What feedback literate teachers do: an empirically-derived competency framework

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What feedback literate teachers do: an empirically-derived competency framework

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ABSTRACT

If feedback is to be conducted effectively, then there needs to be clarity about what is involved and what is necessary for teachers to be able to undertake it well. While much attention has recently been devoted to student feedback literacy, less has been given to what is required of teaching staff in their various roles in feedback processes. This paper seeks to elucidate teacher feedback literacy through an analysis of the accounts of those who do feedback well. An inductive analysis was undertaken of conversations about feedback with 62 university teachers from five Australian universities using a dataset of transcripts of interviews and focus groups from two earlier research studies. Through an iterative process a teacher feedback literacy competency framework was developed which represents the competencies required of university teachers able to design and enact effective feedback processes. The paper discusses the different competencies required of those with different levels of responsibility, from overall course design to commenting on students' work. It concludes by considering implications for the professional development of university teachers in the area of feedback.

Feedback in higher education is under scrutiny as never before. It has been identified in student evaluations of teaching as needing attention more than most other aspects of courses (e.g. Office for Students, 2020). It has been criticized as ineffective, ill-timed, excessively teacher-focused and poorly designed (Boud and Molloy 2013; Li and De Luca 2014; Winstone et al. 2017; Winstone and Carless 2019). However, it is one of the few pedagogical interventions in courses that can potentially address the varying learning needs of different students in a mass teaching environment. When done well, feedback can be a powerful contributor to student learning (Hattie and Timperley 2007), however feedback is not always something students find useful (Henderson et al. 2019a).

In addressing the problems of feedback, there has been an important shift in the literature regarding how feedback is conceptualised. Feedback is no longer seen simply as comments provided by teachers to students about their work, but as a process that needs active and continuing student engagement if it is to lead to learning (Boud and Molloy 2013; Henderson et al. 2019b). Carless (2015) has identified this radical refocusing of the concept of feedback in higher education as a paradigm shift from seeing feedback as an input to students at a particular point in time to feedback as an ongoing process in which all parties have a role to play.

An emphasis on feedback literacy

If feedback is a process then, attention must be given to how it operates and for each party involved to have a good appreciation of what is needed for it to be conducted effectively. In particular, there needs to be a focus on helping students understand feedback and how it can work for them, and to encourage them to see that it is only through their own actions that it can possibly lead to useful outcomes. Thus, there has been rapid growth in interest in the topic of student feedback literacy. That is, what students need to know, and be able to do, to benefit both from the feedback practices to which they are exposed and those that they might initiate for themselves. While it was Sutton (2012) who put the idea of student feedback literacy on the agenda, Carless and Boud (2018) conceptualised what were key elements of it and Molloy, Boud, and Henderson (2020) extracted a framework for student feedback literacy from an empirical study of student feedback use. Subsequently, Malecka, Boud, and Carless (2020) explored how the development of student feedback literacy might be embedded in the curriculum, and Winstone, Balloo, and Carless (2020) framed discipline-specific feedback literacy as a graduate attribute.

The initial focus of feedback literacy research was appropriately on the student. After all, it is the student who learns and who benefits from effective feedback practices. However, within the confines of university courses which are limited in time, but particularly by a relatively small number of assessment/feedback events, students are dependent on teachers having a good appreciation of feedback and how it can be deployed successfully. This has led now to a focus on teacher feedback literacy, which is complementary to but not identical with student feedback literacy (Carless and Winstone, 2020). With regard to feedback, teachers are involved in much more than the provision of information on specific student work. They create courses, design assessment tasks and feedback activities and have responsibility to see that feedback processes do what is intended.

The move to teacher feedback literacy

Carless and Winstone (2020) proposed three dimensions to teacher feedback literacy. These consisted of a design dimension, a relational dimension and a programmatic dimension. They discussed the features of each and identified implementation strategies describing what teachers could do in each area. This was an important first step. However, they do not make clear what knowledge of feedback teachers should possess. They do not consider different categories of educator some of whom design and create feedback opportunities and others who merely implement them. Structural features and constraints were not considered, and the role of teachers in formulating feedback inputs (which is still part of the process within the new paradigm) was underemphasised.

While there have been conceptual discussions of feedback literacy for both students (Carless and Boud, 2018) and teachers (Carless and Winstone, 2020), it is only for students that attempts have been made to base a framework for feedback literacy in empirical evidence (Molloy, Boud, and Henderson 2020). What has been missing to date is an investigation of teacher feedback literacy in terms of what teachers do in feedback and what capabilities they need to possess in order to do it well.

There is evidence of a gap between the lofty concepts of what teacher feedback practices should be, and what they actually are. Teachers often hold advanced views of feedback but fail to enact them in their feedback practices (Orrell 2006). This may partially be due to circumstances, such as policy or academic cultures blocking more sophisticated feedback approaches (Henderson et al. 2019b). This means that a solely conceptually derived understanding of teacher feedback literacy may fail to capture the full range of competencies of teachers who implement effective feedback processes.

This paper seeks to identify empirically the feedback literacy competencies of university teaching personnel by an inductive analysis of data taken from two earlier qualitative studies of good practice in assessment and feedback (Bearman et al. 2017; Henderson et al. 2019a). The question to be addressed was: what are the characteristics of feedback literate higher education teachers? In focusing on this question the paper describes the analysis undertaken and how this led to a framework for teacher feedback literacy expressed in terms of competencies. The framework is discussed and its applicability to different levels of feedback practice considered. The paper explores possibilities for the development of teacher feedback literacy and the kinds of research needed to further validate the proposed framework. This analysis aims to complement the conceptual study of Carless and Winstone (2020) through providing an empirical base for discussions of teacher feedback literacy.

Method

Analysis of feedback literacy needs to draw on good feedback practice. Therefore, it is necessary to find a group of educators whose feedback is likely to be better than their peers, whose practice can be explored to elicit features of what one can consider feedback literacy. Three characteristics of such a group need to be taken into account. Firstly, they need to have experience of both providing feedback information to students and designing feedback opportunities for courses and course units. Secondly, they need to have some demonstrable characteristics that enable us to believe that they may have thoughtfully considered feedback as a practice in university courses. Thirdly, they need to be able to draw on a wide range of experience in feedback so that they have a multi-facetted view of what is involved. While it is not easy to select on the basis of whether they have old or new paradigm views of feedback, involvement of those that have given recent attention to the challenges of feedback is likely to ensure that some awareness of the new paradigm might be present.

Where then to find respondents with such characteristics? Fortuitously, the authors had both been involved in two national Australian projects that focused on assessment and feedback and from which data could be obtained. The first is the *Assessment Design Decisions* project (Bearman et al. 2017) which examined how academics make decisions about what assessment to incorporate in their courses. The second is from the *Feedback for Learning* project which focused on identifying successful feedback practices in university courses (Henderson et al. 2019a). In both cases, participants were chosen from those with recent experience of designing feedback and/or assessment strategies for their courses or course units. While it is not possible to assemble an *a priori* group of feedback literate teachers, as there is no scale to judge this, the groups identified could be regarded as the best proxy available for such a group. The total dataset consists of transcripts of audio-recorded interviews and/or focus groups with 62 teachers from across five universities in Australia, spanning a breadth of institution type and academic discipline.

We then undertook a process of inductive thematic analysis, focused on identifying competencies displayed by feedback literate teachers. Thematic analysis is not one single approach, but a set of related approaches, which require careful research design decisions (Braun and Clarke 2006, 2020). Our approach was inductive, in that we did not approach the task with a given theory or framework, however we acknowledge that as educational researchers we carry with us a set of domain theory about feedback. The codes we developed were semantic rather than latent (Braun and Clarke 2006) in that we were seeking to represent what our participants actually said, rather than looking for deeper underlying meanings. We acknowledge that as researchers we actively construct our interpretations rather than having them 'emerge' from the data (Varpio et al. 2017). Similarly, our ontological positioning of realism (Maxwell 2012) informs us that our participants experience their feedback work as part of their reality, which may be different to the realities of their colleagues and students.

For each data set, our process involved taking each separate and distinct utterance about feedback and inductively identifying what effective feedback practice it represented. In order to generate a list of equivalent categories, this was then recorded in the form of a feedback competence that teachers exhibiting the identified characteristic could demonstrate. The total array of 183 competencies extracted from both datasets were then considered as a whole and common clusters identified. The resulting groupings and illustrative competencies for each were then checked against the original data and examples from the transcripts of each item identified. While there was no disagreement regarding the individual competencies, reaching agreement on the higher-level groupings was more challenging, and we explored multiple candidate grouping schemes. We undertook three main iterations of the analysis process, with meetings to debate and reach consensus on changes, ultimately arriving at the framework presented.

Results: an empirically-derived framework for teacher feedback literacy

Based on our analysis of the competencies of feedback literate teachers in both datasets, we have developed what we term the Teacher Feedback Literacy Competency Framework. In this section we first present a summary table of the main features of the framework, and follow it with a discussion of each broad competency area, with examples of how feedback literate teachers demonstrated that competency, and the literature that supports or discusses it. The framework consists of 19 inductively-derived competencies split into three levels pragmatically according to the scope of responsibility involved:

macro: programme design and development
meso: course module/unit design and implementation
micro: feedback practices relating to individual student assignments

The distinctions between these levels are not absolute, and most competencies could exist in some form at a higher or lower level, however we have placed them at the level that our data suggests that they need first to be considered.

Table 1 represents the teacher feedback literacy competency framework, a first approximation of a framework of characteristics of feedback literate teaching personnel in higher education. We do not claim this to be a comprehensive framework, but a generative one; one that can also be used to set beside conceptually derived frameworks. Examples are given of the range of each category: these are condensations of statements made by respondents.

Teacher feedback literacy competencies in detail

Macro competencies

Plans feedback strategically
Participants across both datasets demonstrated a range of competencies involving strategic planning for feedback. This involved zooming out from the level of individual assessment tasks, towards a view of the complex feedback connections across a whole course unit, or even across multiple course units. At this higher level, they described working creatively within policy contexts, deviating from disciplinary norms where appropriate, and coordinating with colleagues to avoid feedback overload for students. Taking a strategic approach to feedback also involved being responsive to change, such as the need to scale up feedback practices to suit larger cohorts, and the impacts of shifts to online modes of delivery on feedback practices.

Uses available resources well
Effective feedback requires sufficient resourcing, be it teacher time, student energy or technology support (Henderson et al. 2019b). Across both datasets, teachers rarely had access to bountiful

resources to implement their feedback designs. Instead, they had to make best use of what they had. This included reallocation of resources, such as using tutorial time to focus on feedback rather than traditional teaching. Elsewhere it involved smoothing out barriers for students so they could easily access the feedback information with which they were already being provided. Some teachers also used students as feedback resources, enlisting them in peer feedback processes.

Creates authentic feedback-rich environments

Some participants paid particular attention to creating environments where feedback was likely to occur. This included modelling environments and associated feedback processes after the ways that feedback occurs within the discipline or profession, with the intention of creating what has been termed authentic feedback (Dawson, Carless, and Lee 2021). In addition to creating situations where feedback processes are commonplace, they also assisted students to make the most of feedback information from the environment itself, such as using documentation about standards or looking to see how other people have approached a problem.

Develops student feedback literacy

Participants described working to improve various facets of their students' feedback literacy. Explanation and expectation-setting with students was common, with teachers seeking to change

Table 1. Summary of the teacher feedback literacy competency framework.

Level	No	Category	Examples	References
Macro	1	Plans feedback strategically	• Identifies feedback as a strategic intervention • Minimizes negative effects of simultaneous tasks in different subjects • Develops strategies which involve students • Uses inclusive feedback practices for all students	Henderson et al. 2019b; Jessop and Tomas 2017; Jonsson 2013
	2	Uses available resources well	• Apportions feedback resources to most effect • Ensures students can readily access feedback data • Mobilises students for multiple feedback roles	Henderson et al. 2019b; Malecka, Boud, and Carless 2020
	3	Creates authentic feedback-rich environments	• Models feedback processes on authentic disciplinary processes • Makes feedback processes familiar and commonplace • Assists students to utilize information from the environment in which they operate	Esterhazy 2018; Dawson, Carless, and Lee 2021; Winstone, Balloo, and Carless (2020)
	4	Develops student feedback literacy	• Explains feedback to students and their role in it • Promotes feedback as something useful in the world • Sets expectations around the nature of feedback	Malecka, Boud, and Carless 2020; Molloy, Boud, and Henderson 2020; Carless and Winstone 2020
	5	Develops/ coordinates colleagues	• Briefs colleagues to focus on priorities in feedback processes • Trains tutors/sessional staff to undertake high quality feedback activities • Mutually shares successful feedback practices with colleagues	Broadbent, Panadero, and Boud 2018
	6	Manages feedback pressures (for self and others)	• Manages workload to ensure that greatest feedback priorities are met • Organises feedback information generating sessions to mimimise teachers repetitive work • Designs for student self-correction, leaving teacher time for other feedback	Henderson et al. 2019b; Hounsell 2007
	7	Improves feedback processes	• Collects evidence about the effectiveness of feedback on learning • Establishes processes that reveal if students have utilized feedback information • Utilises information from students to improve their own practices	Ajjawi et al. 2019

Meso	8	Maximises effects of limited opportunities for feedback	• Uses feedback selectively where it can have most impact • Allocates time to feedback events commensurate with their importance • Coordinates feedback with other pedagogical practices	Boud and Molloy 2013
	9	Organises timing, location, sequencing of feedback events	• Sequences feedback events to maximise their influence on student learning • Ensures that feedback information is available in time for subsequent tasks • Times feedback activities early in the semester	Tomas and Jessop 2019; Winstone and Boud 2020
	10	Designs for feedback dialogues and cycles	• Stages tasks to maximise effects of feedback information • Prompts students to identify particular kinds of feedback information they need • Uses nested assessments in which input is given in stages in building a more substantial outcome	Bloxham and Campbell 2010; Nicol 2010; Crimmins et al. 2016
	11	Constructs and implements tasks and accompanying feedback processes	• Designs feedback activities to enable students to self-assess before input from teachers • Sources and deploys a wide range of exemplars to demonstrate features of good work • Undertakes in-class discussions about feedback	Daniel, Gaze, and Braasch 2015; Esterhazy and Damşa 2019; Hawe and Dixon 2017
	12	Frames feedback information in relation to standards and criteria	• Explicitly connects feedback information to standards to be achieved • Has students judge their own work against explicit criteria • Reviews rubrics from the point of view of their value for feedback purposes	Dawson 2017; Sadler 1989
	13	Manages tensions between feedback and grading	• Distinguishes between feedback information and grade justification and deploys each appropriately • Designs feedback processes to enable students not to be distracted by marks or grades • Avoids discourse of grades in discussing quality work	Winstone and Boud 2020
	14	Utilises technological aids to feedback as appropriate	• Deploys audio/video/screencast feedback as needed • Uses Learning Management Systems (LMS) for recording and accessing feedback information • Uses technology to enable more efficient/scalable feedback processes	Mahoney, Macfarlane, and Ajjawi 2019; Grigoryan 2017
	15	Designs to intentionally prompt student action	• Provides persuasive rationales for the importance of student actions in feedback processes • Designs activities so students can incorporate feedback responses into subsequent assignments • Invites students to show how they have utilized feedback information in their work	Bird and Yucel 2015; Henderson et al. 2019a
	16	Designs feedback processes that involve peers and others	• Designs exemplar exercises that involve students providing feedback • Facilitates and equips students to engage in peer feedback processes • Connects students with other feedback providers	Harland, Wald, and Randhawa 2017; Nicol, Thomson, and Breslin 2014
Micro	17	Identifies and responds to student needs	• Fine tunes their comments to individual student needs • Ensures students receive usable information • Relates feedback inputs to students' self-assessments of their work	Winstone et al. 2017; Pitt and Norton 2017
	18	Crafts appropriate inputs to students	• Provides comments that identify needed improvements • Poses questions that open students to new ways of thinking about their work and other ways of doing it • Strategically avoids wasting time on low-level corrections	Lipnevich and Smith 2009; Hattie and Timperley 2007
	19	Differentiates between varying student needs	• Provides differentiated feedback support to different groups of students • Identifies students at risk of not being able to use feedback processes well • Seeks to engage difficult to involve/ marginal/ excluded students	Jones and Gorra 2013; Pitt, Bearman, and Esterhazy 2020; Adcroft and Willis 2013

students' understandings of what feedback was; this included both the immediate function of feedback within the course unit, as well as broader changes the teachers hoped would be long term. Feedback can be challenging from an affective perspective, so they also worked to build students' confidence in engaging in feedback, and their ability to manage affect during feedback processes. The development of student feedback literacy included both proactive design work, as well as reactive responses to student resistance to more active feedback processes.

Develops/coordinates colleagues

Those in the dataset described a range of work with other teachers that involved leadership, coordination and capacity building. This included working with teams of many feedback information providers so that there was a consistent feedback experience for students; sharing successful feedback practices with colleagues; and initiating conversations with colleagues about important feedback issues. At a meta level, they were engaged in the promotion of teacher feedback literacy itself, and they described cultivating some of the same competencies we discuss in this paper.

Manages feedback pressures (for self and others)

Participants across the datasets described a range of activities used to manage the many pressures of feedback. The most challenging pressure was the tension between workload and a desire for effective feedback. Some managed this through using class time for some feedback activities; and others through designing tasks that involved student self-correction on minor matters, leaving teacher time for more expert feedback. There was an affective element to managing feedback pressures as well, with teachers describing it as a challenge sometimes to not get discouraged by a lack of student engagement with the information they provided to them or their inability to provide the level of feedback information students need.

Improves feedback processes

Most of those in the datasets had been teaching a particular course module for an extended period, and they were able to talk about ways they had improved feedback over time. Many collected evidence about the effectiveness of their feedback processes, such as student surveys with questions about feedback, and student work samples which were analysed to see if feedback information has been used. Some others just had conversations with students about the feedback processes they were experiencing. Many described a process of iterative refinement, involving smaller changes each semester over time that collectively led to substantial improvements.

Meso competencies

Maximises effects of limited opportunities for feedback

To make the most of the limited opportunities for feedback within individual course units, a range of activities were described. These were often focused on efficiency, such as replacing a long essay with a three minute video which enabled markers to spend more time on feedback and less on reviewing the student's work. Using the right tool for the job was important: multiple choice questions for feedback when appropriate; and careful choices of individual or group feedback sessions. Teachers also targeted their limited feedback resources in areas where it would have most effect, such as threshold concepts or key skills.

Organises timing, location, sequencing of feedback events

Feedback occurs at a time and location, and within the context of other assessment and learning events, and participants described placing and connecting feedback carefully. At the most basic level, they described building connected sequences of tasks, where feedback comments from one

task would be useful for the next task. At a more sophisticated level, they scaffolded or mandated feedback use in subsequent tasks. Timing was also an important consideration, with a preference for prompt feedback especially early in the semester when it could be particularly useful.

Designs for feedback dialogues and cycles

Accounts described feedback that was dialogic, in that it was not one-off, but instead spanned multiple interactions, sometimes using the notion of feedback 'loops'. This often took the form of setting tasks that were split into parts with feedback sandwiched between, assessing particular outcomes repeatedly, and/or commenting on drafts. Dialogues were sometimes designed to be student-led, such as when students were asked to identify their own learning needs and to ask for particular kinds of feedback information.

Constructs and implements tasks and accompanying feedback processes

Feedback is often – but not exclusively – connected to tasks, and participants described constructing those tasks and their associated feedback processes. This included designing tasks that have feedback as an inherent part of them, such as in-built self-assessment and the use of exemplars to illustrate features of quality. The development of intermediate feedback within tasks, possibly as part of in-class work, was also a feature of task construction. They also spoke about the construction of tools to assist with feedback information provision, such as comment banks or pre-prepared cohort-level comments.

Frames feedback information in relation to standards and criteria

Some respondents explicitly connected feedback with standards and criteria. While this included producing feedback information that was criterion-referenced, it was also broader. They described inducting students into the criteria and standards of their discipline, and using criteria and standards to frame the purpose of feedback as well as related artefacts like rubrics. They engaged students in active use or even generation of standards, such as self-assessment or standards-setting exercises.

Manages tensions between feedback and grading

Feedback and grading serve different purposes, but they are often conflated into the same process (Winstone and Boud 2020). Teachers in our datasets described a tension between feedback and grading, and approaches to distinguish between information primarily meant as grade justification, and information intended for feedback purposes. This included avoiding a discourse of grades when discussing the quality of work, and attempts to separate the two processes for students.

Utilises technological aids to feedback as appropriate

A range of technologies in feedback processes were described. At a most basic level these included changing the media used to communicate with students from text to audio, video or screencast approaches (Ryan, Henderson, and Phillips 2019) as well as the use of self-tests administered via a learning management system. Technology was also used to support the logistics of feedback, such as enabling peer feedback processes at a large scale. At a more advanced level, some teachers used analytics, both to provide additional feedback information to students, and to track student access and use of feedback information.

Designs to intentionally prompt student action

Taking the perspective that student action is a necessary part of feedback, teachers need to make student action more than just a hope; they need to design for it. Teachers in the datasets

described design approaches including requiring students to show how they have incorporated feedback comments into their subsequent work. In addition, teachers also worked to provide a persuasive rationale about the importance of acting on feedback, and developing student capability with self-monitoring.

Designs feedback processes that involve peers and others

Many teachers described feedback designs involving peers and others, which involved much more than just asking students to comment on each other's work. For peer feedback, teachers described training students to both give and receive comments, as well as developing guidelines and rationales to promote peer feedback activities. They also described connecting students with other feedback providers, most notably language and learning advisors.

Micro competencies

Identifies and responds to student needs

When they talked about feedback with respect to individual students' work, teachers described a focus on what that student needs at a particular point in time. This included work to diagnose or discern what each student requires, fine tuning comments for the individual, considering how much feedback information a particular student can process, and adjusting feedback inputs to respond to students' self-assessments of their work. Teachers worked to make feedback information usable and useful for the individual student recipient.

Crafts appropriate inputs to students

This micro competency encompasses much of what may have conventionally been thought of as feedback: the production of feedback inputs. Teachers described working in the modality suited to the task (e.g. written, audio, video, screencast or face-to-face) to provide inputs with a variety of foci, most commonly how to improve the work. Feedback inputs were also crafted to correct, affirm and motivate, as well as to calibrate students' understandings of quality. The construction of comments was seen as very time consuming, and teachers described approaches like focusing on higher-order matters rather than low-level corrections in order to maximise benefit to students.

Differentiates between varying student needs

Teachers described a range of often challenging work they undertook to meet the needs of particular students. Students who were performing particularly well or poorly needed different types of support from feedback; it was challenging to meet the needs of students who were disengaged or marginalized; and students who wanted only black-and-white answers or were argumentative in response to feedback were difficult to help. The challenges of supporting students emotionally were sometimes significant.

Discussion

The analysis of feedback practices that resulted in the framework presented above shows how multi-faceted and wide-ranging are the competencies needed by teaching personnel for feedback to be well conducted. It is interesting to note that there is little overlap between the framework of teacher feedback literacy articulated here and the frameworks proposed for student feedback literacy by Carless and Boud (2019) or Molloy, Boud, and Henderson (2020). This should not be surprising as the two parties have quite different roles in feedback processes, though in peer feedback students need some of the competencies of teachers at the micro level.

While learners and teachers may participate in the same feedback activities, their roles and required competencies vary. Learners need to be able to make the most of whatever situation they find themselves in and to use the feedback processes they can influence to extract the greatest benefit they can from the constraints of the design constructed by others, as Stone and Heen (2015) have illustrated. However, teachers and those who create and design courses need to be able to structure the course to enable students to optimise the opportunities available to them. They make the decisions about what tasks will be inserted into courses and where they will occur, they plan for what the accompanying pedagogic activities will be, and they decide on the information provided to students about the work they submit. Their structures can inhibit or enable students to benefit from feedback even when students exercise great agency.

For feedback to operate well, all parties involved need to understand the common enterprise in which they are engaged and appreciate the ultimate purpose of the activity. This is to aid student learning through judgements, questions and suggestions, by both parties, about the work students produce. They need to see this as a process that takes place over time and over multiple tasks, and enable students to be significant agents at all stages in the process. Teachers need to recognise the need for student feedback literacy and create circumstances in which this can be developed, while simultaneously fostering the substantive learning outcomes of any given unit of study. Students and teachers will singularly and collectively possess different degrees of feedback literacy and thus the development of feedback literacy will always be a process of negotiation and adaptation to circumstance.

As conceptualised by Chong's (2021) ecological model of student feedback literacy, there is an interplay between a 'contextual' dimension that is largely the purview of teachers in feedback, an 'individual' dimension that students bring to feedback, and the components of feedback literacy initially proposed by Carless and Boud (2018), which Chong classifies as an 'engagement' dimension. Our analysis provides greater depth to the nature of the activities educators undertake that significantly determine the contextual dimension for students. Our framework points to ways in which educators both need to accommodate to whatever levels of feedback literacy are exhibited by their students and to the need for them to design their courses and their individual feedback practices to extend students' feedback literacy.

How does the framework developed in our analysis relate to previous discussions of teacher feedback literacy? Carless and Winstone's (2020) conceptual framework identified three dimensions of teacher feedback literacy. The *design dimension* focused on the construction of feedback processes and their effective deployment. This overlaps considerably with elements of our macro and meso levels, Their *relational dimension* focused on the provision of feedback information and the establishment of shared responsibilities of teachers and students in feedback. This maps most closely to our micro level. Their *pragmatic dimension* included a diverse collection of aspects that did not fit readily into their other two dimensions. Items within this dimension can be found throughout the levels of our framework.

Carless and Winstone (2020) emphasise the importance of shared responsibility in their relational dimension. While this is partly reflected in our framework, it does not have quite the same prominence. This may, however, be a function of the process we used to generate data: interviews and focus groups focused more on what participants did in feedback - participants were not asked directly what they regarded as the most desirable features of good feedback, instead, they were asked about what they do. We did this to address the specific problem found by Orrell (2006) of the significant disjoint between idealised best practice views espoused by teachers and their actual practices. Our framework can be taken as a pragmatic abstraction of what teacher feedback literacy looks like in practice.

Our framework is consistent with many features identified by Carless and Winstone but it operationalises further some aspects and adds to them. It shows the need for a deeper engagement with and understanding of feedback processes other than the provision of what teachers regard as useful information to students. It also recognises that different teachers have different

roles in feedback processes and that not all teachers are able or are in a position to influence design dimensions. With the disaggregation of academic work there has been a rise in new types of para-academic roles associated with teaching that have varying degrees of responsibility, expertise, precarity and student contact (Macfarlane 2011), such as educational designers, casual tutors and staff employed purely to grade student work and provide feedback information. Each of these different roles will require different feedback literacy competencies.

With the increased adoption of large classes and the casualisation of the teaching workforce in higher education, there is a greater need for those who have oversight of courses and course units to develop designs that can be utilised by multiple tutors who may not have close relationships with students. The design of overall feedback processes needs to be robust and these colleagues need to be effectively inducted into how they can work to the best advantage of student learning. However, design considerations are still needed at the micro-level in the formulation and crafting of inputs that respond to student needs and trigger positive responses by students.

One of the limitations of the data-sets we used was that we could not extract consistent demographic data about respondents. Neither could we use them to identify any disciplinary differences which may or may not exist.

Implications

The framework for teacher feedback literacy proposed in this study has substantial implications for professional development. A necessary but not sufficient condition is for teaching personnel to have a thorough understanding of what feedback processes need in order to have an impact on student learning. At its most basic it would require being able to distinguish between assessment and feedback (Winstone and Boud 2020), that is, an understanding of the forward-looking emphasis of all feedback initiatives. Feedback is not about justifying marks or grades, but helping students improve their future work.

An understanding of feedback concepts needs to be translated into suitable designs for learning in which feedback processes, student tasks and assessment activities are designed to be mutually supportive. It also needs the capability of conducting feedback in day-to-day interactions with students attending to the comments to be made and to how they can be embedded in a dialogic process. The former is needed as an integral part of the development needed by those who take responsibility for courses and course units. The latter is needed as part of the induction and training of all those involved in tutoring and marking. It has been conventionally assumed that having knowledge of the subject matter is sufficient for feedback to be conducted well, but this study shows this is inadequate and that substantially increased levels of pedagogic competence are needed in addition to assist student learning. There is no 'magic formula' for feedback (Sadler 2010), and as such, no amount of simplistic tips and tricks or training in specific practices will be guaranteed to improve feedback. What is needed instead is an increase in overall competence in teachers' feedback literacy.

Funding

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