they ascribed to their experiences, these words were interpreted by the researchers adding a layer of subjective filtering. Thirdly, the small sample of students who took part were self-selecting, suggesting that they were interested in exploring the implications of feedback further. Their responses may not be representative of the full cohorts. Given our sample sizes, our results might best represent entry level students. Finally, whilst the small group, semi-structured interviews were undertaken to gather rich information, the social interactions therein could have influenced the individual opinions of respondents. To test this, the researchers checked all transcripts and noted elements of agreement and disagreement across respondents in each small group interview. As such, there was no notable evidence of confirmation bias. Additionally, any such bias should be reduced through triangulation with the individual diaries. Overall, generalization of the findings beyond this study should be made with these caveats in mind.

RESEARCH FINDINGS

Addressing our research objectives, we present the results from our small group interviews and reflective diaries as four sections: i) students' emotional responses to instructor feedback; ii) the strength and persistence of these emotional responses; iii) the impact of students' emotional responses on task behaviours and attitudes; and iv) the impact of students' emotional responses on learning overall. The narrative within sections is organized broadly by theme, as identified by the thematic data analysis (figure 1), and is supported by exemplar student quotes. Although it is not feasible to include responses from all participants in this paper, we have attempted to select quotes that are representative of the thoughts and experiences of the sample.

Figure 1. Results of thematic data analysis—10 key themes identified



i. Emotional responses to instructor feedback

Receiving assessment commentary from instructors was inherently emotional for students, eliciting a range of feelings. Students most commonly expressed anxiety as they waited for assessment feedback, appreciating their work was being judged against standards:

> *The build up to receiving feedback is when I feel the most anxious. Even though I might believe I did good, there is always a thread of doubt, especially when I'm not sure about the marking criteria* (Diary year 4)

Once feedback was received, if it was perceived as predominantly negative, it gave rise to largely negative emotions. Most students reported that they invested considerable amounts of time and effort in preparing their assessment submissions and so it was unsurprising that they felt stressed, frustrated and disappointed if they received feedback they interpreted as chiefly negative (table 2). It is clear from table 2 that students expressed feeling a wider range and greater frequency of negative compared with positive emotions.

Table 2. Emotions experienced by students after receipt of instructor feedback

VALENCE	EMOTION	FREQUENCY	EXAMPLE QUOTE
Negative	Stress	High	I get very stressed out and wonder how this will impact my overall course experience (Diary year 3)
	Frustration	High	It's frustrating when … you have put all this effort into what ends up not being what the lecturer wanted (Interview year 2)
	Disappointment	High	I will be disappointed and quite knocked if I have certain negative feedback (Interview year 2)
	Sadness	Medium	When you first read it, it's like sad. You go through a grieving process trying to accept it (Interview year 2)
	Anger	Medium	Sometimes I get mad that they're telling me I was wrong (Interview year 1)
	Embarrassment	Low	I feel embarrassed because I never want to make mistakes (Diary year 3)
	Shock	Low	It's an initial shock and then you're like, oh well, they're just trying to help me (Interview year 1)

Positive	Happiness/Joy	High	When I get positive feedback, I'm happy that I did what they asked me to do (Interview year 1)
	Relief	Low	If I get something positive I just feel like, oh thank God, like I did something right (Interview year 1)
	Excitement	Low	You get excited and you're like, ok, my effort is being recognized and I can do it (Interview year 2)
	Pride	Low	I feel accomplished, like I actually did something good. I feel proud of myself (Interview year 1)

Negative emotions were linked strongly to a sense of 'failure' by first-year students, expressed not only as disappointment in themselves, but in letting down their instructors:

> *The term failure comes into play when you're not doing the best of what you could and you get that negative feedback … it's in your mind that the instructors know who you are. They probably think you can do better* (Interview year 1)

The first-year students in particular talked about overthinking negative feedback, prompting it to fester in their minds and escalate into unpleasant emotions:

> *I always tend to overthink comments, especially criticism, and then make it seem worse than it actually is, which just stresses me out* (Interview year 1)

They described negative instructor commentary as hitting them hard, so much so that some adopted metaphors associated with physical abuse and pain:

> *I take negative feedback harder … it's kind of like a punch to yourself - it stings* (Interview year 1)

> *If I get negative feedback, I just keep beating myself up about it* (Interview year 1)

Students frequently noted that one way to minimize their fixation with negative feedback was to ensure instructor commentary was accompanied by positive feedback in order to balance their emotions:

> *I need negative feedback because I want to make myself better. I want to be the best person that I can be. But if I'm doing something really good, I need to know that too* (Interview year 3)

Offering clear direction with negative feedback was also important in garnering positive emotions in students:

> *If they just give the negative feedback without giving me ways to improve, then it's pretty tough on me. But when I get a list of what to improve on and how, then that really benefits how I feel* (Interview year 3)

Feedback perceived as predominantly positive was reported by students as generally easier to receive than negative feedback. It made students 'feel good' about themselves and accomplished in their work. Positive feedback most commonly afforded students feelings of happiness, with some expressing relief, excitement, and pride (table 2).

Positive instructor commentary often made students feel cared about, which sometimes acted to balance the unpleasant emotions associated with negative feedback:

> *If [instructors] put the effort in to read through your work and give you those nice comments, they actually care. To know that you're doing well … can rebalance how you're feeling* (Interview year 2)

A final year student did report discomfort receiving positive feedback, saying it was hard to hear about things they did well. Importantly, this student noted how the favourable instructor comments and grade were not aligned with their underlying emotions:

> *I received feedback from a lab class for which I felt everything went wrong. I ended up receiving a decent mark, but how I felt during and after the experience did not reflect the letter grade* (Diary year 4)

ii. Strength and persistence of emotional responses

When feedback was perceived as predominantly negative it was carried "like a weight on the shoulders" by some students, especially during earlier years of study. Students sometimes compared themselves with their peers and this made the burden of negative feedback heavier:

> *When I get a bad grade, I'm the only one that knows, but I'm looking at everyone around me. I'm like, oh my God, they're so much smarter than me* (Interview year 1)

The majority of students commented that negative feedback caused them more protracted emotions than positive feedback:

> *The emotions from negative feedback last longer than positive … negative feedback is always there in the back of your mind eating away at you* (Interview year 3)

Adverse emotions arising from perceived negative instructor comments could haunt students and re-surface with renewed intensity as new assessments approached:

> *My first lab test was not too good, so when I took the second one I was nervous about turning it in because I was like, oh my God, I'm going to do bad like I did on the first one* (Interview year 1)

> *Negative feedback definitely impacts assignments that are due in future because I get anxious again that I'm not doing everything correctly* (Interview year 2)

The emotions arising from negative feedback comments were often not replaced until they were superseded by positive feedback:

> *Negative emotions remain with me until I get different feedback. So, if I have negative feedback from the first month and then finally I get positive feedback, I can hold on to the positive feelings instead of the negative* (Interview year 1)

Positive emotions, by contrast, were reported by students as more fleeting when compared with negative, being intense on receipt but falling away rapidly, perhaps lasting for only a day or so:

> *If I get really positive feedback, I'm on a high for the rest of the day. When I get negative feedback … the anxiety sticks with me until the next time* (Interview year 2)

Many students noted that their emotional responses to feedback changed over time. They commented that negative emotions tempered into more positive ones within assignments:

> *As time passes, it allows me to separate from the intensity of the emotions. I process the information and I feel better about it* (Diary year 3)

Acclimatizing to negative feedback comments, and coping with the attendant emotions, also got easier for students as their studies progressed:

> *It takes time to get over those emotions, but that has progressed. I find that it gets quicker every time now. I feel a lot better with getting feedback than I did a few years ago* (Interview year 3)

iii. Impact of emotional responses on task behaviours and attitudes

Overall, student interpretations of negative and positive feedback could be either motivational or demotivational. Many students found negative feedback particularly difficult to process in an adaptive manner. In some cases, the emotions evoked were so strong they prevented the students from using instructor commentary to develop their work:

> *If I have a really bad negative comment I'm like I can't do this, and it can often impact the next piece of work as I'm like spending too much time stressing out over the last one* (Interview year 2)

These students experienced debilitating motivation, sometimes to the point of disengaging from further work for a module:

> *I worked really hard on this one paper and it was torn apart. I didn't want to do my research and I didn't go into class very motivated. I just wanted to get it over and done with, and that class to be over* (Interview year 3)

Instructor commentary perceived as negative increased the level of doubt for some students about their capability to undertake a module successfully, or even to study their major at university:

> *Negative feedback does take a toll on self-confidence. I tend to overthink. Is this the right field that I want to go into? Is this the right major?* (Interview year 1)

These students interpreted feedback on their work personally, unable to divorce commentary about the assessment product from themselves as individuals. They perceived negative feedback as a definitive statement of their worth:

> *It's hard to differentiate negative feedback as not being directed at you. Your work is an extension of you, it's really hard to separate the work and the comment from you* (Interview year 2)

Such students often self-avowed to suffering from low self-efficacy and self-esteem, applying a deficit model to their ability to learn from feedback:

> *The negative really overshadows the positive … I only think about the 'You need to do this' part* (Interview year 1)

> *I get a feedback comment like 'you should have done this better' and then I'll go home and be like, hey Mom, I need to drop out of nursing, I'm going to kill people* (Interview year 3)

Furthermore, feedback impacted faculty-student relationships. It was clear that students worked hard to please their instructors and when they interpreted feedback negatively, in addition to believing they had disappointed their instructor, their relationship could be soured:

> *A lecturer who has given you negative feedback, you don't really want to connect with other topics they do* (Interview year 2)

Some students, however, were not led as strongly by their emotions. They were more proactive in seeking out conversations with their instructor, determined to decode feedback and understand how to improve:

> *If I don't understand the negative feedback then I ask the teacher to clarify so I can make sure I get it right for next time* (Interview year 1)

Many students commented on the power of face-to-face feedback to aid understanding of instructor comments:

> *When my instructors talk to me, I understand far more than I read* (Interview year 3)

Students were particularly sensitive to the tone of negative feedback. Some received feedback badly if they believed it demonstrated insufficient respect for their work, or insufficient recognition of the effort they had invested in an assessment task:

> *They don't realize the late nights you've done in the last week because you're not happy with what you've got. And then you've just been handed a two-word phrase, not even a full sentence. You have no idea how much heart I put into this, and you've given me nothing back. It's completely crushing* (Interview year 2)

> *If an instructor delivers feedback in a demeaning way, I feel hurt. If it is constructive, then the feeling aligns more with hope that I can improve* (Diary year 4)

Many respondents across all years of study, but expressing deeper understanding in the middle and final years, demonstrated resilience on receipt of feedback they interpreted as negative. They reported harnessing or overcoming the attendant unpleasant emotions to engage with feedback and to work towards applying it to the next assessment:

> *I look back over the negative stuff, even if I don't like reading it, just so I can try and improve. I often give myself a day to sort of re-center and think, no you did well, look at the overall perspective* (Interview year 2)

> *I get very hard on myself and feel disappointed. However, I am also quick to think okay, how can we turn this around and make changes?* (Diary year 4)

Such positive behaviour was facilitated when negative feedback was accompanied by clear direction for improvement (i.e. when the students received constructive criticism):

> *If they're giving me feedback to improve on something, that motivates me to just want to do better next time around* (Interview year 1)

Some students took this line of thinking further, noting that if negative feedback explained what was weak and how work could be improved, then it demonstrated a personalized and caring response from instructors:

> *When you get that negative feedback, it shows that they care, because if they just give you the grade and don't tell you why, you would just continue getting the same results* (Interview year 1)

With respect to feedback perceived as positive, the pleasant emotions arising from it tended to boost students' confidence in their abilities, but they were not always motivated to take action following its receipt:

> *With positive feedback, you're like great I can completely do this and it does help you continue to work* (Interview year 2)

> *When I get positive feedback, it makes me feel good, but I don't act on it as much as negative feedback* (Interview year 1)

For the majority of students, receiving positive feedback validated their work, and improved their self-esteem and self-regulation:

> *Having positive emotions definitely affects your self-esteem … and then improves your organization too* (Interview year 3)

iv. Impact of emotional responses on learning

Students believed their emotional responses to feedback affected their learning overall, in positive and negative ways, moving beyond the boundaries of the modules in which the feedback was received:

> *When I'm nervous about the feedback that I get, it just makes me work harder so I can improve. It makes me want to change my learning habits, like studying earlier* (Diary year 1)

> *If you are overall having more negative feedback, you do feel frustrated and it does sort of flow into the rest of the course and your wider learning* (Interview year 3)

Negative emotions made some students question their identities not just as successful learners in higher education, but with respect to their future careers:

> *When we're not getting good feedback in class or in practice, we're like, okay, we're not going to be good nurses* (Interview year 3)

But perhaps the most perceptive comment was made by a fourth-year student:

> *The most important thing to me is that no matter how a situation makes me feel, I will always engage in reflective practice, which to a strong degree will affect my future learning* (Diary year 4)

DISCUSSION

Our results demonstrate that receiving assessment feedback evokes strong emotions in students at all levels of undergraduate study, across multiple subjects, and irrespective of the national regulatory environment in which the institutions are seated. Feedback comments perceived as negative were

difficult to receive by students in our study and drew out particularly powerful emotions (agreeing with Fong et al. 2016; Pekrun 2006; Värlander 2008). These emotions were most often negative in valence, weighed heavily with students, and lingered for some time, resurfacing with greater intensity as new assignments approached. By contrast, positive feedback comments were easier to receive and were generally related to beneficial emotions by the students. These positive emotions were able to moderate the effect of negative instructor comments (as found by Lizzio et al. 2003). Our findings suggest that positive emotions are, however, short-lived and fall away rapidly over the course of a day or two.

Similar to the work of Falchikov and Boud (2007) and Värlander (2008), the emotions experienced by our respondents impacted their cognitive response to feedback. Many students, especially in the early years of study, struggled to attend to instructor comments when they were negatively phrased and had a negative emotional impact, preventing them from acting to improve their work (resonating with the work of Ferguson 2011; Forsythe and Johnson 2017; Pekrun 2006; Robinson, Pope, and Holyoak 2013). Negative emotions had direct and reciprocal impacts on the students' motivation to continue their learning, and on their self-confidence and self-esteem (Fong et al. 2019; Pekrun 2006; Shields 2015). It must be noted, however, that negative emotional responses to feedback did not always impact negatively on the students' perception of its usefulness. Some students, especially in later years of study, demonstrated resilience in response to negative instructor commentary, viewing it as an opportunity to learn from an expert (see also Small and Attree 2016). Our results imply that the higher-year students tended to cope better with negative feedback than lower year students, linked to an evolution in self-efficacy and self-esteem.

It was clear from student responses that negative feedback comments required careful communication if their emotional impact was to be tempered, especially in year 1 when many students have fragile confidence as learners (Barnett 2007). More effective emotional responses to feedback were achieved through constructive criticism, balancing negative with positive comments and offering clear direction to students about how to enhance future performance. This has been previously advocated for in the literature and is well supported (Ferguson 2011; Fong et al. 2018; Lowe and Shaw 2019; Robinson, Pope, and Holyoak 2013). As part of constructive criticism, students are more able to accept negative comments, decoupling their emotions from the comments, and taking action (Fong, Patall, and Vasquez 2019). Students in our study reported greater appreciation for the developmental elements of feedback as their studies progressed, and the transition from affective feelings to intellectual engagement took less time.

Whilst positive feedback on assessed work was appreciated by students, validating their self-worth and increasing their confidence (Crossman 2007), it did not motivate all students to learn from their good practice (Hattie and Timperley 2007). Many respondents reported a sense of relief and/or pride associated with positive feedback, and these feelings reduced their desire to act on the instructor comments. An important finding here was that the quality of students' work did not necessarily match how they felt about their abilities.

Many students interpreted negative assessment feedback as a critical reflection of themselves. Such students found it hard to differentiate between "getting it wrong" and "being wrong" (Shields 2015), viewing negative feedback as a state of being rather than a cognitive error that yields to correction. These students, who often seemed to suffer from low self-esteem, felt personally affronted when their instructor pointed out insufficiencies (Young 2000). This threatened their sense of identity and self-esteem (agreeing with Fong, Patall, and Vasquez 2019; Shields 2015), which might ultimately affect their proactive recipience and ability to improve (Winstone et al. 2017).

Some respondents expressed anger and frustration over what they perceived as cursory marking, unaccompanied by sufficient supporting comments. They interpreted this as a lack of care on the part of their instructors. To make feedback more motivating, it was important for students to perceive their instructors as personally tied to their success (Fong et al. 2018). If an empathetic and caring atmosphere is established (Crossman 2007; Falchikov and Boud 2007), learners are more likely to develop the confidence to reveal their vulnerabilities, admitting what they do not fully understand and accepting instructor help (Carless 2009).

Irrespective of subject, year of study, or institution, students referred, unprompted, to the power of verbal feedback in relieving negative emotions and increasing motivation to act on instructor commentary. Instructor-student relational feedback interactions can reassure students as they develop co-constructed understandings and feelings (Hill and West 2020). Relational feedback is the subject of our ongoing research and our findings will be reported in future. Suffice it to say that how instructors deliver feedback can be as important as what is delivered in terms of consequent student emotions and actions.

IMPLICATIONS FOR PRACTICE

Taking account of our findings, in this section we offer recommendations for instructors that will reduce emotional barriers and allow students to embrace feedback as a key element of the learning experience.

Instructors can play an important facilitating role in promoting student feedback literacy if they consider how to appraise and support the emotional preparedness of their students for receipt of feedback through their instructional approaches, thereby helping students to build resilience and self-regulation. For feedback to invoke a positive activating emotional response and encourage further learning (Pekrun et al. 2002), it needs to focus on the assessment product rather than the individual. To help achieve this, instructor commentary is best delivered using non-judgmental language, emphasizing positive aspects of the submitted work, and suggesting clear measures for improvement.

Markers seeking to motivate students might acknowledge achievement, clarifying the transferability of positive feedback to future work, and also recognize effort invested, making students feel valued. Such feedback can aid transition to studying at university by offering reassurance to students about their ability to complete work at degree level (Poulos and Mahony 2008; Robinson, Pope, and Holyoak 2013). Instructors can clarify that students are not letting the academic staff or themselves down by trying and failing. Students need to understand that this is how they learn. As instructors, we need to give our students permission to fail and a feedback-rich, low-stakes assessment approach can help (Pitt, Bearman, and Esterhazy 2020; Shields 2015). Offering repeated, low-stakes tasks during a module, which indicate if students are heading in the right direction with their work, is a practice that may increase the confidence of students to use their feedback by turning what can be strong emotional responses into productive learning behaviours. Instructors should also be aware that positive comments can help to turn negative emotions into positive feelings, harnessing the emotional power of feedback for the better. In short, balanced critical feedback helps students to regulate their emotions. When taken together, these approaches could positively impact academic buoyancy (Shafi et al. 2018), enhancing learning outcomes.

Receiving negative and critical feedback does seem to get easier over the student life cycle. It takes time for students to understand that these types of feedback offer them information that is beneficial for their learning. Consequently, we recommend that students are prepared early in their

academic career with information about feedback theory and practice, from pre-arrival information, through induction, to development over the first year and onward. It would be particularly effective to emphasize the goal of feedback in challenging students to fall short and to learn from both the cognitive information and affective feelings arising from the performance gap. Having metacognitive conversations about feedback literacy early in the learning journey will help students to manage their emotional experiences of feedback intelligently (Carless and Boud 2018; Carless 2019; Forsythe and Johnson 2017). Reassuring students that emotions are a natural part of learning and discussing with them strategies for managing their feelings might facilitate their self-regulation (Pekrun et al. 2002). One way to achieve this might be through instructors sharing their emotions and subsequent actions in response to peer review of their scholarship.

Students acknowledged the value of dialogue with their instructors, taking place within relationships characterized by trust and care. Such reciprocal relationships support students when instructors explicitly recognize the efforts and achievement of students, foster their feelings of respect, and enable them to develop more positive learner identities (Hill et al. 2019). Relational feedback allows decoding of instructor commentary and enables action planning, which might lead more quickly and frequently to positive student emotions, motivation, self-efficacy, and self-esteem (Hill and West 2020). To build such relationships, educators should strive to eliminate students' perceived power asymmetry in the student-instructor feedback relationship in order for students to feel more confident in their interactions with the instructor (Ryan and Henderson 2018; Shields 2015; Small and Attree 2016).

Finally, at an institutional level, guidance is needed to support instructors as they develop their cognitive understanding of assessment, sociocultural awareness for students, and affective dispositions such as care for students. The ability to provide pertinent feedback that does not impact students negatively will be a useful skill for instructors to develop. The enabling construct of teacher feedback literacy (Xu and Carless 2017) can sensibly become a more comprehensive part of faculty education programs and continuing professional development in the future. Such emphasis would encourage emotionally sensitive and sustainable assessment and feedback practices leading to positive outcomes for a diversity of students.

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APPENDIX

Student semi-structured small group interview schedule

1. When you look back at past assessments you've completed on your own, what emotions do you tend to feel as you receive instructor feedback?
    a. Prompt for examples (elaborate on types of feedback received—written, dialogic etc.)
    b. Prompt for reasons why that feedback situation made them feel as they did

2. Describe how you feel when you receive negative feedback from your instructor

3. Describe what you do when you receive negative feedback from your instructor

   a. Interrogate what the students do with the feedback itself—how their emotions impact their actions

4. Describe how you feel when you receive positive feedback from your instructor

5. Describe what you do when you receive positive feedback from your instructor
   a. Interrogate what the students do with the feedback itself—how their emotions impact their actions

6. Are some of your emotional responses to feedback stronger and more long-lasting than others? If so, which emotions are stronger/more long-lasting? Why do you think this is?

7. How do these emotions influence your:
   - motivation?
   - self-confidence?
   - self-esteem?
   - ability to plan and organize your academic work?

8. How do the emotions you described influence your use of instructor feedback within an individual assignment … and with respect to future assessments? Can you give examples?

9. Would you say that the emotions you experience in response to instructor feedback affect your learning overall? Can you say a little about this?
   - Do some emotions help you to learn whilst others hinder your learning?

10. Generally, do the emotions you feel when you receive feedback change over time and in what way(s)?
    If yes, what do you think causes your emotions to change?
    If no, why do you think your emotions remain the same?

11. Do you believe your past assessment feedback experiences have shaped how you feel today about this course?
    a. How? Are your emotions positive or negative?
    b. Do you carry the emotions of feedback with you?

12. Do you have any other comments about emotions and feedback at this time?