

Technology-enabled higher education academic writing feedback: Practices, needs and preferences

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Student and teacher perceptions of feedback practices, preferences and awareness of feedback needs may differ and detract from learning. This article explores alignment or misalignment in higher education to argue alignment suggests needs are being met on these issues via technology-enabled feedback on writing. Within the context of academic training, we take a broad view of writing supervision along a continuum that comprises digital feedback on writing assessments at an Australian university. We used a survey comparison of teachers' and students' self-reported data to answer the following questions: (1) What digital feedback and assessment practices are reported by teachers and students in Australian higher education? (2) What e-feedback needs are self-declared through teachers' and students' self-awareness of assessment practices in that context? (3) What e-feedback preferences are reported by teachers and students? Students and teachers from different academic programmes and levels from social science self-reported their experiences of digital feedback on writing assessments. The quantitative and open-ended responses covered technology-enabled feedback experiences up to PhD supervision. The results on alignment and misalignment of participants' needs and preferences suggest a need to increase dialogue and incorporate student agency into feedback processes. We discuss further implications for feedback experiences in this context.

Implications for practice or policy

- Programme assessment designers might reconsider policies requiring online collaborative work since teachers and students prefer individual assignments.
- Assessors might improve digital assessment tools, to increase teacher and student interaction and expediency, without losing individual feedback, in line with unanimous claims that such tools support feedback processes on writing.
- Course leaders could implement practices buffering the effect of negative feedback because teachers perceive few complaints, but students react badly to negative comments through digital channels.

Keywords: higher education, digital feedback, academic writing, feedback perception, feedback practice, feedback needs, online learning

Introduction

Academic writing at university level is the fulcrum that balances this research, which weaves from teacher to student perceptions of technology-enabled feedback. The article contextualises, within the field of higher education feedback research, what teachers and students concurrently perceive to have occurred in the online space during feedback processes facilitated by a learning management system (LMS) at an Australian Technical Network university.

Although academic writing evolves (Hyland, 2020) for a wider online audience, the learning outcomes of academic writing programmes are also interrogated and developed for blended delivery (e.g., Boyle et al., 2019). This increasing interest in the role of technology for 21st century learning has focused particularly

on the provision of feedback as ongoing formative assessment of academic writing (Spector et al., 2016). Hence, in this time of change, it is unsurprising that a critical component of research supervision is for supervisors to meet diverse student academic writing needs as part of an evolving pedagogy of supervision construct (Anderson et al., 2018).

University students enrol from varied (plurilingual) backgrounds (Broido & Rubi, 2020), and differing experiences of feedback on their writing. Henderson, Ryan and Phillips (2019) defined feedback as a tool for learners to identify how they perform and what measures are required for improvement. Since completing assessment tasks drives learning (Gibbs & Simpson, 2005), and quality feedback, on what and how to improve, is linked to student satisfaction and success (Jessop et al., 2013), developments in digital feedback on academic writing merit a deeper inquiry into alignment between teacher and student orientations towards this feedback type.

Some students may explicitly express needs and preferences regarding feedback types because they are self-aware or have previously experienced different feedback resources or feedback process practices. These students fall somewhere along a continuum from feedback uptake novices to feedback literate (Carless & Boud, 2018; Sutton, 2012) experts. However, most students probably find feedback a muddy area and lie somewhere in between. Identifying personal needs and preferences may call on a level of clarity, self-awareness and evaluative judgement they have not had the opportunity to develop (Tai et al., 2018); consequently, they are less feedback literate than other peers. In a feedback context, this awareness reflects a common understanding between learners and teachers of their beliefs about feedback on learning (Evans, 2013), while recognising the need to improve feedback processes and practices (e.g., Boud & Molloy, 2013). From experience, teachers know what feedback works within the limits of quantity, quality and timeliness with respect to academic writing, which we (as academics and teacher practitioners) define as written responses to prompts according to disciplinary contexts for pedagogical purposes. In a broader sense, Hyland (2005, p. 1) defined academic writing as “collective social practices and... texts as the most concrete, public and accessible realisation of these practices”.

This takes us to technology-enabled feedback, where teachers may test and appraise new online resources depending on the type of feedback or modality best suited to student needs. There is a substantial leap to make, however, to the increasingly widespread practice of digital feedback and its incumbent expectations from teachers and students. Digital feedback is provided via electronic devices in different modalities, that is, audio, video or – the most common one – written feedback, totally excluding paper and pencil from the process. Although technology-enabled feedback has recently become ubiquitous, it is more than a decade since Burrows and Shortis (2011) trialled semi-automated collaborative and feedback systems in Australia and reported on staff perception of features, usability and preferences on features. The effectiveness of e-assessment feedback was found to be a core theme of higher education research in Evans’ (2013) thematic review. Despite 100 articles identified in the previous decade, Evans reported a lack of research on students’ use and perceptions of the value of e-feedback, cultural beliefs on expert knowledge and affordances of e-feedback.

Recently, instigated by the emergency response that prevailed during the pandemic, academic writing supervision (i.e., the process of task setting, feedback, and revision) moved online resulting in students and teachers being pushed to upskill and hone digital feedback strategies. A common understanding is that feedback is crucial for student learning (Han & Xu, 2020), as it is for the ratings teachers receive on their institutional performance on teaching as judged by their students (Giraldo, 2018; Padilla & López, 2019). However, a shared understanding of feedback has remained relatively unexplored. Hyland (2013) found that students in Hong Kong University expected feedback on language. The lecturers, on the other hand, offered feedback on the discipline content; a finding echoed in Leong and Lee’s (2018) study in Singapore, which reported that individual students’ needs were possibly left unmet through a lack of common understanding. Since increasing numbers of teachers and students in higher education experience the affordances and challenges of writing and receiving feedback online, more research to develop a shared understanding of the roles digital technologies play in undergraduate (UG) and postgraduate (PG) study is necessary.

The question that arises, but has been barely studied, is that of alignment between the perceptions of teachers and students of LMS digital technology for feedback in the same time frame and context. For example, Deeley (2018) looked at educational technology, feedback and alignment but only for students. The individual detail of perceived assessment and feedback practices is much reported on and thus was not the focus of our study, but rather the orientation of the participants (teachers and students) towards migrating online in a short space of time. Technology-enabled processes would be of greater interest to contribute to an under-researched but increasingly essential area of higher education across Australasia. A clear sign of this gap is the absence of a digital feedback question in the Student Experience Survey National Report conducted annually by the Quality Indicators for Learning and Teaching (QILT, 2021, 2022) from the Australian Federal Department of Education. QILT lacks questions on digital feedback and on digital feedback alignment, deeming it imperative to examine the alignment of student and teacher orientation towards technology-enhanced feedback practices, needs and preferences.

The context for teaching and learning has been characterised at macro and micro levels (e.g., Turner & Purpura, 2016), and an increased awareness of the situated nature of learning (e.g., Brookhart et al., 2006) extends to assessment and feedback (e.g., Xu & Brown, 2016). In higher education research, Ajjawi et al. (2017) put forward the idea that contextual differences could be the difference between successful feedback in different settings. They called for a greater understanding of the limitations and affordances of successful feedback within a broader system, which they interpreted as scrutinising teachers and students in their context. In that vein, student agency has been theorised through four lenses, the most relevant being an ecological lens that includes the temporal aspects of context. Nieminen et al. (2022, p. 106) concluded that it is wrong to “assume the student – or indeed the teacher – is the only key to effective feedback” and subsequently called for research within communities in higher education. Leung (2020) has also called for research into learner responses to feedback in specific curricular contexts, and while Xu & Brown (2016) studied the effect of context on actual teacher assessment and feedback, Ajjawi et al.’s (2017) work considered contextual influences on both teacher feedback practices and learner responses; however, their focus remained on an imagined hypothetical learner at various stages of a course.

Here we focus on writing and digital feedback, in the context of broader academic training since research training (that includes supervision) comprises many stages along a continuum. We take the broad view that, in UG and PhD levels, requesting, receiving and providing feedback on assessments is a form of supervision that informs students’ academic socialisation (Duff, 2010). Our study stands out and adds to previous technology-enabled feedback research as two surveys were distributed with similar questions, after the same 2022 semester to university teachers and students across levels within the same faculty (see QR codes in Appendix A). Through the surveys, the study explored self-reporting on practice, needs and preferences with regards to technology-enabled feedback on academic writing and how teachers and learners orient towards relevant academic performance information that supports agentic and responsible learners (a social-constructivist approach to feedback literacy) within their disciplinary contexts and cultures (Malecka et al., 2022).

Literature review

From a theoretical perspective, our three-part study drew on Sutton’s (2012) conceptualisation of feedback literacy: the category of experience, or “acting”, as practical dimension of feedback; the category of needs, related to self-awareness, and Sutton’s term knowing as an epistemological dimension of feedback; and last of all preference, which inserts an ontological dimension that Sutton terms as being.

Alignment of feedback practices

Since the seminal work by Biggs (1996), constructive alignment has been widely applied in higher education because it combines a practical framework for decision-making in instructional design with objective goal-setting for assessing and reporting on student performance. In a thematic analysis of research on higher education feedback from 2000 to 2012, Evans (2013) found a few research studies, in

the United Kingdom and Australia, where methods of assessment and feedback were being constructively aligned with learning objectives (e.g., Boud & Associates, 2010). It appears, however, that although curriculum and assessment were a strong focus of alignment research, feedback alignment between student needs and teacher practices were not a strong thread in the discussions until more recently (Mercader et al., 2020). In an Australian study, students did not understand authentic feedback comments, due to a lack of alignment between teacher intent and student understanding of what was meant by the feedback. The implications were that comments need to be clear and specific for successful student-centred learning (Ryan et al., 2022).

It appears there is a need for an innovative feedback study unveiling student needs and teacher practices that, as suggested by Ajjawi et al. (2019), would report on research beyond good feedback correlating with marks increasing and student satisfaction. Observing and understanding feedback variables in context are critical to improving feedback. To our knowledge, no comprehensive institutional study in higher education exists with co-temporal data from teacher and student responses on writing and feedback in the digital space: that is, online and not on paper. This study endeavours to fill that gap with a three-pronged case study from a single university context that, beyond the analysis of survey responses, examined the alignment of student and teacher perspectives on feedback across needs, preferences and practices – key factors in defining student and teacher feedback literacy in higher education (Henderson, Ryan, & Phillips, 2019; Sutton, 2012; Yu & Liu, 2021). For this context, we used Carless and Boud's (2018) two-way feedback literacy definition involving a teacher's ability to effectively provide students with feedback and for students to understand it and use it for learning or improving. What's more this paradigm shift, from feedback as information to feedback as a two-way process and (re)action (Henderson, Phillips et al., 2019), has been shown to help students revise and improve academic writing (Chong, 2021) and therefore enhance the feedback literacy defined above.

Feedback needs and self-awareness

Boud and Molloy (2013) offered two models where teachers and students drive their own feedback needs: one positions teachers as drivers of feedback; the other positions learners as key drivers in learning, thus learning through an awareness of their feedback needs. The model draws on sustainable assessment, making processes more efficient and effective. It is achieved by aligning teacher feedback with learners' individual priorities (Ducasse & Hill, 2019). In addition, such student agency provides life skills applicable beyond the task (e.g., Stenhalt & Lassesen, 2022), critical review on agency and student learning, which call for research to move agency literature forward. Hence, learners who are aware of their needs can elicit feedback to support their learning (Malecka et al., 2022).

Feedback preferences

A report on the impact of increased student feedback literacy in higher education (Wei et al., 2021) looked at such student feedback preferences. The findings showed that senior students prefer a learning-centred and feed-forward approach with more self-assessment and are willing to direct feedback processes. It is difficult, however, to locate a study where these considerations from the student and teacher perspective have been explored contemporaneously.

Guided by the literature review, three research questions emerged for a study that is not a meta-analysis or a one-size-fits-all intervention but a survey with frequent invitations to comment:

- (1) What digital feedback and assessment practices are reported by teachers and students in Australian higher education?
- (2) What e-feedback needs are self-declared through teachers' and students' self-awareness of assessment practices in that context?
- (3) What e-feedback preferences are reported by teachers and students?

Methodology

Research context

The research took place in one university in the discipline area of Global Urban and Social Studies (GUSS) with around 2000 students, 86 of whom responded to the invitation to participate. Teachers who are also PhD supervisors teach across UG and/or PG courses with research component workloads. Some teachers teach across two languages (e.g., English and another additional language, such as Spanish, French, Chinese or Japanese). Since the surveys were anonymous, it is important to clarify that students have a high chance of learning in English and an additional language (compulsory in one UG and one PG degree), and for teachers to also be teaching in English or an additional language. This is a particular feature of our context in GUSS; therefore, responses on feedback may include some provided in different languages. Feedback on writing in language learning contexts has always been widely studied (e.g., Sheen, 2011, for English, or Fernández, 2022, for Spanish), but the crossover or cross-fertilisation between second language writing and higher education feedback research spans a decade (Yu et al., 2023).

Participants

Prospective participants from all levels in GUSS were recruited online via centrally sent email invitations containing a survey link, available on mobile devices or computers, for either teachers or students. After course completion and mark finalisation, participants opted in to complete the surveys, which remained open for 1 month. The data from 86 students and 32 teachers who completed the entire survey were saved (partially completed surveys were excluded); then, both surveys were closed.

Since one of the challenges when researching digital feedback is to understand the context (e.g., Ajjawi et al., 2017), we collected participants' biodata (see Appendix B). Students responded about their course, level of study, age, gender and previous study. Student biodata showed that 94% were enrolled in a bachelor's degree, with the remainder (6%) undergoing supervision in PG or other studies. Nearly half (42%) were first-year students, 22% were second-year, 26% were third-year and the remaining 10% were fourth- to sixth-year from honours to doctoral candidates. Before their programme, 61% had completed certificates and diplomas as a pathway, 32% had completed UG degrees and 7% had a masters' degree. Of the respondents, 80% were female, 14% were male and 6% other. Three quarters (74%) were between the ages of 16 and 24 and the remaining 26% were 25 to 40.

Teachers reported on the courses and levels taught, age, gender and qualifications. Most of them (77%) taught bachelor's degrees, 7% taught a master's degree, 4% a PhD and 12% other, meaning they taught both bachelor and master's degrees. Half (52%) taught first-year, the remainder (second year, 22%) and third year (11%). The remaining 15% taught fourth and fifth year, which could be an honours year specialisation, master's degree or PhD supervision. Of the teachers, 68% held a PhD, 16% a bachelor's degree, 10% a master's degree and 6% a postdoctoral qualification. Most of the teachers (35%) were over 50, 29% were between the ages of 41 and 50, 26% between 31 and 40 and 10% under 30. Surprisingly, the teachers' gender was more distributed than that of the students: 55% were female, 42% male and 3% other.

Survey instrument

As a Spanish project gathering international data, it was coordinated by a Spanish university, and the surveys were elaborated and validated in the Spanish language; hence, the survey input was international and European and in the two languages for distribution: English and Spanish. The categories and dimensions in the questions were informed by three earlier surveys used as a guide. The first survey on learning from digital aspects was on School Education Gateway (n.d.), a European online platform. The other two surveys are international: European and Ibero-American. The former, a European writing survey, comprises eight questions with several items each (Castelló, 2015). Other researchers will ask the items related to writing in our study (questions 2e, 2f, 3a, 3b, 5a and 8) for a post-pandemic longitudinal

overview over 8 years. The latter informs items referring to perceptions about feedback on written texts, adapted from an academic reading and writing practices survey in Colombian universities (Pérez & Rincón, 2013).

We obtained ethics clearance for the teacher and student surveys from the Research Unit of the three partner universities, where it was to be distributed in Spanish. The surveys begin with the plain language statement and written consent in which anonymity is guaranteed. Each section corresponds to one of three research questions. (Appendix A contains QR codes for both surveys.) For the design of the research scope, a specification matrix was formulated and reviewed several times by two statistical experts. The first part referring to feedback experience comprises four questions, the first with 13 items. In the first part related to feedback experience, each question referred to in parentheses was designed to analyse the following five dimensions of feedback: presence in courses (1a, 1b), types of assessments (1c, 1d, 1e, 1f, 1g, 1h, 1j, 1k), agency (1e, 1f, 1i, 1j), the object (2a, 2b, 2c) and revision habits (3, 4). In the second part, referring to self-perception and needs, three dimensions are considered: domain or competence (5a, 5b, 5c, 5d, 5e, 5f), difficulty (5a, 5b, 5d, 5e) and need detection (5g). Finally, in the third part, two dimensions are identified: preferences or desire (6a, 6b, 6c, 6d, 6e, 6f) and suggestions (6g, 6h, 6i, 6j, 6k).

For the validation process, a colleague in Spain (C. L. F.) and the author of the survey (M. T. M. G.) organised distribution for comments by a panel of experts. The survey was sent to 10 experts (five national and five international). We received a specifications matrix, two versions of the survey and an evaluation form in which each item was marked as "adequate/inadequate" for commenting on their reasons for their choice. Six responses (four national and two international) were returned. To strengthen validity, we convened a research seminar with five experts in person and one online. All participated in the discussion and provided comments to improve the survey. The reliability of the questionnaire was verified by obtaining agreement among the experts (McMillan & Schumacher, 2005). The survey was tested on a pilot basis with students and teachers to ensure the language used was simple and clear.

Once all changes were made to the original version for distribution in Spanish, A. M. D. (a bilingual native speaker of Spanish and English working in the Spanish programme of the Australian partner university) entered the revised survey into Qualtrics in Spanish and then translated it into English for distribution.

Data analysis

The responses are analysed quantitatively in terms of frequency, and the data presented through descriptive tables obtained in Excel for questions 1, 5 and 6 (student survey) and 1, 4 and 5 (teacher survey). The qualitative thematic analysis was carried out using the qualitative software ATLAS.ti, version 23 (San Martin, 2014).

Content analysis

The responses to open-ended questions have been analysed following a content analysis (Schreier, 2012) protocol. We adopted an iterative process of coding (Gibbs, 2012, p. 44), applied to the three parts of the survey. The data were coded initially by two of us, each one categorising separately. Afterwards, discrepancies in their analysis were discussed. As a result, the group of categories and subcategories were further refined, and consensus was reached on nine groups of categories for the final analysis.

The free-text prompts for the content analysis are set out in three sections (see Appendix C): Part I on previous experience of feedback; Part II on self-perception and needs; and Part III on digital feedback preferences.

Findings

Technology-enabled feedback: Survey

In this section, we report the practical side of Sutton’s (2012) feedback dimension, the teacher and student feedback experience through feedback practice, responding to research question 1: What digital feedback and assessment practices are reported by teachers and students in an Australian higher education context?

Teachers

Teacher views were gathered from 12 survey questions, some of which were open-ended. Figure 1 summarises the results, left for *never or almost never*, centre for *usually*, and right for *always or almost always*.

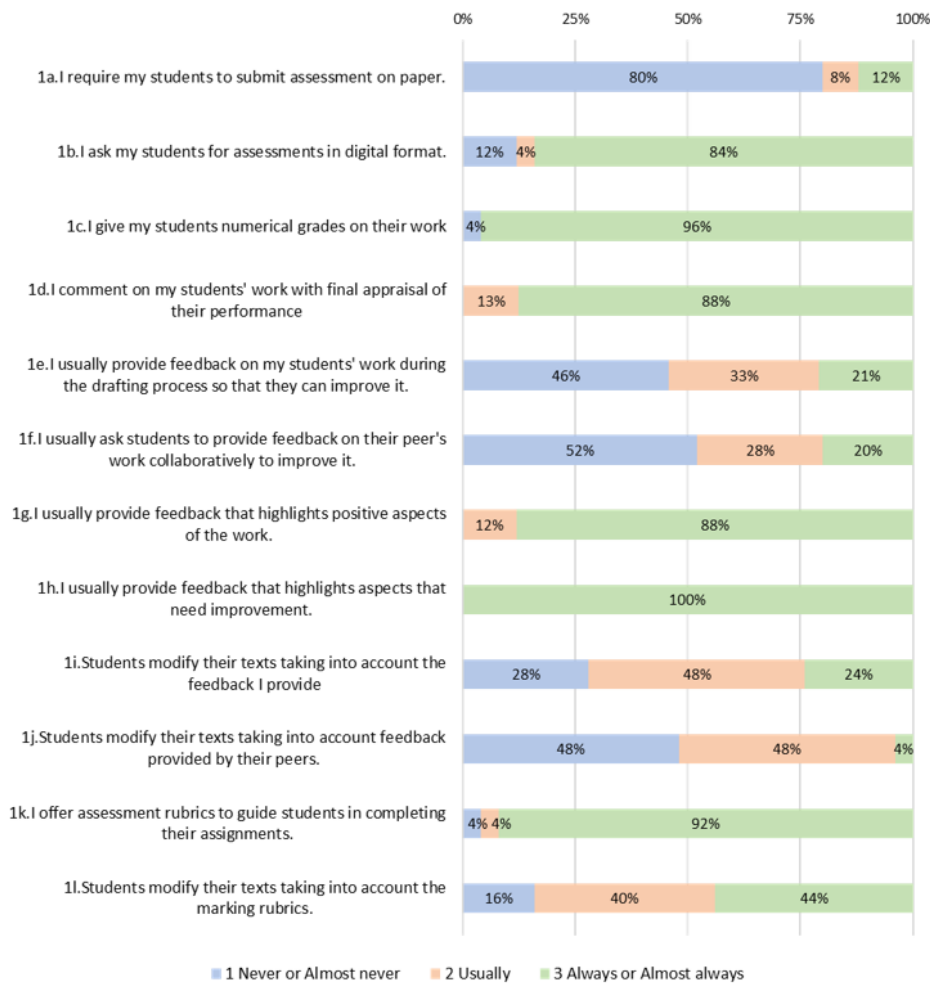


Figure 1. Teacher-reported feedback experience

The teachers’ self-report of practice indicated that they perceived that digital feedback was taken up in question (1a) (from here question numbers appear in brackets) and applied to future submissions. Unsurprisingly, post-COVID most tasks (1b) were submitted digitally (84%) on the LMS (i.e., Canvas), with few hard copy submissions. Feedback was commonly provided by praise from the teacher, elements to improve and final encouragement. The high response of *always or almost always* applied to a number of survey responses, for example, (1d), (1g) and (1h), where hypothetically all these situations could apply concurrently to the same student feedback sheet. Numbers were low for formative feedback on drafts (1e) for resubmission using the task assessment criteria, at around a 50/50 split on drafting for

resubmission, after peer feedback (1j). It may mean that there was little resubmission with work on drafts either with peer or teacher feedback. The feedback appeared to be summative and final with little dialogue during the process as a final numerical grade (1c, 96%), and comment on a final appraisal (1d, 88%).

Students

The student perspective was garnered from questions including some free-text options. In Figure 2, we show the most relevant findings. From 86 student respondents, 61% receive feedback from teachers on drafts, but the 66% rarely or never receive any chance to resubmit. Students rarely or never (81%) receive peer feedback (1h) on their writing, but of those that do (1o) more than half used peer feedback to improve their work. Most students report using teacher feedback (1n) and assessment tools to write and improve (1p, 1q) their work. The type of feedback received by most students is on their strengths (1j), weaknesses (1i) and how to improve (1k). UG students may use the criteria or marking sheet available for each assessment (1p) (a compulsory standard for university teachers) to ensure they meet the assessment criteria but not to further redraft or improve after teacher feedback.

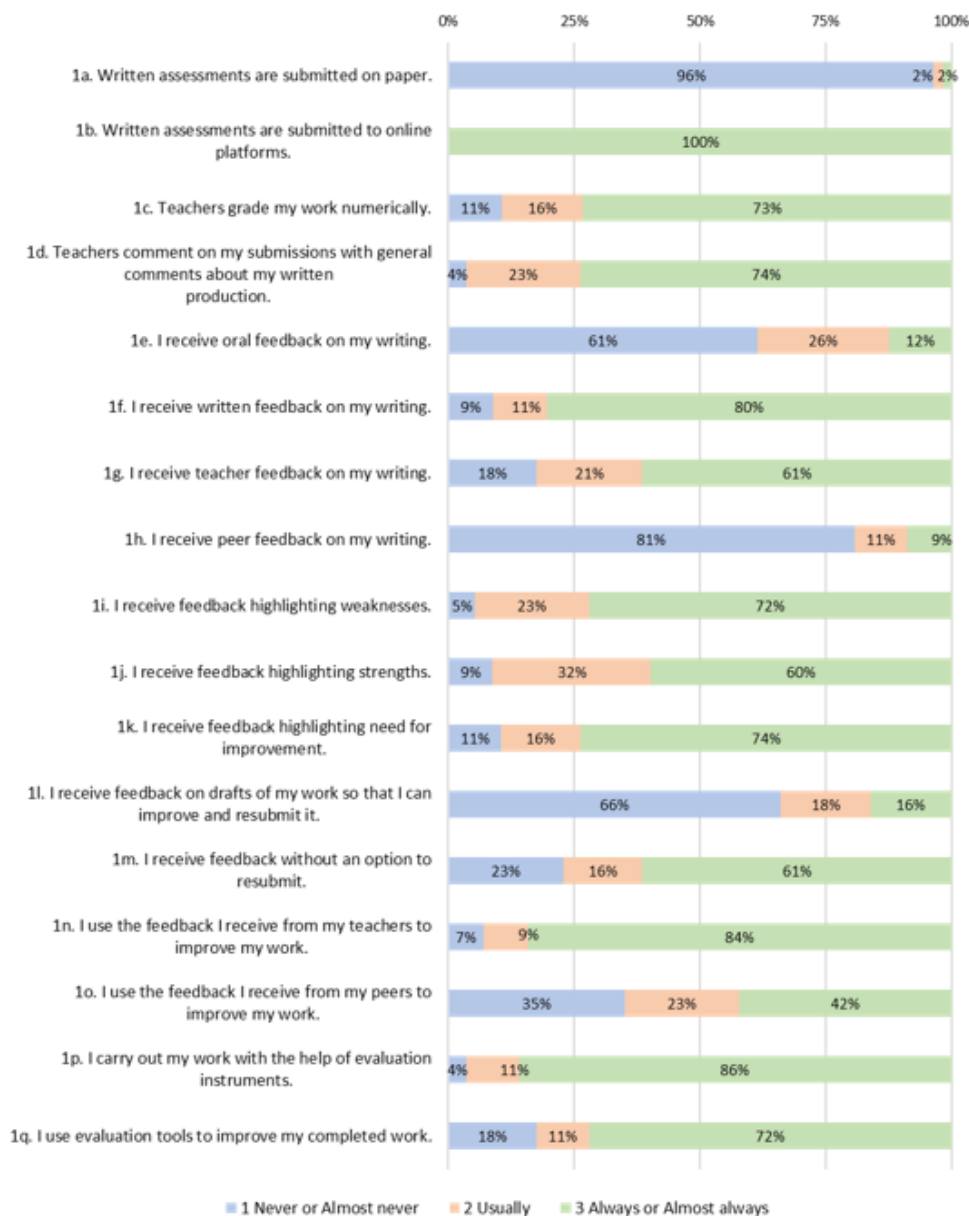


Figure 2. Student-reported feedback experience

The digital resources students used to review work were text editing applications (such as the Microsoft Word corrector), followed by dictionaries or a thesaurus and comments. Students reported that teachers provided feedback on written work mainly in the LMS (Canvas) followed by email and voice messages. The modifications to writing made based on feedback covered language use, referencing and depth of writing on a topic.

Variation of expectations across subjects also caused students difficulty, as seen from the following free-text quotes:

How in depth I go, though difficult with restricted words limit e.g., one teacher's expectation of 'adequate depth' is completely different to another teacher's expectation.

Often changing the way I do something for a particular subject; a lot of feedback and expectations, I can't generalise across subjects.

The optional comments are very personal and specific, not allowing generalisation, but they raise some of the challenges of digital feedback. Students with personal difficulties or with an interest in engaging with digital feedback elaborated on the challenges and affordances in their context. The following quote shows a student's reliance on a tool to pass written assignments:

I am a really poor speller and inaccurate typer so I use Grammarly to highlight words that have auto corrected to the wrong one, double spaces, punctuation and difficult to read sentences. I regret listening to one teacher this semester that said quite firmly that Grammarly was not an appropriate tool for university, it is a virus when people use it because of the language and there is no place for it. I suggested why I use it and he said ... just don't. The assignment I didn't use it for was my worst mark yet because I had grammatical errors and wrong words.

The issue presented by the above student shows a means of correcting writing and grammar with a tool that is rejected by teachers. Spelling, punctuation and other surface errors can be edited with a wide range of accessible tools. Dictionaries were not banned as a writing support in the past, but the more advanced forms of technology-enhanced text editing have not yet earned a place for the teacher. The affordance results in a text unencumbered by superficial errors where the message is transmitted clearly.

In fact, students presenting with such difficulties can request equitable learning plans (following professional assessment) to support them with reasonable adjustments. Other support mechanisms referred to librarians who provide supplementary feedback:

Help from online Librarians as I have a learning Plan. Proofread and offer feedback about structure, content, language and referencing.

Another area of difficulty for students was interpreting a rubric (provided online), for example:

Some teachers provide in class support for interpreting the rubric.

This is not an easy task, without an explanation and practice; however, not all teachers offer students the opportunity.

In the following quote, the student shows an awareness of tutors' management of feedback within the LMS. The fact it has improved suggests that tutors are learning to use the system, and once they are more comfortable, more feedback is provided digitally:

Feedback has improved this semester with quite a lot of detail, I notice some tutors are coming back later after marks are released and adding additional feedback which is great.

Communication regarding feedback is difficult using the comment button when feedback is given as I have never received a response. When I speak to teachers, they say they don't get notifications of comments so don't know they are there. If this is a function that doesn't work, then it shouldn't be active as student such as me feel we are being ignored or aren't important.

The challenges in this case are students trying to interact around feedback processes, but tutors may be unaware of the notification settings for email or mobile alerts, apart from not expecting or intending to interact over feedback.

Technology-enabled feedback: Content analysis

For the content analysis on previous experience of technology-enabled feedback, two macro categories of analysis were established: the types of digital resources used to provide feedback and the digital feedback resource characteristics. Each was broken into subcategories that emerged to code the survey free-text responses (set out in Appendix D).

The content analysis shows teachers have the vocabulary to describe the tools used for feedback. Teachers refer to the feedback tools provided for mobile learning inside the LMS – various learning technologies where digital instructions, submission, feedback and grading are provided for assessment tasks. From the self-reporting, teachers employ a range of different types of learning technology for feedback. This exemplifies the diversity within educational technology ecology (in accordance with Bower, 2016). This supports findings for technology used for the evaluation of learning, where feedback (within pedagogy) comprised 11% of the themes emerging from a review of 365 papers in Lai and Bower (2019).

The students use the feedback digital tools recommended by their teachers, as in Appendix D. It is astonishing to see the responses relating to class or face-to-face feedback, to questions on digital resources, but on the other hand, perhaps respondents were so absorbed in the survey on previous feedback experiences that they forgot the digital focus. Although teachers name a wide range of tools, some of which overlap; in contrast, students used digital editing resources which are not mentioned by teachers.

As in Yang et al. (2022), our study also indicates that automatic digital scaffolding tools were not readily available at the time of our research, although it was possible to provide one-to-one feedback and support for academic writing in technology-enhanced learning environments using the LMS. Students supported by their teachers need to be sufficiently capable of applying each tool according to its application. "After all, the type of learning that results from using a tool depends on the task and how the tool is used, not on the technology itself" (Yang et al., 2022, p. 30).

Feedback needs: Survey

The second research question was on feedback needs expressed through Australian higher education teachers' and students' self-awareness on assessment practices. This question relates to the feedback literacy epistemological dimension of self-awareness established by Sutton (2012).

Teachers

In Figure 3, the most relevant findings, from the teachers' perspective, are that students can:

- understand the feedback they receive on their academic work (67%)
- use the feedback they receive to improve their writing in general (71%)
- solve errors or problems in their academic work autonomously with the feedback they receive (58%).

On the contrary, 75% of teachers consider that students do not complain about corrections and comments on aspects of their work that need to be changed, a figure that does not align with that of the students.

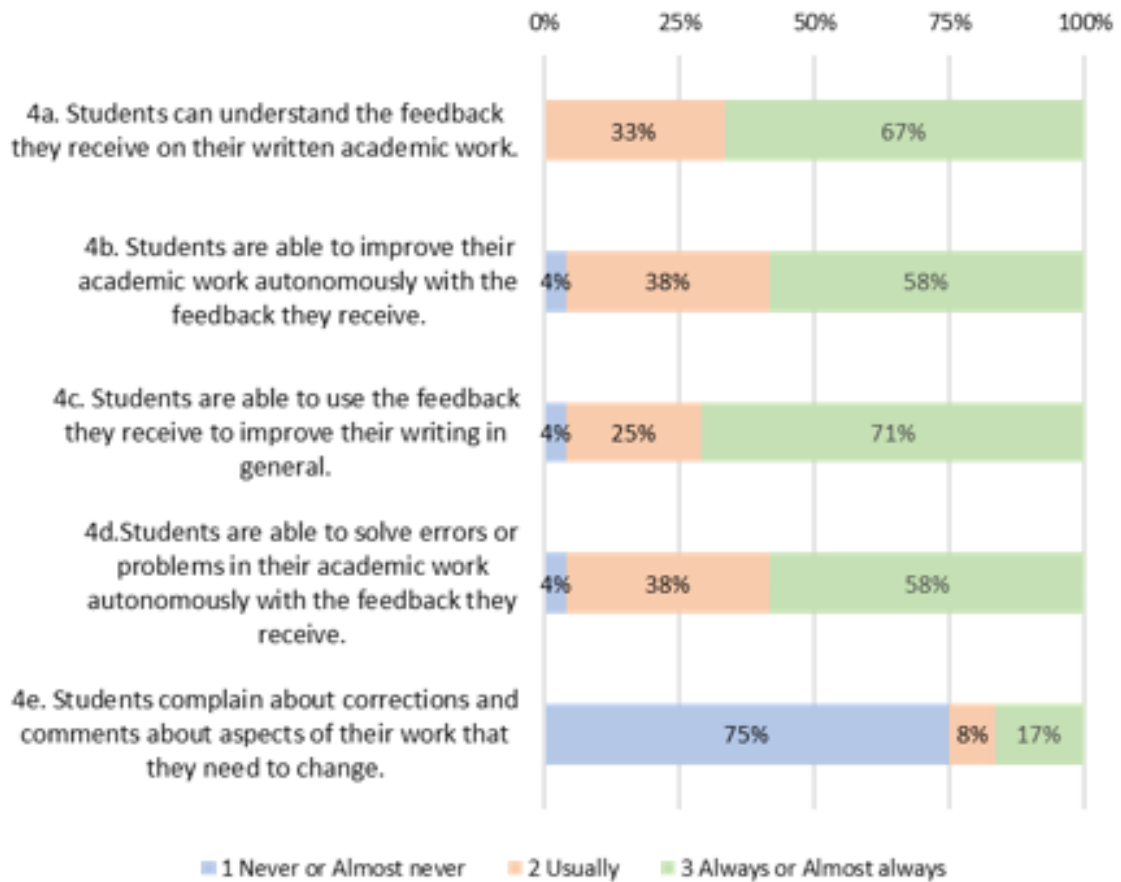


Figure 3. Teacher-reported feedback needs

Students

Results show that students and teachers could learn how to deal with corrections and comments about the specific aspects of students’ work that need improvement, from feedback. There is no alignment between the self-perception of students on how they react when faced with aspects of their work that need improvement: as we said, teachers claim that students do not complain about corrections and comments on how to improve their writing (75%) but students responded (in 5h) that they “feel bad when I get a lot of corrections and comments about aspects of my work that I need to change” (49%). In this vein, they would prefer not to have a lot of negative comments and corrections on their writing, since 43% responded *never or almost never* (5g). These results are in Figure 4.

It is worth highlighting the high level of self-awareness that students have related to their “feedback literacy”: they consider themselves autonomous, “capable of identifying [their] successes and also the errors or problems of [their work] autonomously” (5f) and feel competent to “understand the feedback [they] receive” (5a), and use it to “improve [their] academic work” (5c). This coincides with the perceptions teachers have about students making the most of their feedback.

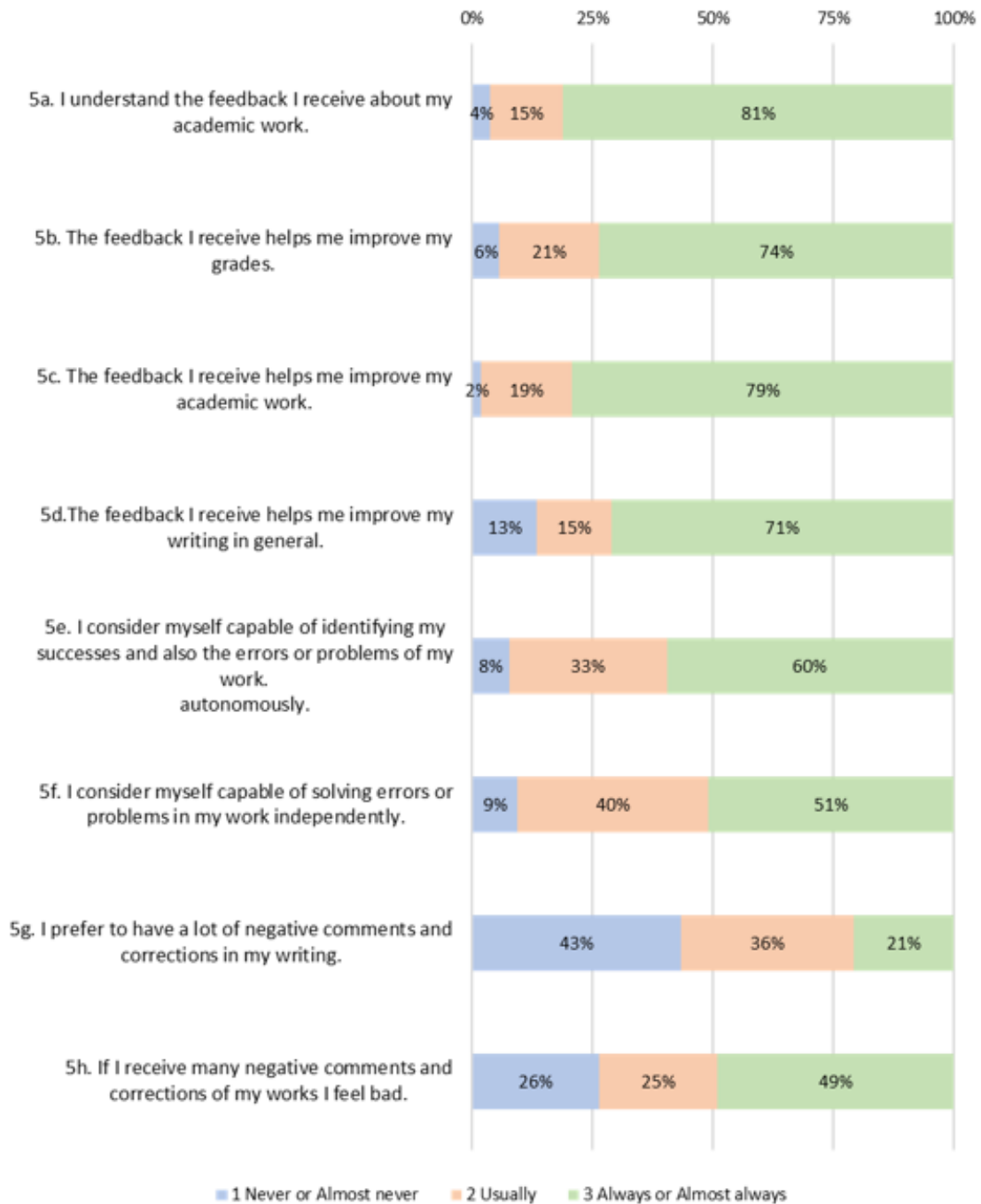


Figure 4. Student-reported feedback needs

Feedback needs and strategies: Content analysis

The analysis of the open-ended questions with ATLAS.ti provides greater depth to the responses, showing that there are differences in types of feedback: students highlight individual feedback needs (such as punctuation, sentences), in contrast with the needs expressed by teachers, as in the following example:

Post-graduate studies require a lot of drafts prepared by the students and receiving frequent feedback to improve the content, flow, structure.

These differences appear in Table 1 .

Table 1
Student (STU) and teacher (TEA) comments on feedback needs

Analysis themes	Student comments (n = 176)	Teacher comments (n = 139)
Global feedback need (n = 4)	2	2
Local feedback need (n = 11)	8	3
Total	10	5

Student (EST) and teacher (PROF) comments on feedback needs

Students also need affective strategies, which are not mentioned by teachers. The teachers mentioned sociocultural feedback strategies and academic socialisation comments (Table 2):

I provide both collective and individual feedback.

With regard to feedback strategies, the open-ended questions to teachers (“What do you think students would need to be able to check their work?”) and students (“If I don’t know how to deal with the feedback I receive from my work, what would I need to know how to do it?”) both emphasise cognitive feedback strategies, as one student expressed:

Step-by-step instructions, reference to third party resources, provide examples.

Table 2
Student (STU) and teacher (TEA) comments on feedback strategies

Analysis themes	Student comments (n = 176)	Teacher comments (n = 139)
Affective feedback strategies (n = 3)	3	0
Behavioural feedback strategies (n = 8)	7	1
Cognitive feedback strategies (n = 26)	22	4
Sociocultural feedback strategies (n = 2)	0	2
Total	32	7

Feedback preferences: Survey

Finally, the third question on technology-enhanced feedback preferences from teachers and students illustrates the being or the ontological dimension (Sutton, 2012): their preferences and desires.

Teachers

Figure 5 shows the highest level of agreement between teachers is in their wish not to have numerical grades (73%), which contrasts with the desire of 81% of the students to obtain numerical grades. These are polarising responses. Students view feedback as an object, information, or a number. However, teachers prefer comments, and construct feedback as a process, through communication, not a final immutable object. The second aspect of greater unanimity among teachers is the desire to have digital tools that facilitate the feedback process. In this case, there is alignment with students, although 65% of the teachers want digital tools, compared to 92% of the students, who exceed it by 27%.

On the other hand, it is worth noting that teachers are in least agreement on collaborative work (5c, 5d): 36% chose the option *usually* for individual work and 35% for group work; but a total of 41% prefer individual assessment and a total of 43% would not choose group work. The students are more strongly in favour of working individually (73%, 6e) and reject collaborative work quite strongly by 50% (6f). In an Australian context, the number of international students in a cohort may influence these responses from both students and teachers.

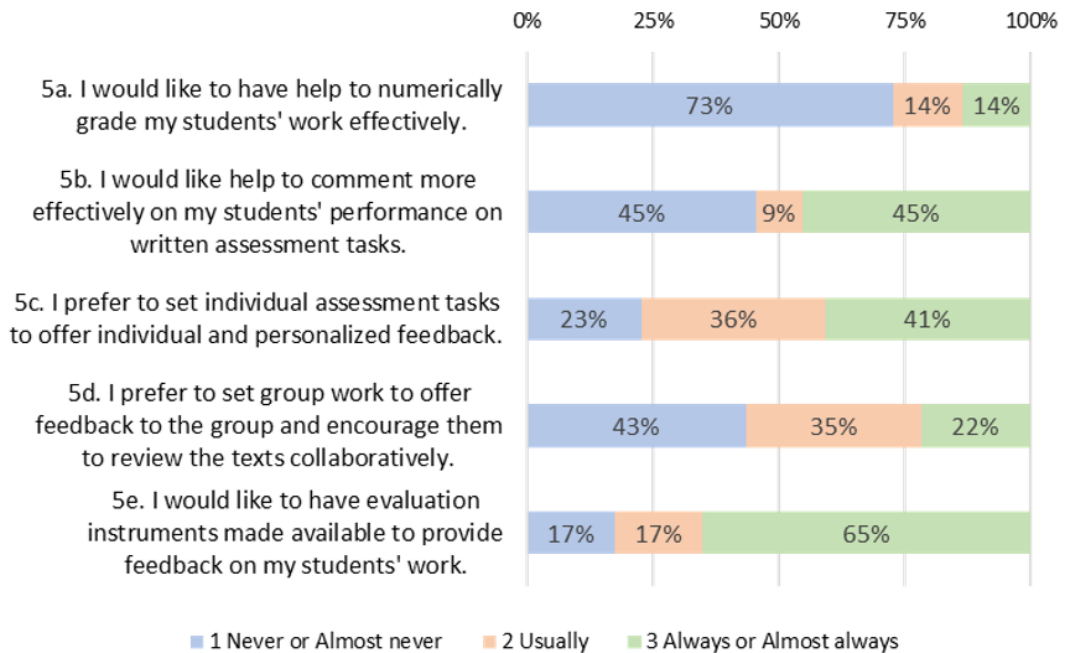


Figure 5. Teacher-reported feedback preferences

Students

What is remarkable about the students' results in Figure 6 is that they prefer the feedback of their teachers to that of their peers (78%), as opposed to only 25% who state that they prefer that of their peers. This could be due to cultural beliefs that they only learn from the teacher, or because of previous bad experiences of peer feedback or not being offered the opportunity or trained to provide it in class.

The second preference is that students desire to receive quantitative feedback (81%) prevails over their desire to receive comments (71%), although there is only a difference of 10%. Moreover, what stands out is that they would like to receive such feedback during the process (78%), so that they can improve their assignments, rather than receiving it only at the end of the process (71%), with a 7% difference. Students want to use digital feedback for learning and as such are claiming agency and participation in feedback and drafting processes.

Finally, we believe that the last two questions are a wake-up call for the educational community, due to the 82% high level of demand for help with assessment tools (e.g., rubrics, checklists, portfolios). The greatest demand is for clearer feedback (92%) to help learners visualise their mistakes and improve their writing, as Figure 6 shows.

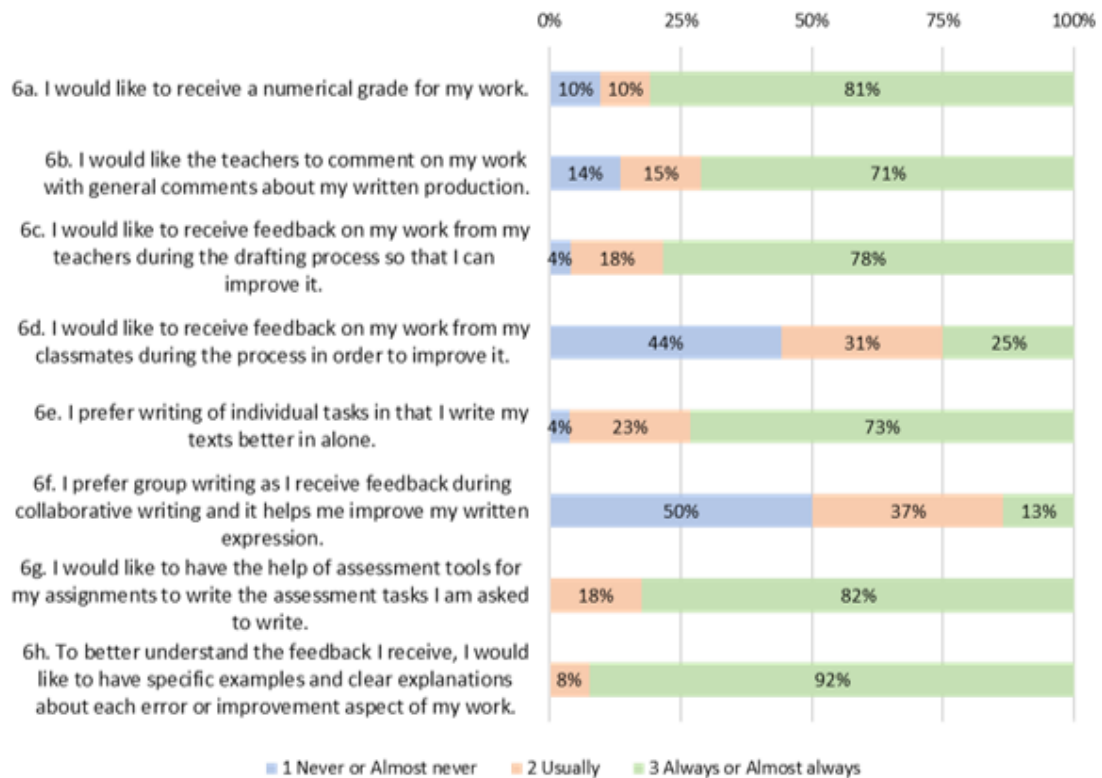


Figure 6. Student-reported feedback preferences

Feedback preferences: Content analysis

The comments on the type of feedback preferred were in favour of direct feedback (Table 3). The clarity of the feedback is one of the main concerns of the students, who state that they do not understand the comments made to them by their teachers. This clarity is also lacking in the task instructions themselves. In the quote below, a student states their difficulties and glimpses of what they would like to be offered:

Doing well on an assignment is difficult if I have no idea what it is supposed to look like, or how academic it is supposed to be. If I don't hit the mark on an assignment, then progressing to the next level is difficult because I still don't have an idea of what it should look like.

Table 3
Student (STU) and teacher (TEA) comments on preferred feedback types

Analysis themes	Student comments (n = 176)	Teacher comments (n = 139)
Direct preferred feedback types (n = 8)	6	2
Indirect preferred feedback types (n = 0)	0	0
Total	6	2

There is one reference for the audio modality (Table 4); however, it is noteworthy that the preferred feedback content is positive (Table 5). Faced with negative feedback, students prefer to receive encouraging messages, as in the perceptive words of one student:

Not just how I am wrong, but how can I make it right.

The following quote reinforces the importance of the effectiveness that positive messages produce for them:

Be compassionate and not make you feel more dumb, then you probably afraid.

Table 4
 Student (STU) and teacher (TEA) comments on preferred feedback modality

Analysis themes	Student comments (n = 176)	Teacher comments (n = 139)
Audio-preferred feedback (n = 1)	0	1
Oral-preferred feedback modality (n = 0)	0	0
Written-preferred feedback modality (n = 0)	0	0
Total	0	1

Table 5
 Student (STU) and teacher (TEA) comments on preferred feedback content

Analysis themes	Student comments (n = 176)	Teacher comments (n = 139)
Negative preferred feedback content (n = 1)	1	0
Non-selective preferred feedback content (n = 0)	0	0
Positive preferred feedback content (n = 8)	7	1

From the content analysis, challenges and affordances were remarked upon, as shown in Table 6. Ajjawi et al. (2019) asked questions about the impact of digital feedback: did digital feedback make a difference? and if so, how did we identify that? One student highlighted the benefit of digital tools (“I am a really poor speller and inaccurate typer so I use Grammarly to highlight words that have auto corrected to the wrong one, double spaces, punctuation and difficult to read sentences”), but Table 6 mainly shows challenges to resolve. Nevertheless, both student and teacher data point to digital feedback being comprehensible and helpful for improving work.

Table 6
 Student (STU) and teacher (TEA) comments on feedback evaluation

Analysis themes	Student comments (n = 176)	Teacher comments (n = 139)
Affordances (n = 8)	1	7
Challenges (n = 53)	13	40
Total	14	47

Discussion

The aim of the study was to examine the use, adoption and integration of technology in teacher digital feedback and assessment practices for academic writing in UG and PG supervision. We examined these alongside students’ perception of technology-enhanced feedback and assessment practices in UG and PG levels. The findings provoked discussion on the role of alignment as a mediator for this relationship via quantitative outcomes with supporting thematic analysis. Through an alignment lens, we compared student and teacher results across three themed research questions.

Since a component of feedback on writing, or research supervision in a doctoral context, is for supervisors to meet student academic writing needs (Anderson et al., 2018), we checked the three variables reported on – practice, needs and preferences – for alignment amongst the participant groups. A match in understanding equals alignment from both teacher and student perspectives; thus, it could be argued alignment meets participants’ needs. Though these three elements are widely researched (Henderson et al., 2019b, Mercader et al., 2020), this study’s empirical focus combined and compared contemporaneously contextualised data, a differentiating feature of the research.

In fact, although technology-enabled assessment and feedback research has increased (Ajjawi et al., 2022), along with the burgeoning use of artificial intelligent applications (Zawaki-Richter et al., 2019), technology-enabled assessment and feedback practices resulting from increased online course delivery have been reported in only a small number of studies from both teacher and student perspectives (e.g., 45 papers only from 35,864 search returns in a 2022 review by Seraj and Rahmatullah). Thus, the discussion on assessment and feedback practices emanating from our analysis extends technology-enabled feedback research on academic writing at all levels and genres of academic writing culminating with doctoral supervision, and thereby filling gaps that remain, among other things, from a doctoral student perspective (Bégin & Gérard, 2013; Gray & Crosta, 2018).

Students' experience of feedback overall indicates that only 19.3 % always or usually provide peer feedback, which is common (e.g., Espasa & Meneses, 2010) despite a variety of feedback being key to acquiring academic writing skills (Huisman et al., 2019). Students misalign with teachers, 48% of whom report organised peer feedback. It is a sharp difference, and perhaps teachers and students characterise peer feedback differently, which is worth investigating further. Through peer feedback opportunities, students learn to provide and receive feedback in a safe space. After all, the practical implications of these findings are that students should receive and learn to produce quality feedback as a graduate skill (Nicol et al., 2014); even with 50% of teachers thinking that they ask it of their students, that number would need to increase substantially. On drafting and feedback, 54% of teachers report providing feedback on drafts, but 66% of students never or rarely receive feedback on drafts. This could arise from teachers working with more PG students, providing participants with opportunities to frequently provide feedback on drafts (as seen in the quote "Post-graduate studies require a lot of drafts prepared by the students and receiving frequent feedback to improve the content, flow, structure."), in contrast to more UG participants responding to the survey and the responses reflecting the UG curriculum, where there is possibly less opportunity for students to redraft and resubmit.

Teachers and students aligned in their strong belief about students' uptake of the feedback they receive. Both groups consider that students understand feedback, which helps them to improve their written texts. This is surprising, since we need to do more to enable feedback in Australian higher education (Carless & Boud, 2018), and practitioners are under the impression that students are not happy with feedback, as seen in the QILT (2021) report covering the years 2019 to 2021, where students nationally rated the question "teacher comments on work help you learn" at 55% for UG and 62% for PG.

On the other hand, there is no agreement about how students react to negative comments on areas to improve: that is, teachers consider that students do not complain, but students feel bad when they receive many negative appraisals and corrections. Related to feedback needs and strategies, there is a misalignment between the student view of academic writing vis-a-vis the global feedback offered by teachers. Also, affective strategies are highlighted by students (see Molloy et al., 2019, on attending to emotion in feedback); in contrast, teachers emphasise the need for sociocultural strategies, such as interaction in class.

The most remarkable alignment among teachers and students is the preference for individual work versus cooperative work as well as the unanimous claim that digital tools help in the feedback process on written work. In negative terms, the misalignment is equally remarkable: the teachers prefer fewer numerical grades and more overall final comments, as opposed to the students' strong desire for both numerical grades and comments. Students would rather receive comments during the drafting process, not only overall general comments at the end of the assessment process, with a view to improving their competence and their work before submission. In this sense, it is worth noting how there is a high misalignment between what teachers report they do, that is, providing comments for students for them to improve (21%) and what students would like teachers to do, since students (92%) would like to have specific comments for improving their work (6h).

The study partly meets the proposed advances recommended for feedback research in higher education with regards to student and teacher practices with a focus on exploring the specific information they

perceive to support their needs and preferences relevant to their context (Ajjawi et al., 2019). The teacher survey was distributed within a particular disciplinary area, so it explores the influence of disciplinary cultures, another of the Ajjawi et al. (2019) recommendations for research. Our implications fall in line with other research in this area. The misalignment of needs and preferences impact on teacher and student experience in this context implying a need to increase dialogue (Nicol, 2014) and incorporate student agency in feedback practices (Nieminen et al., 2022).

Students would prefer a greater understanding of the assessment criteria (Brookhart, 2018) and more feedback during the drafting process (Basturkmen et al., 2014). In contrast, teachers would prefer greater access to assessment and marking tools (e-rubrics, checklists, e-portfolios), which might enable time-efficient formative feedback (Henderson, Ryan, & Phillips, 2019) during assessment drafting processes – more common practice the higher the qualification and the greater the amount of writing required.

Conclusions and further work

In sum, this paper has characterised the field of digital feedback on academic writing in UG and PG supervision across three overarching themes: practices, needs and preferences. The survey of higher education students and teachers in an Australian university shows that digital feedback with appropriate technological tools is feasible and has been adopted to varying degrees. Although some of the responses showed a sharp misalignment between teachers and students for needs and preferences, showing needs were not being met for both sides, practice for the most part aligned more closely. The surveys have provided valuable insights in a point in time with regards to digital feedback in the same context. The key finding is that teachers and students agree on the fact that students understand the feedback and feel capable of acting on it, which is a challenge to be met by practitioners providing technology-enhanced feedback. The surveys have served as a pilot from which to build on for research in this area, which also expands knowledge on Evans' (2013) call for students' and teachers' use and perceptions of the value of e-feedback, cultural beliefs on expert knowledge and affordances of e-feedback.

The main limitation of this study, due to its ecological approach, is that only one university was involved. Future research plans include distribution in Europe and South America to broaden knowledge on digital feedback from diverse contexts and to gather data not only from different countries and appreciate their digital feedback culture but also from various courses, such as theoretical and practical courses, to delve into possible disciplinary differences. The survey was also not designed to capture information on feedback agentic process where students take the lead or request feedback, so this could be taken up by future research.

We hope that the results of the digital feedback pedagogical experience can encourage many educators to further reflect on their context and the perceptions of their students with regards to their feedback practices, needs and preferences *inter alia* as part of an evolving pedagogy of supervision construct (Anderson et al., 2018).

Author contributions

Author 1: Conceptualisation, Data curation, Investigation, Formal analysis, Writing – original draft, Writing – review and editing; **Author 2:** Data curation, Investigation, Formal analysis, Writing – review and editing; **Author 3:** Data curation, Investigation, Formal analysis, Writing – review and editing.

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Appendix A: QR codes for teacher and student survey

Survey on digital feedback of university texts for teachers



Survey on digital feedback of university texts for students



Appendix B: Student and teacher biodata

Student biodata		Teacher biodata	
		Completed study	
Bachelor's degree	32%		77%
Master's degree	7%		7%
Doctorate	0%		4%
Post doctorate	0%		0%
*Other	61%		12%
		Current study	
Bachelor's degree	94%		16%
Master's degree	0%		10%
Doctorate	0%		68%
Post-doctorate	1%		6%
*Other	5%		0%
		Year of studies	
1st	42%		52%
2nd	22%		22%
3rd	26%		11%
4th	8%		7%
5th-6th	2%		7%
		Age	
16-20	41%	< 30	10%
21-24	33%	31-34	6%
25-30	10%	35-40	19%
31-34	2%	41-44	16%
35-40	1%	45-50	13%
> 40	13%	> 50	35%
		Gender	
Male	14%		42%
Female	80%		55%
Other	6%		3%

Appendix C: Prompts for teacher and student free text

Survey Part I – Previous experience of feedback

For the teachers

- If you use a digital resource to provide your written or oral comments, please indicate what that digital resource was.
- What digital resources do you typically use to review your students' work?

For the students

- If you have received oral or written feedback using digital resource (either from teachers or peers), please indicate what that digital resource was.
 - What digital resources do you usually use to review your work?
 - Any other comments you may have.
-

Survey Part II – Self-perception and needs

For the teachers

- What do you think students would need to be able to check their work?

For the students

- If I don't know how to deal with the feedback I receive from my work, what would I need to know how to do it?
 - Any other comments you may have.
-

Survey Part III – Digital feedback preferences

For the teachers

- If you prefer other type(s) of feedback to offer your students, post it here.
- Imagine and describe a perfect digital tool that would help you to provide feedback on your students' work.
- Any other comments you may have.

For the students

- If you prefer other type(s) of feedback, post it here.
 - Imagine and describe a perfect digital tool that would help you receive feedback on your texts and rewrite them.
 - Any other comments you may have.
-

Appendix D: Content analysis of teacher and student free-text responses on previous feedback experience

Codes ATLAS.ti	Teachers (n =20) (no. of responses in brackets)	Students (n = 39) (no. of responses in brackets)
Feedback digital resource	Canvas (15) / online learning management system Course online platform SpeedGrader (4) Comments on Turnitin submissions (2) Email (2) Audio-recording comments (1) Track changes (1) Microsoft SharePoint (1) Canvas (8) / all assignments are marked within the learning management system via Grademark Canvas metrics on engagement	Canvas (29) / comments or replies on the submission platform Microsoft Word or Google Docs (1) Email (13) Audio-recording comments (3) In class (1) Face-to-face (1) Grammarly (22)
Editing digital resource	Turnitin (8) – plagiarism check SpeedGrader (3) Microsoft SharePoint Track changes Microsoft Word comment function Research databases Google Scholar	Word corrector (15) Online thesaurus (5) Online dictionary (6) Studiosty (3)