Eliciting, processing and enacting feedback: Mechanisms for embedding student feedback literacy within the curriculum

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Abstract

Recent feedback literature suggests that the development of student feedback literacy has potential to address problems in current feedback practice. Students' feedback literacy involves developing the capacity to make the most of feedback opportunities by active involvement in feedback processes. How the development of student feedback literacy can be embedded within the undergraduate curriculum has not yet been discussed in any depth. This conceptual paper fills that gap by elaborating three key mechanisms for embedding feedback literacy within the curriculum: eliciting, processing and enacting. These are illustrated through enhanced variations of four existing practices: feedback requests, self-assessment, peer review, and curated e-portfolios. The discussion summarizes the key implications for practice and identifies the need for further empirical work investigating how students elicit, process and respond to feedback in situ, and longitudinal research exploring the impact of curricular design on the development of student feedback literacy.

Keywords: feedback; feedback literacy; curriculum

Introduction

Feedback has conventionally been located as a problem of teacher delivery of information to students. Institutional or national student surveys typically ask questions which imply a view of feedback as an obligation of teachers. This framing of feedback essentially positions students as passive recipients who may or may not subsequently utilise what teachers regard as important information about the work produced. This view of feedback has been robustly challenged as inappropriately teaching-centric (Boud and Molloy 2013). When feedback is seen primarily as an act of teachers, it inadvertently relieves students of the responsibility to seek, engage with and use feedback (Nash and Winstone 2017).

A learning-centred view of feedback has been increasingly articulated by a variety of authors. Such a learning-centred view, named variously as Feedback Mark 2 (Boud and Molloy 2013) or new paradigm feedback processes (Carless 2015; Winstone and Carless 2019), focuses attention on the actions of students. Information is still obtained from others as per the old paradigm view, but learners are involved in seeking, processing and acting upon feedback messages. After all, it is only through an influence on student learning that feedback can be pedagogically justified. Without necessary student action, it is difficult to argue that the provision of information is feedback at all (Henderson et al. 2019).

This learning-centric view has led to the identification of the characteristics and dispositions needed by learners in order to engage in, and benefit from, feedback processes. Framed as feedback literacy, a body of scholarship is beginning to emerge which explores what students

need in order to become adept at using feedback for their own learning. Carless and Boud (2018) defined feedback literacy as comprising understandings, capacities and dispositions to process and use feedback. Subsequent empirical work developed a learning-centred framework for feedback literacy which elucidated specific features of student thinking and behaviour needed for students to make feedback processes work for themselves (Molloy, Boud and Henderson 2019).

The articulation of capabilities in itself is not, however, enough to improve feedback unless their development is embedded within teaching and learning practices in courses. It is this issue that the paper addresses: how to operationalise a curriculum for developing student feedback literacy. It is assumed that this will not be separate from the normal curriculum that students pursue in whatever courses in which they are enrolled, but one embedded within it. Such a curriculum would draw on contemporary scholarship on feedback and build on feedback literacy frameworks to incorporate pedagogic activities which could be readily repurposed to serve the ends of building feedback capability in students. It would *de facto* provide a critique of conventional feedback practices and recognise that students are positioned as unnecessarily passively in many current feedback activities. It would seek to mobilise students so that they see themselves as the agents of their own learning in partnership with teachers and peers.

Framing feedback literacy within the curriculum

The idea and purpose of feedback

For many years, the most widespread understanding of feedback has been that of information provided by teachers to students, usually in the form of written comments. When framed in this way, feedback has been synonymous with 'telling', that is a one-way transmission of information from teacher to student oriented towards judging past learning as manifest in assignments and other assessment products. Students could follow teachers' comments if they had the volition to improve future assignments or merely read them and dismiss them. Quite often, by the time students received feedback comments they would have progressed to the next assessment or module and would have limited opportunity to appreciate their relevance or act on them (Carless 2019).

Recently, greater focus has been placed on students' actions in response to feedback information from teachers, peers and their own self-assessment (Boud and Molloy 2013; Winstone, Nash, Parker and Rowntree 2017). In this way of thinking, feedback is conceptualised in terms of processes where learners make sense of information about performance and use it to enhance the quality of their work or learning strategies (Carless 2015; Henderson et al. 2019). By squarely focusing feedback on future improvement, two key implications arise: learners must be active in seeking and making sense of information; and need to be provided with opportunities to apply feedback in future tasks.

The notion of feedback literacy

Locating learners and learning at the centre of feedback processes prompted the development of the notion of student feedback literacy, the capabilities that students need in order to benefit from feedback. Four interlocking components of feedback literacy were initially proposed: appreciating feedback, making judgments, managing affect and taking

action (Carless and Boud 2018). Drawing on a substantive data set of feedback practices in two large Australian universities, Molloy, Boud and Henderson (2019) progressed this promising starting-point by developing a comprehensive student feedback literacy framework, which comprises seven core groups, derived from 31 categories:

Group 1: Commits to feedback as improvement.
Group 2: Appreciates feedback as an active process.
Group 3: Elicits information to improve learning.
Group 4: Processes feedback information.
Group 5: Acknowledges and works with emotions.
Group 6. Acknowledges feedback as a reciprocal process.
Group 7: Enacts outcomes of processing of feedback information.

This new framework emphasizes knowledge about the role of feedback, skills required to utilise feedback processes as well as volition to see oneself as a learner striving for improvement. For the purpose of this paper, we focus on groups 3, 4 and 7 as these processes are most directly concerned with how learners make sense of feedback through interactions with teachers and peers and what actions they take in response to feedback. This knowledge can then inform educators to embed relevant pedagogic activities into the curriculum. We discuss these processes in detail further in the paper.

The active role of learners

This view of feedback literacy explicitly positions students as taking an active role in enhancing their work or learning strategies. Students need to understand how feedback can work for them, otherwise they will not be able to utilise learning opportunities present in the courses. Winstone et al. (2017) use the term proactive recipience to emphasize a state of active engagement in feedback processes. Learners need to be open to receiving performance information, committed to change and aware of their own responsibility in the process. These imply a range of sense-making behaviours, for example re-reading an essay with the feedback in mind, comparing feedback from different assignments to look for common themes or analysing an issue in a new way.

Recent research into feedback seeking behaviours provides additional insight into what it means to be active in feedback processes. Leenknecht, Hompus and van der Schaaf (2019) identify two key elements of feedback seeking which enables learners to take more control over their own learning: inquiry by directly asking for feedback; and monitoring by drawing inferences from a body of feedback information. They note that the type of assignment that students are working on, such as a project-based group assignment as well as the feedback-friendly culture of the educational program positively influence students' feedback seeking. Students' choice of a feedback agent is a further important consideration in decisions around feedback seeking. Feedback literate students are aware how expertise, trustworthiness and relational factors may influence feedback exchanges. Common self-directed feedback seeking behaviours include comparing students' own performance with assessment criteria or exemplars, and seeking feedback on drafts (Yan and Brown 2017).

Using feedback needs practice over time

The ability to use feedback well is complex and cannot be developed in a single course unit or at a single point in time. It involves cognitive and dispositional skills which can be progressively

improved but needs practising in different settings over time and with appropriate feedback interventions to refine the practice. Students need opportunities to improve their short-term performance by addressing problems in a particular task. They also require opportunities to improve their longer-term learning strategies or devise alternative ways of approaching academic work. Longitudinal inquiry can facilitate the collection of evidence of student action in response to feedback processes through spiral forms of engagement with feedback information (Carless 2019). Reflective thinking, interaction with peers and teachers and co-construction of ideas are some of the sociocultural processes which enable students to monitor and self-regulate their learning. When such formative activities are encountered in courses, students progressively develop critical thinking skills and evaluative judgement. As learning is an experiential and progressive process which requires repeated practice so do feedback processes require continuous and progressive implementation in courses.

Social-constructivist approach to feedback literacy

Underpinning our positioning of feedback literacy is a view of feedback processes as involving shared responsibilities between teachers and students (Nash and Winstone 2017). Teachers are responsible for designing feedback processes effectively, whereas students need to seek, engage with and use feedback information. Accordingly, we conceptualise the paper within a social-constructivist perspective in viewing feedback processes as enabling learners to make connections, explore understandings and construct their own representation of knowledge (Askew and Lodge 2000; Rust, O'Donovan and Price 2005). Social constructivism involves students' active involvement in meaning making through peer interaction, dialogue with teachers and collaboration in learning communities (Evans 2013) and requires pedagogies which encourage inquiry and inter-subjective understandings (Price, Handley, O-Donovan, Rust and Millar 2013). The development of feedback literacy is constituted through sustained participation in relevant learning activities designed to promote active engagement by both students and teachers.

Course design principles for feedback literacy

Feedback literacy is situated within disciplinary learning activities. It is not domain independent because when there is a substantial change in subject matter or mode of knowledge representation, it needs to be learned anew. While there are features of it which may be transferable, much of it requires an understanding of the particular disciplinary context in which feedback opportunities are exploited (Esterhazy, Nerland and Damşa 2019). By accounting for disciplinary practices when designing learning activities, teachers can facilitate feedback encounters which will develop students' professional expertise as well as their feedback literacy.

A framework for feedback literacy requires student knowledge of feedback processes, how they might be exploited, and the enactment of them. Sustained practice in enactment is needed for feedback information to be translated into everyday learning habits over the longer-term. This leads us to the principles and practices of embedding feedback in the curriculum. We start with the general principles that inform the construction of the curriculum which at the same time address limitations in how feedback has hitherto been used.

Principle 1. Conscious design for feedback

It is often the case that the design of feedback is one of the last decisions made in the construction of courses, following consideration of learning outcomes, course content and assessment tasks. Too often, feedback acts as a supplement to fixed assessment tasks, not as a learning practice in its own right. If feedback is to work well and feedback literacy developed alongside it, it must be the subject of conscious design (Boud and Molloy 2013). Educators need to consider what occasions of feedback are needed in a given course unit and what they are they needed for. Providing feedback opportunites for outcomes that need practice prior to formal assessment events can inform learners about their progress and assist in planning further study. It is also important to reflect on how feedback literacy events can be designed and sequenced so that students extend their knowledge and skills in feedback processes.

Principle 2. Importance of practice

Given that feedback literacy requires an active student role, there need to be multiple occasions of practice in which students rehearse eliciting information from others, identify means of processing and responding to feedback information and apply the outcomes of feedback processes in the production of new work. The extent of practice will necessarily depend on how sophisticated any given student's feedback literacy is at the commencement of the course, and what aspects of it need most development. The same student may evidence different levels of feedback literacy across different features and over time (Han and Xu 2019). Occasions of practice are best designed to enable students to focus on those aspects of feedback that are most essential, without occupying the time of others who may need less intervention.

Principle 3. Cumulative and progressive development

The development of feedback literacy is an ongoing process. Individuals need to refine their skills in seeking and utilising feedback on their work on a continuous basis. There is not a point in time when feedback literacy development necessarily ceases. Pragmatically, however, decisions need to be made about what is sufficient progress at any given stage. It is clear that development cannot be restricted to say, single course units in first year. While it is probably most pressingly needed then, as students cope with the new ways of learning in higher education courses, it will require progressive development over time, and particularly over course units. When new occasions of learning are introduced, for example work-integrated learning, a new phase of feedback literacy development will be needed to help students cope with feedback in radically different conditions to that experienced on campus (Noble et al. 2019).

Principle 4. Traceability

An important consideration in the use of any feedback information is how it is recorded and tracked over time, so that impacts of feedback can be traced by both teachers and students. Prior to the use of learning management systems (LMSs), this was paper-based and unless individual students were diligent in keeping comments on their work and then assembling

them from multiple sources, much of the longer-term benefit of seeing their progression would be lost. For teaching staff, tracing the impacts of feedback was extremely difficult. Digitalisation should make this much easier, but too often LMSs do not allow for feedback comments and responses to be recorded in forms that are readily accessible. Unless a teacher can see the kinds of comments made by themselves, a previous teacher or a peer as well as student responses to these comments then it is difficult for them to build on previous comments or respond to the learning trajectory of students. Similarly, unless a teacher can see what feedback literacy inputs have been made previously to a given student, they will find it challenging to scaffold student feedback literacy further.

Mechanisms for embedding feedback literacy

By way of illustrating these principles, we now focus on the three distinct elements of feedback processes when students need to initiate different kinds of action. These mechanisms correspond to groups 3, 4 and 7 of the Molloy, Boud and Henderson (2019) framework highlighted earier in the paper: 'Elicits information to improve learning', 'Processes feedback information' and 'Enacts outcomes of processing of feedback information'. They are summarized here as eliciting, processing and enacting. These aspects have been selected as they require students not only to have knowledge of feedback outcomes but translate what they know into what they can do, which is congruent with the social-constructivist approach to feedback.

Eliciting

Eliciting involves learners seeking information from a variety of sources to address issues they have identified with respect to their own learning needs. At a simple level it involves consulting texts or digital sources to check understanding or identify examples of what others have done in similar situations. While these are often not considered as part of feedback processes, they constitute a form of self-feedback, which require a similar active learning disposition as information-seeking from human sources.

An important aspect of eliciting is to approach teachers, peers or practitioners when non-human sources will not suffice. These other parties are often able to see features of learners' work of which the student is unaware. Each party needs to access work being produced by the learner and respond to a request to provide information. While conventionally the information sought has been at the discretion of the provider, the feedback literate student needs to be able to frame a request that enables them to receive the kind of information they need, whether or not other unsolicited information may also be provided.

Processing

Processing involves the learner dealing with the information received from other sources, human and non-human. It is a sense-making process in which information received is judged against both the need that gave rise to the act of feedback and to consider other information which was not anticipated. Information received is not necessarily taken at face value but considered in the light of the credibility of the source, including their expertise, reliability and trustworthiness.

The outcome of the processing phase is the preparation, in any suitable form, of a plan of action. In the light of this information and their understanding of it, what does the student identify that they need to do? It also includes consideration of the opportunities that may be available to produce further work to incorporate what has been learned from the processing. Does this involve further practice, which might not be visible to others, or will it be part of a forthcoming assignment which may be formally assessed and further feedback information obtained?

Enacting

It is one thing to have identified what needs to be done, it is quite another to enact it. It is only through the production of subsequent work and its exposure to others that learners can be secure in recognising what they have learned from a feedback opportunity. They need both to identify a suitable outlet for their response which might be through completion of a subsequent task; and to embody their learning from the processing phase into the new product for that task; or consider longer-term development of learning strategies.

A major challenge is finding suitable tasks through which to provide their response and exemplify new learning. Too often, course tasks are not well integrated with each other and the do not allow for students to practice the very items on which they have been provided with feedback information previously. This is an important consideration for course design and how occasions of feedback are structured to enable learning drawn from them to be readily utilised.

Practices for developing feedback literacy

How then can we build on the mechanisms articulated above to develop feedback literacy in situ? We draw here on four examples which illustrate various aspects of the mechanisms and show how they might be extended to address further aspects of the feedback literacy framework not addressed in their previous manifestations. They emphasise the four course design principles for feedback literacy identified earlier, whilst also highlighting different kinds of practice. Each might be used alongside other pedagogic activities, and given subject matter as needed, to focus on particular aspects of the feedback literacy framework.

1. Developmental feedback requests

The eliciting mechanism is well-illustrated through the use of feedback request forms or interactive coversheets. Feedback request forms enable students to seek the feedback that they would most like to receive, thereby encouraging teachers to tailor their input to students' specific requirements. The request is commonly written on the coversheet of the assignment, hence the terminology interactive coversheets.

Interactive coversheets are often used to encourage student reflection on their work prior to submission as exemplified in a study with first-year undergraduates (Bloxham and Campbell 2010) which included the following prompts:

What are the strengths of this essay?

What are the weak points of this essay?
What I would like your feedback on is ….

Students perceived these interactive coversheets as useful in prompting them to reflect on their work and begin a conversation with teachers, although some students found it hard to think of feedback requests that they could usefully raise and focused on relatively superficial aspects (Bloxham and Campbell 2010). Such challenges indicate the need for some scaffolding and strategies to develop students' capacity for making the most of opportunities afforded by feedback requests (Winstone and Carless 2019), for example, through identifying the kind of requests that are potentially most beneficial.

An alternative way of using interactive coversheets is to emphasise the processing and enacting mechanisms. This can be implemented by requiring students to self-assess their submission against stated criteria, summarise how previous feedback has informed their work and request specific feedback as needed (Barton et al. 2016). Providing evidence of action on previous feedback is an important feature of this variation. Accordingly, a recent use of interactive coversheets in psychology reported in Winstone and Carless (2019) utilised the following prompt:

> Based on previous feedback, I have particularly focused on the following aspects of my assignment …

This enables some tracing of response to feedback action by encouraging students to incorporate feedback from previous assignments into current work.

This approach could be developed further in promoting student feedback literacy under the following facilitating conditions. Guidance and practice are provided on how to make the most of feedback requests prior to submitting assignments. Students are supported in making sense of relevant criteria so that feedback requests are targeted towards learning outcomes. Feedback requests are practiced purposefully in cumulative ways so that feedback requests are increasingly sophisticated with students adjusting them in the light of ongoing progress. Responding to and enacting feedback is emphasized through requiring students to report action taken in addressing previous feedback inputs. The course culture creates a climate that helps students feel that admitting doubts or limitations through eliciting information from others is a normal aspect of academic work.

2. Progressive use of self-assessment across tasks and course units

Processing involves engaging students deeply with their own work. This can occur through structured self-assessment activities. However, most documented examples of student self-assessment involve students judging their work within a single course unit within one semester. Such one-off applications of self-assessment are not likely to be helpful in the development of feedback literacy. They simply provide a snapshot of students' judgements at a single point of time with respect to one assignment.

Panadero, Lipnevich and Broadbent (2019) have introduced the idea of turning self-assessment into self-feedback. They suggest, drawing on the work of Yan and Brown (2017), that an occasion of self-assessment, if set up appropriately, can act as a kind of self-feedback which demands a focused appraisal of what has been achieved. It can also act as a prompt for

the development of feedback literacy as students become more aware of how they can re-consider their own work in anticipation of feedback information from others, or use inputs to calibrate their own judgements. Panadero, Jonsson and Strijbos (2016) identified a series of steps to increase the likelihood of self-feedback occurring: define assessment criteria and enable students to apply the criteria; provide students with feedback information about their self-assessments; support students in using self-assessment data to improve performance; and provide sufficient time for revision after self-assessment.

The advent of technological solutions enables the tracking of self-assessment over tasks and course units so that a longitudinal focus is possible. Using the tool ReView™, Boud, Lawson and Thompson (2013, 2015) recorded students making self-assessments of performance on key criteria for assessment tasks in courses over several years, and mapped these to graduate attributes. Students enter their judgements and receive quantitative and qualitative information from their teachers after they enter their own ratings. Information can be tailored by teachers to focus on whatever aspects they wish to focus on or are prompted by students. The advantage of a process such as this is that students can track their evaluative judgement (Tai et al. 2018) on all assessment tasks and courses as long as learning outcomes and criteria have been loaded into the system.

These approaches to self-assessment could be developed further to prompt the development of feedback literacy alongside the development of evaluative judgement in the following ways. Students enter details of the specific kinds of information about their tasks they would value in analogous ways to feedback requests discussed above. Teachers track their own and students' ratings and are prompted to input comments on the substantive task and on students' self-assessments so that they are providing both focused comments and helping to refine students' evaluative judgements. Students respond to inputs from others about their work and their judgments. Full integration across course units is facilitated through appropriately configured LMSs so that students have a seamless experience of feedback processes, which promotes the development of feedback literacy and evaluative judgment.

3. Cumulative peer review and rebuttal

Cumulative processes of formative student peer review carry potential for the mechanisms of eliciting, processing and enacting. Through peer review dialogues, learners can request clarification and invite justifications; and through revising their work they are involved in processing, responding, and enacting the outcomes of feedback. Carrying out peer review is potentially effective in triggering powerful cognitive processes, including critical thinking, interpretation and application of assessment criteria, and learning transfer from peers' work to their own work (Nicol et al. 2014).

The conscious design of peer review embedded cumulatively within the curriculum is well-illustrated in an ecology undergraduate programme at the University of Otago (Harland, Wald and Randhawa 2017; Reddy, 2019; Wald and Harland 2017). Students are involved in five peer review activities from the first to the third year of the programme. In the first year, they are involved in peer review of a draft write-up of a project and are supported through training which involves unpacking the criteria describing the quality of work required and mock peer reviews illustrating key processes. In the second year, they take part in two written peer

review activities in relation to a draft research proposal. In the third year, students conduct their research projects, write them up and participate in oral peer review of research presentations; and both oral and written peer review of the final research product (Reddy 2019).

Significantly these peer review activities permeate the curriculum and enable students to produce, process and engage with feedback information on regular occasions. Students are developing feedback literacy by being engaged actively in feedback processes; making evaluative judgment about the work of others and comparing them with their own work; and are generating, processing and acting on feedback.

This is well-illustrated by Harland et al. (2017) through an activity related to the research project part of the program. The research proposal is written as a grant application which undergoes anonymous peer review by two staff and two students. An innovative feature of the approach is a rebuttal letter in which students address comments from the four peer reviewers and explain why they are accepted or rejected. This aspect encourages students to process feedback information, provide justifications for which comments have been used or not, and enact the outcomes of feedback. Before the rebuttal was introduced, students had been free to accept, reject or ignore comments without any justification or accountability, whereas the rebuttal required students to engage critically with feedback and justify the decisions made (Harland et al. 2017). It is this kind of design which has potential to seed student feedback literacy by prompting them to respond seriously to feedback inputs.

This type of approach is potentially promising in developing student feedback literacy when students are trained and supported to carry out peer review at the outset; peer review is integrated meaningfully and cumulatively into the curriculum, and is understood and appreciated by students. By receiving multiple peer reviews that provide a rich and complex set of feedback information, students have opportunities to respond to feedback. Traceability is built into the design by holding students accountable for responding to, and acting on, feedback.

4. E-portfolios curated for feedback

E-portfolios carry significant potential to support mechanisms of eliciting, processing and enacting but only when they are curated for feedback to support the development of student feedback literacy. E-portfolios can be designed to enable students to receive and discuss regular feedback from teachers and peers; and revise and improve their work before final submission (Steen-Utheim and Hopfenbeck 2019). To avoid fragmentary and disjointed evidence of student learning, e-portfolios curated for feedback need to be embedded across the whole program. Curation tackles the problem of e-portfolios becoming unwieldy repositories of an excess of material that renders them unmanageable for both teachers and students (Clarke and Boud 2018).

In the “Connected Curriculum”, Fung (2016) presents the case for a program-long showcase portfolio of curated summative assessment which includes students’ best work collected over a sustained period of time along with related reflections. The reflections are in the form of students’ narrative response to the feedback they have received from teachers or elicited

from peers. When well-implemented, this kind of e-portfolio enables learners to revisit feedback, set their own developmental goals and document progress. These e-portfolios are developed in a sequence of connected modules, assessed in a capstone course and discussed in tutorials. This enables ongoing feedback to become an embedded element stimulating the development of student feedback literacy. The curation process of e-portfolio development facilitates learners providing, receiving and working with feedback from teachers and peers. Curating for feedback over time develops students' evaluative judgement as it facilitates a judicious combination of self, peer and teacher feedback (Clarke and Boud 2018).

A further good example of digitally-enabled processing and enacting mechanisms is the Feedback Engagement and Tracking System, a feedback e-portfolio which enables learners to synthesize feedback from various sources, and monitor their progress towards self-identified targets for improvement (Winstone 2019). This tool has three main elements, first a feedback review and synthesis tool where students collate multiple feedback inputs in order to identify strengths and suggestions for improvement. Second, a resource bank arranged according to skills categories which enable students to access relevant resources such as videos, websites or articles to target the development of self-identified skills. Third, students create a personalized feedback implementation plan with tasks that need to be completed by certain dates. A portfolio dashboard informs students about the progress towards the completion of tasks whenever they log in (Winstone 2019). In this approach, students initially process feedback information by synthesizing it to identify what they need to improve. Then, they respond to feedback by performing tasks which address their gaps in knowledge. Through repeated review of feedback messages and planning for uptake of feedback, students develop their feedback literacy and focus on how feedback supports their learning beyond an individual unit or task (Winstone and Carless 2019).

For e-portfolios to be curated for feedback, they need to be embedded cumulatively into the curriculum to enable feedback opportunities over time. These processes need to involve students actively in synthesizing and using feedback information. Through multiple occasions of eliciting, processing and responding to feedback, students experience sustained opportunities to develop their feedback literacy.

Implications

Our emphasis on feedback opportunities involving interaction through feedback seeking, meaning-making and responding within participation in course disciplinary activities resonates with social-constructivist approaches to feedback. The emphasis of the interpersonal construction of meanings based on students' prior knowledge, motivations and understandings within social-constructivist perspectives on feedback research also underpins the need for progressive and cumulative development of student feedback literacy. For feedback literacy to be developed, curriculum activities need to be structured in ways to provide ongoing opportunities for students to elicit, process and enact feedback. Regardless of a student's program of study, emphasis needs to be placed on knowledge and awareness of feedback processes as well as their enactment. Well-implemented pedagogic practices such as developmental feedback requests, progressive use of self-assessment, cumulative peer review and rebuttal, and e-portfolios curated for feedback are examples of ways of supporting students in sustained development of feedback literacy. Of course, successful

implementation is dependent on the feedback literacy of the teaching staff involved. It is unlikely that feedback literacy can be developed in students in the absence of a high level of sophistication in feedback thinking on the part of their teachers.

A further key implication for practice is to design courses with an emphasis on the development of feedback literacy. In addition to including strategies such as those discussed above, this would involve conceptualizing courses in terms of the formative and summative assessment tasks in which students engage, placing feedback processes at key points that help assure the development of the intended learning outcomes, and in looking beyond course units to the program as a whole to see how feedback processes can be focused in productive ways. In particular, it will be necessary to see feedback as a means of pursuing important learning outcomes rather than taking time from them. First year units would have a particular role in bringing all students to a minimum level of feedback literacy. Classroom approaches which provide opportunities for ipsative feedback, that is feedback on learners' individual progress not only against the assessment criteria but also their previous performance, can also encourage students to process and respond to feedback at hand, thus building their feedback literacy.

Current interest in the notion of feedback literacy encourages two important future research directions. First, more empirical research in different disciplines would be valuable in investigating how students elicit, process and enact feedback in situ, over time and within specific communities. A range of research approaches could, for example, provide useful insights into how students seek information to help their sense-making and how they operationalize their understandings of the purpose of feedback. Second, research that examines the impact of curricular design on students' experiences of developing feedback capacities over time is needed. Longitudinal naturalistic studies would be particularly useful in elucidating how students' feedback literacy changes in the light of different prompts and opportunities. Such data could provide further insights into how curriculum activities can support learners' evolving perceptions of feedback to ensure that once they graduate, students will continue to develop their feedback literacy in workplace settings.

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