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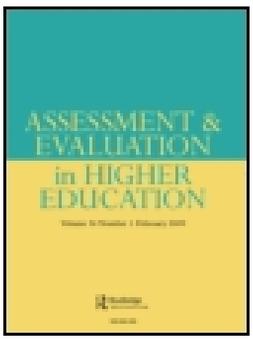

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The development of student feedback literacy: enabling uptake of feedback

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ABSTRACT

Student feedback literacy denotes the understandings, capacities and dispositions needed to make sense of information and use it to enhance work or learning strategies. In this conceptual paper, student responses to feedback are reviewed and a number of barriers to student uptake of feedback are discussed. Four inter-related features are proposed as a framework underpinning students' feedback literacy: appreciating feedback; making judgments; managing affect; and taking action. Two well-established learning activities, peer feedback and analysing exemplars, are discussed to illustrate how this framework can be operationalized. Some ways in which these two enabling activities can be re-focused more explicitly towards developing students' feedback literacy are elaborated. Teachers are identified as playing important facilitating roles in promoting student feedback literacy through curriculum design, guidance and coaching. The implications and conclusion summarise recommendations for teaching and set out an agenda for further research.

KEYWORDS

Feedback; feedback literacy; assessment

Introduction

The most powerful single influence on achievement is feedback but impacts are highly variable, which indicates the complexity of maximising benefits from feedback (Hattie 2009). Feedback processes in higher education are commonly misunderstood, difficult to carry out effectively and do not fulfil their aspiration of significantly influencing student learning (Boud and Molloy 2013; Evans 2013). There is also a wide range of evidence from the National Student Survey in England and Wales (Higher Education Funding Council for England 2016) and the Student Experience Survey in Australia (Quality Indicators for Learning and Teaching 2017) that students are not particularly satisfied with feedback and the broader assessment regimes within which feedback is commonly organised. For feedback processes to be enhanced, students need both appreciation of how feedback can operate effectively and opportunities to use feedback within the curriculum.

Building on previous definitions (Boud and Molloy 2013; Carless 2015), feedback is defined as a process through which learners make sense of information from various sources and use it to enhance their work or learning strategies. This definition goes beyond notions that feedback is principally about teachers informing students about strengths, weaknesses and how to improve, and highlights the centrality of the student role in sense-making and using comments to improve subsequent work.

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Information may come from different sources e.g. peers, teachers, friends, family members or automated computer-based systems to support student self-evaluation of progress.

The focus of this paper is on the development of student feedback literacy amongst undergraduates as a way of enabling student uptake of feedback. Despite being acknowledged as important, the implications of student feedback literacy for teaching and course design have not been sufficiently considered. Sutton (2012) put the notion of feedback literacy on the agenda from an academic literacies perspective and defined it as the ability to read, interpret and use written feedback. We extend this useful starting-point by defining student feedback literacy as the understandings, capacities and dispositions needed to make sense of information and use it to enhance work or learning strategies. Students' feedback literacy involves an understanding of what feedback is and how it can be managed effectively; capacities and dispositions to make productive use of feedback; and appreciation of the roles of teachers and themselves in these processes. One of the main barriers to effective feedback is generally low levels of student feedback literacy. This is not to absolve teachers of responsibility for managing feedback processes and designing the curriculum in ways in which feedback can be used, but it is only students who can act to improve their learning. It is unrealistic and ineffective to expect teachers to provide more and more comments to large numbers of learners.

Our orientation towards feedback research and practice is informed by the interplay between social constructivist learning theories and the notion of tacit knowledge. Social constructivist approaches focus on the interdependence of social and individual processes in co-construction of knowledge (Palincsar 1998). Social constructivist feedback research takes the perspective that shared and individual interpretations are developed through dialogue, sense-making and through co-construction between participants (Price, Handley, and Millar 2011; Rust, O'Donovan, and Price 2005). For students to develop their feedback literacy, they also need to acquire tacit knowledge (Polanyi 1958): the kind of understandings which are difficult to communicate directly. The development of tacit knowledge is needed for students to appreciate feedback messages, develop their capacities in making judgments and be primed to make adjustments to their own work during its production (Sadler 1989, 2010). The acquisition of tacit knowledge of feedback processes emerges through observation, imitation, participation and dialogue (Bloxham and Campbell 2010).

The aims of this paper are to set out why student feedback literacy is needed, discuss its main features, and elaborate how it can be developed. Four features of student feedback literacy are proposed as a framework for student feedback literacy: appreciating feedback; making judgments; managing affect; and taking action. We discuss how these features can be developed through two enabling activities embedded within the curriculum: peer feedback and discussion of exemplars. These are chosen because they carry significant promise in facilitating the development of student feedback literacy, but this potential is often not fully realised. Then we elaborate how teachers can facilitate these activities, including curriculum design, guidance and coaching. The implications discuss recommendations for teaching; propose an enhanced role for learning management systems (LMSs) in enabling student feedback literacy; and set out some future research directions.

Feedback processes and the student response

Students respond to feedback in various ways within specific disciplines, curricula and contextual settings; and in relation to their previous experiences and their own personal characteristics. In this section, we review the extent to which students understand and appreciate feedback processes; their development of capacities in making academic judgments; how students manage affective factors; and student uptake and action in response to feedback.

Appreciating feedback processes

Appreciating feedback refers to both students recognising the value of feedback and understanding their active role in its processes. Students have various conceptions of feedback and these are often not

particularly sophisticated, mainly focusing on feedback as telling (McLean, Bond, and Nicholson 2015). Students sometimes fail to recognise or appreciate forms of feedback other than written comments on submitted work (Price, Handley, and Millar 2011). Based on their secondary school experience, students may have limited absolutist beliefs about knowledge and prefer to receive unequivocal corrective feedback (O'Donovan 2017). Increasingly common discourses of students as consumers may also reinforce instrumental attitudes to learning and inhibit students from taking responsibility for developing their own knowledge and skills (Bunce, Baird, and Jones 2017). This may lead to passive student reactions to feedback and perceptions that it is the teacher's role to tell students what to do to achieve high grades. Approaches that emphasise feedback as telling are insufficient because students are often not equipped to decode or act on statements satisfactorily, so key messages remain invisible (Sadler 2010). Feedback literacy demands that learners acquire the academic language necessary for understanding, interpreting and thinking with complex ideas (Sutton 2012).

Technology-enabled approaches to feedback seem to be welcomed by students through facilitating timely and convenient sharing of comments. Students generally value, for example, the personalised and engaging nature of audio feedback (Parkes and Fletcher 2017), and report increased engagement, including revisiting audio feedback multiple times (Brearley and Cullen 2012). Recent developments in learning analytics enable information based on learning logs and digital traces to provide timely personalised feedback at scale and enhance student satisfaction with feedback processes (Pardo 2018; Pardo et al. 2017). Within these promising technology-enabled approaches, there remain risks that the process may still be dominated by feedback as telling, learner agency may be lacking and productive action may not ensue unless there are designs for student uptake.

Making judgments

To make the most of feedback processes, students need to be developing evaluative judgment: capability to make decisions about the quality of work of oneself and others (Tai et al. 2017). Lower achieving students are often relatively weak at self-evaluating their performance and frequently conflate effort with quality (Boud, Lawson, and Thompson 2013). In order to become more accurate in judging the standards of their own performance, students need extended opportunities for self-evaluation so that they can improve their judgment over time (Boud, Lawson, and Thompson 2013, 2015).

Producing an assignment requires students to plan, draft and re-draft whilst making adjustments based on their ongoing judgments about the quality of the work. As learners review their progress on tasks, internal feedback is generated by this monitoring process (Butler and Winne 1995). External teacher feedback can beneficially be focused on supporting students to refine their own internal feedback, and this kind of feedback may have more impact on student learning than conventional feedback as telling (McConlogue 2015). Learners are more likely to change what they do only when they have formed their own judgments that this is necessary (Boud and Molloy 2013).

Engaging students in improving their capacity to make sound judgments is challenging unless there are sustained opportunities for comparison with the views of others (Boud, Lawson, and Thompson 2013). Peer feedback is a key means of encouraging students' sharing of judgments. Making judgments involves the implicit or explicit application of criteria. Students often find assessment criteria too dense and abstract to enable them to make judgments about quality, preferring instead exemplars which they perceive as more accessible illustrations of quality (Carless 2015).

Managing affect

Affect refers to feelings, emotions and attitudes. Students often exhibit defensive responses to feedback, particularly when comments are critical or grades are low (Robinson, Pope, and Holyoak 2013). Under these circumstances, feedback often provokes negative affective reactions and threats to identity, so how students manage their emotional equilibrium impacts on their engagement with critical

commentary (To 2016). Affective responses to feedback are mediated by students' relationships with their teacher and with other participants as they construct meanings together (Esterhazy and Damsa 2017).

An aim of feedback is to challenge students to adopt new perspectives, but students often do not welcome this challenge (Forsythe and Johnson 2017). Critical feedback can have positive or negative impacts depending on a range of factors, including student self-efficacy, motivation and ability to handle emotions constructively (Pitt and Norton 2017). The tone in which feedback is shared is one of the most critical aspects of how students react to feedback (Lipnevich, Berg, and Smith 2016). When teachers signify in writing and speech that they care about their learners, then student engagement with feedback is enhanced (Sutton 2012). If a trusting atmosphere is established, learners are more likely to develop the confidence and faith to reveal what they do not fully understand (Carless 2013).

Student dispositions to engage with feedback are often not optimal. Students seem to recognise that feedback can facilitate progress but underplay their own responsibility to actualise this improvement (Winstone et al. 2017a). Capable students are often pro-active in seeking out feedback and striving to understand what teachers look for in assignments; i.e. cue-conscious or cue-seeking behaviours identified in the literature (Miller and Parlett 1974; Yang and Carless 2013).

Taking action

Feedback literacy requires learners to act upon comments that they have received (Sutton 2012). Students need to engage actively in making sense of information and use it to inform their later work, thereby closing a feedback loop (Boud and Molloy 2013). This imperative for students to take action is a critical aspect of feedback processes which is sometimes underplayed. Students need motivation, opportunities and means to act on feedback (Shute 2008). When assessment tasks are not well-aligned or are only submitted at the end of modules, there is limited scope for students to apply insights from teacher comments (Carless et al. 2011). End-of-semester comments on assignments often focus on future development beyond the immediate context involving a temporal dimension relating to slowly-learnt aspects of course outcomes, and requiring sustained student action over an extended period of time (Price, Handley, and Millar 2011).

Hattie and Timperley's (2007) model of feedback to enhance learning suggests that feedback operates at four levels. Feedback at the self-regulation level and feedback at the process level are generally most likely to lead to learner uptake and improvement. Feedback at the level of the self is least effective because it focuses on the person rather than improving learning. The main limitation of feedback at the task level is the difficulty for students to generalise messages to other tasks and take subsequent action (Hattie and Timperley 2007).

To make use of feedback information, students need to possess a repertoire of strategies to act productively. A recent synthesis of relevant literature found that students report awareness of strategies for tackling issues identified through comments, but experience difficulty in carrying them out (Winstone et al. 2017b). Unless students see themselves as agents of their own change and develop identities as pro-active learners, they may be unable to make productive use of comments about their work (Boud and Molloy 2013). Without the skills to interpret comments received, few students are successful in acting on feedback (Robinson, Pope, and Holyoak 2013).

Features of student feedback literacy

We now propose a set of inter-related features that serve as a framework underpinning student feedback literacy. Students with well-developed feedback literacy appreciate their own active role in feedback processes; are continuously developing capacities in making sound judgments about academic work; and manage affect in positive ways. These three features are inter-related as represented in Figure 1 by bi-directional arrows. It is proposed that a combination of the three features at the top of the figure maximises potential for students to take action as illustrated at the base of the figure.

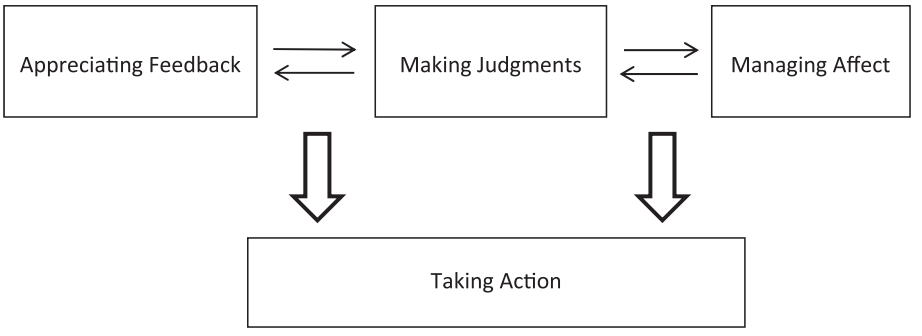

Figure 1. Features of student feedback literacy.

Appreciating feedback

Feedback literate students:

(1) understand and appreciate the role of feedback in improving work and the active learner role in these processes;
(2) recognise that feedback information comes in different forms and from different sources;
(3) use technology to access, store and revisit feedback.

Making judgments

Feedback literate students:

(1) develop capacities to make sound academic judgments about their own work and the work of others;
(2) participate productively in peer feedback processes;
(3) refine self-evaluative capacities over time in order to make more robust judgments.

Managing affect

Feedback literate students:

(1) maintain emotional equilibrium and avoid defensiveness when receiving critical feedback;
(2) are proactive in eliciting suggestions from peers or teachers and continuing dialogue with them as needed;
(3) develop habits of striving for continuous improvement on the basis of internal and external feedback.

Taking action

Feedback literate students:

(1) are aware of the imperative to take action in response to feedback information;
(2) draw inferences from a range of feedback experiences for the purpose of continuous improvement;
(3) develop a repertoire of strategies for acting on feedback.

Enabling activities to develop student feedback literacy

In this section, two well-established learning activities, peer feedback and analysing exemplars, are discussed to illustrate how they can be re-focused more explicitly towards developing students' feedback literacy. These enabling activities are chosen because they resonate with the framework described earlier in terms of supporting student appreciation of feedback, providing practice in making judgments, managing affect and facilitating student action. The section concludes with a discussion of the teacher role in facilitating the development of student feedback literacy through curriculum design, guidance and coaching.

Composing and receiving peer feedback

Peer feedback or peer review involves students evaluating and making judgments about the work of peers (Nicol, Thomson, and Breslin 2014). Being exposed to the work of peers helps students self-evaluate their own production more effectively because they are making comparisons between their own work and that of others (McConlogue 2015). Providing comments to peers is often more beneficial than receiving them because it is more cognitively-engaging: involving higher-order processes, such as application of criteria, diagnosing problems and suggesting solutions (Nicol, Thomson, and Breslin 2014). Through these processes, peer review supports collaborative interaction within social constructivist principles.

A standard peer feedback or peer review sequence is that learners produce a draft assignment, receive feedback from peers and then revise the same assignment (Nicol, Thomson, and Breslin 2014). Such peer review processes facilitate the development of student feedback literacy in various ways: responsibility for feedback is placed in students' hands; there are opportunities for dialogue; the process involves learning to make judgments; and there is potential for feedback loops to be closed through student action. Input from peers can strengthen the social-relational aspects of feedback and reduce the power-differentials and negative emotional reactions which can arise from teacher feedback (Yang and Carless 2013).

Digitally-enabled peer feedback also carries a number of benefits, including speed of delivery and portability. The seminal Nicol, Thomson, and Breslin (2014) study used PeerMark within the Turnitin suite of applications to enable students to read, review and evaluate submissions conveniently. Digital affordances can support students to generate feedback and engage in peer review. A useful recent example is a study by Hung (2016) which involved students in producing video feedback for each other: combining student generation of feedback with digital facilitation and avoiding modes of feedback dominated by teacher-telling.

Without training and support for peer feedback, anticipated gains are unlikely to occur (Patton 2012; Tai et al. 2016). Students are primed to develop their feedback literacy through peer reviews when they receive substantial coaching. In an exemplary treatment of these processes a teacher-researcher (Min 2006) used a sample student essay to model different types of feedback, including identifying and explaining problems, and making specific suggestions. Then after two cycles of peer feedback, the teacher-researcher coached students in improving their commentaries on the work of peers. Reviewers demonstrated improvement in composing specific and relevant feedback, and receivers evidenced uptake of peer feedback (Min 2006). In sum, peer review seeds student feedback literacy when students appreciate the value of peer feedback and are coached in how to carry it out effectively.

Analysing exemplars

Learning from examples of different genres is part of induction into academic discourses. Exemplars are carefully chosen samples of student work which are used to illustrate dimensions of quality and clarify assessment expectations (Carless and Chan 2017). Through making expectations clear, exemplars reduce some of the inevitable student anxiety about assessment standards and requirements (Yucel et al. 2014).

Exemplars can also help to maintain student equilibrium in relation to standards by removing some of the unwanted surprise that can arise from unexpected teacher judgments (To 2016).

Purposeful analysis of exemplars develops students' feedback literacy by showing them rather than telling them about quality work. These processes refine their ability to discriminate between works of different levels and sharpen their capacities to make academic judgments. Analysing exemplars enables students to recognise the characteristics of quality work and acquire some of the tacit knowledge of the connoisseur (Sadler 2010). Dialogue about exemplars develops students' capacities to make judgments because exemplars are tangible rather than abstract, and enable tacit understandings to be experienced (Carless and Chan 2017; Sadler 1989).

Teachers sometimes have misgivings about the use of exemplars in that they worry that students may see them as models to be imitated (Handley and Williams 2011). These concerns are perhaps not fully justified in that learning from, and adapting, samples is a core element of academic apprenticeship for both university teachers and students. Exemplars are not model answers but samples to be analysed and compared with work in progress. Multiple exemplars can be used to emphasise that quality is manifested in various ways (Sadler 1989). Skilful teacher-orchestrated discussion of exemplars highlights key aspects of quality work and clarifies the reasoning behind teacher judgments (To and Carless 2016). Dialogues about exemplars should build on students' views and perspectives so that there is genuine interaction around the complexities of judging quality (Carless and Chan 2017).

LMSs can be exploited to enable storage of, and commentary on, exemplars. In a study by Scoles, Huxham, and McArthur (2013), it was found that students who accessed exemplar examination answers posted on the LMS achieved higher grades than those who did not. In another study, annotated exemplars were posted on the LMS and although students reported finding the exemplars useful, they resisted the invitation to discuss online as they hesitated to reveal their thinking publicly (Handley and Williams 2011). If incentivised effectively, purposeful online interaction about exemplars seeds the development of student feedback literacy by enabling students to share and discuss their academic judgments.

Significantly for feedback literacy, by enabling students to develop better appreciation of quality work and narrowing differing perceptions between teachers and students, exemplars play a role in facilitating student engagement with feedback messages (Handley and Williams 2011; To and Carless 2016). In sum, through analysing exemplars students can sharpen appreciation of how quality is manifested, enhance their capacities to make sound academic judgments, and draw appropriate inferences for actions to improve their own work.

The teacher role

Enabling activities are only likely to be successful in developing student feedback literacy if teachers create suitable curriculum environments for active learner participation, and also provide related guidance, coaching and modelling. A key teacher role is to communicate the rationale for enabling activities; explain how they operate, elaborate the potential benefits for students, and address challenges that students might encounter. Teachers need to set expectations that students will be pro-active if they are to benefit fully. Through dialogue, teachers can strive to reduce dissonances between teacher and student views about feedback, in that academics see it as more central to ongoing learning than students (Adcroft 2011). Students need motivating and guiding as they learn to navigate opportunities to use feedback (Price, Handley, and Millar 2011).

Modelling the uptake of feedback is an important but underplayed part of a teacher's repertoire in supporting and encouraging students to use feedback. Discussing how academics are exposed to feedback from peer review can be used to model responses to critique, share some of the emotional challenges, and illustrate the need for action. Such modelling plays a role in reducing distance between teachers and students by emphasising self-improvement as a core element of academic habits.

Groups of teachers can support the development of student feedback literacy through curriculum design and programme-wide approaches to feedback (Boud and Molloy 2013). The consistency, range

and types of feedback students experience are more meaningful when seen as a linked series of learning opportunities across an entire programme (Jessop, El Hakim, and Gibbs 2014). Providing students with substantial experience in making judgments is not an optional extra but a strategic part of the curriculum (Sadler 2010). Such curriculum designs establish that participation in evaluative judgment is a normal part of teaching and learning, peer interaction is seen as a worthwhile aspect of pedagogy, and students have opportunities to generate and act on feedback. Within this kind of curriculum, students develop feedback literacy through activities embedded coherently across programmes and at progressively higher levels of sophistication.

Assessment design is an additional feature which impacts on the prospects for the development of student feedback literacy. It is mentioned only briefly here, not due to a lack of importance but because it is secondary to the main focus of the paper. The way teachers design assessment tasks opens up or closes down opportunities for productive feedback processes (Carless et al. 2011). Multi-stage assignments, team projects or e-portfolios are examples of assessments which naturally involve opportunities for different forms of internal and external feedback. Within assessment designs, teachers facilitate opportunities for student development of feedback literacy through coherent iterative sequences in which students generate, receive and use feedback.

Implications

A number of implications for teaching arise. Firstly, there is a need for meta-dialogues between teachers and students about feedback processes. Meta-dialogues discuss processes and strategies of assessment and feedback rather than the specifics of a particular piece of work. They can be profitably focused on the role of feedback in ongoing learning, how effective feedback cycles can be developed, and the challenges of using feedback productively. Meta-dialogues provide opportunities to facilitate students' appreciation of feedback processes and narrow gaps between teacher and student perceptions of feedback.

Secondly, enabling activities need to become core elements of the curriculum in order to realise their potential to support the development of student feedback literacy and promote evaluative judgment. Feedback literate students develop their capacities in evaluative judgment as part of reducing their reliance on teachers to inform them about their progress. Through repeated experiences of making self-evaluations, students learn to generate internal feedback and gradually acquire expertise in making more sophisticated academic judgments. Peer feedback needs to be appreciated by learners and include purposeful coaching. Exemplars should be seen not as models but as opportunities for dialogues that clarify the characteristics of quality work and develop student capacities in making judgments.

Thirdly, learning activities in which students discuss feedback together are particularly useful (Price, Handley, and Millar 2011). Students could co-construct meanings from feedback that they have received or alternatively they could be exposed to a databank of feedback comments and invited to make sense of them. Fourthly, curriculum design and related learning activities enable a core feature of student feedback literacy: the need for action. In subsequent work, students can be prompted or required to show how they have used previous comments as part of closing feedback loops (O'Donovan, Rust, and Price 2016). Information becomes feedback only when students act on it to improve work or learning strategies. These pedagogical implications are broadly consistent with social constructivist learning theories.

Curriculum designs to enhance students' feedback literacy will be implemented more effectively if they are systematically embedded throughout programmes. For example, students could be introduced to the notion of feedback literacy in their first semester and be expected to develop it progressively through staged activities. Given that student response to feedback is influenced by previous feedback experiences (Price, Handley, and Millar 2011), it is important that sufficient resources are invested in the first-year so that a productive feedback ethos is established. Students need to experience the value of feedback so that its benefits are appreciated.

Students require multiple opportunities and practice in interpreting, recording, reviewing and acting on feedback information. A potentially useful means of facilitating such processes involves the extension of LMSs to enable easy access and retrieval for feedback purposes. Students would then be able to keep all the comments they had received in a single repository and review how they are acting on them over time. Multiple inputs from different sources can then be managed digitally for the purposes of enabling information to be recorded, analysed and used. Developing LMSs in these kinds of ways facilitates much-needed visibility for feedback processes, enhances students' responsibility by encouraging them to revisit feedback, and provides a means by which students can demonstrate to themselves and teachers that feedback loops are being closed. If LMSs are reconfigured to enable convenient access and retrieval of feedback, a fresh line of research could probe the extent to which these processes facilitate increased uptake of feedback.

With respect to other possibilities for future research into feedback literacy, a variety of approaches could be adopted ranging from surveys to more fine-grained qualitative research into student feedback literacy. Research investigating student progress in acquiring feedback literacy might usefully be of a longitudinal design and be combined with interventions to promote feedback literacy. The possibilities of learning analytics to inform feedback research and the related implications for student feedback literacy are also likely to be an expanding area of research focus, and might be integrated with research into LMSs. An important line of further inquiry relates to student action on feedback: researchers need more evidence of how comments lead to short-term and longer-term student uptake.

Conclusion

Persistent student and teacher dissatisfaction with feedback processes indicates the need for new ways of thinking, and a qualitative change in the kinds of intervention used. The argument elaborated in this paper is that through the development of feedback literacy, students are better positioned to use information to judge their own work and enhance their learning. Four features of student feedback literacy have been discussed: appreciating feedback processes; developing capacities in making judgments; managing affect; and taking action to use feedback. These four elements can be used to frame student responses to feedback, and advance feedback research and practice.

The development of student feedback literacy is central to the enhancement of feedback processes and broader attempts to improve student learning outcomes. Feedback literacy is not just a tool for doing better in university studies but a core capability for the workplace and lifelong learning. In view of its importance and complexity, the development of student feedback literacy needs greater attention and discussion than it has hitherto received. Its further investigation could include feedback literacy at postgraduate levels or in the workplace.

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References

Adcroft, A. 2011. "The Mythology of Feedback." *Higher Education Research & Development* 30 (4): 405–419.
Bloxham, S., and L. Campbell. 2010. "Generating Dialogue in Assessment Feedback: Exploring the Use of Interactive Cover Sheets." *Assessment & Evaluation in Higher Education* 35 (3): 291–300.
Boud, D., and E. Molloy. 2013. "Rethinking Models of Feedback for Learning: The Challenge of Design." *Assessment & Evaluation in Higher Education* 38 (6): 698–712.
Boud, D., R. Lawson, and D. Thompson. 2013. "Does Student Engagement in Self-Assessment Calibrate Their Judgement over Time?" *Assessment & Evaluation in Higher Education* 38 (8): 941–956.
Boud, D., R. Lawson, and D. Thompson. 2015. "The Calibration of Student Judgement through Self-Assessment: Disruptive Effects of Assessment Patterns." *Higher Education Research & Development* 34 (1): 45–59.
Brearley, F., and W. Cullen. 2012. "Providing Students with Formative Audio Feedback." *Bioscience Education* 20 (1): 22–36.
Bunce, L., A. Baird, and S. Jones. 2017. "The Student-as-Consumer Approach in Higher Education and Its Effects on Academic Performance." *Studies in Higher Education* 42 (11): 1958–1978.
Butler, D., and P. Winne. 1995. "Feedback and Self-Regulated Learning: A Theoretical Synthesis." *Review of Educational Research* 65 (3): 245–281.
Carless, D. 2013. "Trust and Its Role in Facilitating Dialogic Feedback." In *Feedback in Higher and Professional Education: Understanding It and Doing It Well*, edited by D. Boud and E. Molloy, 90–103. London: Routledge.
Carless, D. 2015. *Excellence in University Assessment: Learning from Award-Winning Practice*. London: Routledge.
Carless, D., and K. K. H. Chan. 2017. "Managing Dialogic Use of Exemplars." *Assessment & Evaluation in Higher Education* 42 (6): 930–941.
Carless, D., D. Salter, M. Yang, and J. Lam. 2011. "Developing Sustainable Feedback Practices." *Studies in Higher Education* 36 (4): 395–407.
Esterhazy, R., and C. Damsa. 2017. "Unpacking the Feedback Process: An Analysis of Undergraduate Students' Interactional Meaning-Making of Feedback Comments." *Studies in Higher Education*. doi:10.1080/03075079.2017.1359249.
Evans, C. 2013. "Making Sense of Assessment Feedback in Higher Education." *Review of Educational Research* 83 (1): 70–120.
Forsythe, A., and S. Johnson. 2017. "Thanks, but No-Thanks for the Feedback." *Assessment & Evaluation in Higher Education* 42 (6): 850–859.
Handley, K., and L. Williams. 2011. "From Copying to Learning: Using Exemplars to Engage Students with Assessment Criteria and Feedback." *Assessment & Evaluation in Higher Education* 36 (1): 95–108.
Hattie, J. 2009. *Visible Learning: A Synthesis of over 800 Meta-Analyses Relating to Achievement*. London: Routledge.
Hattie, J., and H. Timperley. 2007. "The Power of Feedback." *Review of Educational Research* 77 (1): 81–112.
Higher Education Funding Council for England. 2016. *National Student Survey Results 2016.* Accessed July 4, 2017. http://www.hefce.ac.uk/lt/nss/results/2016/
Hung, S.-T. A. 2016. "Enhancing Feedback Provision through Multimodal Video Technology." *Computers & Education* 98: 90–101.
Jessop, T., Y. El Hakim, and G. Gibbs. 2014. "The Whole is Greater than the Sum of Its Parts: A Large-Scale Study of Students' Learning in Response to Different Programme Assessment Patterns." *Assessment & Evaluation in Higher Education* 39 (1): 73–88.
Lipnevich, A. A., D. Berg, and J. K. Smith. 2016. "Toward a Model of Student Response to Feedback." In *Human Factors and Social Conditions in Assessment*, edited by G. T. L. Brown and L. Harris, 169–185. New York: Routledge.
McConlogue, T. 2015. "Making Judgements: Investigating the Process of Composing and Receiving Peer Feedback." *Studies in Higher Education* 40 (9): 1495–1506.
McLean, A., C. Bond, and H. Nicholson. 2015. "An Anatomy of Feedback: A Phenomenographic Investigation of Undergraduate Students' Conceptions of Feedback." *Studies in Higher Education* 40 (5): 921–932.
Miller, C., and M. Parlett. 1974. *Up to the Mark: A Study of the Examination Game*. London: Society for Research into Higher Education.
Min, H.-T. 2006. "The Effects of Trained Peer Review on EFL Students' Revision Types and Writing Quality." *Journal of Second Language Writing* 15 (2): 118–141.
Nicol, D., A. Thomson, and C. Breslin. 2014. "Rethinking Feedback Practices in Higher Education: A Peer Review Perspective." *Assessment & Evaluation in Higher Education* 39 (1): 102–122.
O'Donovan, B. 2017. "How Student Beliefs about Knowledge and Knowing Influence Their Satisfaction with Assessment and Feedback." *Higher Education* 74: 617–633.
O'Donovan, B., C. Rust, and M. Price. 2016. "A Scholarly Approach to Solving the Feedback Dilemma in Practice." *Assessment & Evaluation in Higher Education* 41 (6): 938–949.
Palincsar, A. 1998. "Social Constructivist Perspectives on Teaching and Learning." *Annual Review of Psychology* 49: 345–375.

Pardo, A. 2018. "A Feedback Model for Data-Rich Learning Experiences." *Assessment & Evaluation in Higher Education* 43 (3): 428–438.
Pardo, A., J. Jovanovic, S. Dawson, D. Gašević, and N. Mirriahi. 2017. "Using Learning Analytics to Scale the Provision of Personalized Feedback." *British Journal of Educational Technology*. doi:10.1111/bjet.12592.
Parkes, M., and P. Fletcher. 2017. "A Longitudinal, Quantitative Study of Student Attitudes towards Audio Feedback for Assessment." *Assessment & Evaluation in Higher Education* 42 (7): 1046–1053.
Patton, C. 2012. "'Some Kind of Weird, Evil Experiment': Student Perceptions of Peer Assessment." *Assessment & Evaluation in Higher Education* 37 (6): 719–731.
Pitt, E., and L. Norton. 2017. "'Now That's the Feedback I Want!' Students' Reactions to Feedback on Graded Work and What They Do with It." *Assessment & Evaluation in Higher Education* 42 (4): 499–516.
Polanyi, M. 1958. *Personal Knowledge: Towards a Post-Critical Philosophy*. London: Routledge and Kegan.
Price, M., K. Handley, and J. Millar. 2011. "Feedback: Focusing Attention on Engagement." *Studies in Higher Education* 36 (8): 879–896.
Quality Indicators for Learning and Teaching. 2017. *2016 Student Experience Survey National Report.* Accessed July 6, 2017. https://www.qilt.edu.au/docs/default-source/gos-reports/2017/2016-ses-national-report-final.pdf?sfvrsn=14e0e33c_5
Robinson, S., D. Pope, and L. Holyoak. 2013. "Can We Meet Their Expectations? Experiences and Perceptions of Feedback in First Year Undergraduate Students." *Assessment & Evaluation in Higher Education* 38 (3): 260–272.
Rust, C., B. O'Donovan, and M. Price. 2005. "A Social Constructivist Assessment Process Model: How the Research Literature Shows Us This Could Be Best Practice." *Assessment & Evaluation in Higher Education* 30 (3): 231–240.
Sadler, D. R. 1989. "Formative Assessment and the Design of Instructional Systems." *Instructional Science* 18 (2): 119–144.
Sadler, D. R. 2010. "Beyond Feedback: Developing Student Capability in Complex Appraisal." *Assessment & Evaluation in Higher Education* 35 (5): 535–550.
Scoles, J., M. Huxham, and J. McArthur. 2013. "No Longer Exempt from Good Practice: Using Exemplars to Close the Feedback Gap in Exams." *Assessment & Evaluation in Higher Education* 38 (6): 631–645.
Shute, V. 2008. "Focus on Formative Feedback." *Review of Educational Research* 78 (1): 153–189.
Sutton, P. 2012. "Conceptualizing Feedback Literacy: Knowing, Being, and Acting." *Innovations in Education and Teaching International* 49 (1): 31–40.
Tai, J., B. Canny, T. Haines, and E. Molloy. 2016. "The Role of Peer-Assisted Learning in Building Evaluative Judgement: Opportunities in Clinical Medical Education." *Advances in Health Sciences Education* 21 (3): 659–676.
Tai, J., R. Ajjawi, D. Boud, P. Dawson, and E. Panadero. 2017. "Developing Evaluative Judgement: Enabling Students to Make Decisions about the Quality of Work." *Higher Education*. doi:10.1007/s10734-017-0220-3.
To, J. 2016. "'This is Not What I Need': Conflicting Assessment Feedback Beliefs in a Post-Secondary Institution in Hong Kong." *Research in Post-Compulsory Education* 21 (4): 447–467.
To, J., and D. Carless. 2016. "Making Productive Use of Exemplars: Peer Discussion and Teacher Guidance for Positive Transfer of Strategies." *Journal of Further and Higher Education* 40 (6): 746–764.
Winstone, N., R. Nash, M. Parker, and J. Rowntree. 2017a. "Supporting Learners' Agentic Engagement with Feedback: A Systematic Review and a Taxonomy of Recipience Processes." *Education Psychologist* 52 (1): 17–37.
Winstone, N., R. Nash, J. Rowntree, and M. Parker. 2017b. "'It'd Be Useful, but I Wouldn't Use It': Barriers to University Students' Feedback Seeking and Recipience." *Studies in Higher Education* 42 (11): 2026–2041.
Yang, M., and D. Carless. 2013. "The Feedback Triangle and the Enhancement of Dialogic Feedback Processes." *Teaching in Higher Education* 18 (3): 285–297.
Yucel, R., F. Bird, J. Young, and T. Blanksby. 2014. "The Road to Self-Assessment: Exemplar Marking before Peer Review Develops First-Year Students' Capacity to Judge the Quality of a Scientific Report." *Assessment & Evaluation in Higher Education* 39 (8): 971–986.