Accepted version of Malecka, B., Ajjawi, R., Boud, D. and Tai, J. (2022). An empirical study of student action from ipsative design of feedback processes, *Assessment and Evaluation in Higher Education*, 47, 5, 801-815. DOI: 10.1080/02602938.2021.1968338

An empirical study of student action from ipsative design of feedback processes

Bianka Malecka, Rola Ajjawi, David Boud and Joanna Tai

Abstract
Feedback is justified when it has a positive influence on students' subsequent performance. Opportunities for student action need therefore to be consciously designed if feedback is to influence learning. In this paper, we discuss how ipsative design of feedback processes, i.e. involving comparison of a student's current performance with a previous one on a similar task, can promote action from feedback. This design-based research was conducted with English for Academic Purposes students. A formative e-portfolio was implemented to facilitate students' access to their past work and feedback comments. Its aim was to explore how students exploit the ipsative design of feedback to build on both their own and teacher's actions. Analysis of student artefacts and interviews indicated that ipsative design prompts student comparison processes. Students were motivated to revisit their goals, make comparisons with previous work, and review peers' work. The effects of the design included motivation to engage with feedback beyond the immediate task and the revisiting of past work and action to improve it. Implications for teachers and curriculum designers are discussed including the need to create conditions for student action from feedback by including interconnected tasks and explicit comparison activities in the courses.

Keywords: feedback; ipsative design; action from feedback; comparisons

Introduction

Indisputably, feedback can have a powerful effect on students' learning and skill development (Hattie and Timperley 2007). Early literature views feedback as a one-way information transmission from teacher to student and focuses on how to improve the formulation of feedback messages and, consequently, *give* better feedback (Boud and Molloy 2013). With the paradigm shift to conceptualise feedback as a process involving two-way teacher-student knowledge construction, research has emphasized that the quality of student engagement is a critical aspect of feedback effectiveness (Winstone et al. 2017; Winstone and Carless 2019). Considerable attention has been devoted to the skills and processes which encourage engagement with feedback such as building student capacity for peer feedback (Nicol 2013), evaluative judgement (Tai et al. 2018) or goal-setting (Winstone et al. 2017). Despite the contention that students must judge and take action from feedback, there has been insufficient consideration of how these opportunities might be created. A lack of sequencing within modules in many educational programs or rudimentary feedback designs (Jonsson 2013; Price, Handley, and Millar 2011) suggest that such opportunities are not widespread. Consequently, students cannot apply what they have learnt from feedback inputs in subsequent tasks, which can hinder their learning.

Opportunities for students to learn through scaffolded feedback designs are needed. A well-structured design may include nested tasks which provide an opportunity to apply feedback in subsequent work (Price, Handley, and Millar 2011); action planning which helps students decode and interpret feedback and minimise the repetition of errors in future tasks (Bird and Yucel 2015); or programmatic feedback spanning multiple tasks or course units (van der Meer and Dawson 2018). Designing systematic comparisons against a range of reference information, e.g. works of peers, exemplars or rubrics can also support learners in feedback generation (Nicol 2020). The focus on learning, cognitive scaffolding and iteration over time present in these feedback designs can positively impact learners' motivation and result in improved performance (Ajjawi et al. 2021).

An ipsative design can promote student action from feedback. The key feature of an ipsative approach is the provision of feedback information on student achievement with respect to students' previous work. An iterative feedback process relies on the presence of consecutive tasks and ready access to students' past work and comments about it (Malecka and Boud 2021). This requires course design with sequential tasks and an opportunity to track previous feedback information and its enactment through, for example, learning management systems. The focus on the comparison of student's current work with a previous one is in line with Nicol's (2020) call for the presence of explicit comparison processes in the curriculum, which he suggests builds students' own feedback capability and metacognitive knowledge. However, an ipsative focus remains an underexplored aspect of the feedback process and our understanding of how it may direct students' learning remains mostly theoretical (Malecka and Boud 2021).

The aim of this paper is to investigate students' actions in response to the ipsative design for feedback in the context of second language learning. The paper empirically explores how students exploited the affordances of ipsative feedback processes to improve the quality of their learning. It focuses on student actions prompted by the ipsative design and examines how regular information on progress creates conditions for rewriting work, intended to improve language learners' linguistic and stylistic accuracy, implementing feedback in subsequent tasks and directs goal-setting and comparison-making. It thus responds to the call for further research seeking to understand the value of learning from feedback processes and how such approaches help students develop the capabilities needed to be feedback literate (Ajjawi et al. 2021; Molloy, Boud, and Henderson 2019), that is, to understand the purposes of feedback and possess strategies to generate and enact a plan for improvement.

Background

Student engagement with feedback

In framing feedback to involve dialogue and student action, the *quality* of student engagement in feedback processes significantly contributes to student learning. Literature offers many theoretical models conceptualising student participation in feedback. Price, Handley and Millar (2011) emphasize its temporal dimension suggesting four points of engagement - collection, attention, cognitive engagement and taking action, with students always having a choice to either engage or disengage in the process. Lipnevich, Berg and Smith (2016) expand this model to include affective dimension of engagement, stressing that the affective and cognitive aspects interact with each other and may stimulate or discourage student engagement. In line with the learner-centric view of feedback, Winstone et al. (2017) put forward the notion of proactive recipience of feedback, defined as a state or activity of proactively engaging with feedback processes. The skills and behaviours that underpin

proactive recipience of feedback include self-appraisal; assessment literacy; goal-setting and regulation; and engagement and motivation (the 'SAGE' taxonomy) (Winstone et al. 2017). A range of learner factors influence engagement with feedback, and these capacities to make sense of feedback information to improve future work have recently been termed as student feedback literacy (Carless and Boud 2018).

Importance of practice

For students to be feedback literate, they need systematic practice in eliciting, processing and responding to feedback information constructed by teachers or peers (Malecka, Boud, and Carless 2020). Formative tasks such as peer feedback, reflection or comparison against various referents, for example assessment criteria, exemplars or peers' work can help learners develop critical thinking and evaluative judgement and construct new ways of approaching academic work. Students' participation in these tasks is mediated by individual factors such as their beliefs about feedback, previous feedback experiences or learning goals (Han and Hyland 2015).

Design for action from feedback

Opportunities for student action from feedback must, therefore, be carefully designed to encourage the development of student capacities. Decisions around the design should include the alignment of tasks with learning outcomes; authenticity, which relates to real-life and discipline-specific practices; and guidance to motivate students to monitor their progress (Winstone and Carless 2019). Effective designs make student action from feedback visible so that both students and educators can see the evidence of learning. Two or multi-stage assessments, a series of interlinked tasks or draft-redraft designs enable feedback application from earlier tasks (Winstone and Carless 2019). Situated learning and teaching activities and their associated artefacts, if consciously designed, can facilitate student action from feedback. In this paper, we take up this contention and explore how ipsative design of tasks and feedback promotes student action.

Ipsative processes

In the educational context, ipsative processes refer to a comparison of a student's current performance with a previous one on a similar task. This means students directly encounter how their work has changed and can change further. Ipsative design requires the presence of consecutive activities through which student progress can be identified as well as access to students' past work. Ipsative processes remain a relatively underexplored practice with most of the insights coming from research into ipsative assessment (Hughes 2011; 2014). Hughes (2014) discusses ipsative assessment in the context of student's 'personal best performance,' claiming that it promotes co-regulation and intrinsic motivation. Recently, Malecka and Boud (2021) applied this concept to feedback, arguing that feedback needs also be framed in relation to standards. Progress feedback allows learners to plot improvement while iterative task design provides them with the scaffold to implement strategies necessary for change (Malecka and Boud 2021). As there is a continued interest in what students do with the feedback inputs, ipsative processes emphasize learners' accountability. Empirical research into ipsative processes is nascent; yet the outcomes of existing ipsative interventions indicate that they can support dialogic, processual feedback practice. Encouraging self-directed learning (Univio and del Pilar Perez 2019), stimulating emotional satisfaction through visible learning outcomes (Zhou and Zhang 2017) and motivating students to improve their work through the conversation about lack of progress (Tilley and Roach 2017) are some of the reported benefits of ipsative processes. The criticism of ipsative processes has focused on the challenges of their implementation in modularised units without recording cumulative

learning (Jessop and Hughes 2018), teachers' increased workload (Hughes 2011) and the potential for a diminished emphasis on standards (Malecka and Boud 2021).

Limited empirical research has focused on the affordances of ipsative design to facilitate action from feedback. Therefore, this study aimed to explore how students exploited the ipsative design which included teacher's actions - weekly feedback on student progress and student's actions - weekly goal formulation, rewriting of tasks and reflection. The research question addressed is: How can ipsative design improve student action from feedback?

Methods

Design-based research

The study was set within the framework of design-based research (DBR). DBR aims to improve educational practice by solving problems that are critical to learning through a cycle of iterative analysis, design, development and implementation of interventions (Wang and Hannafin 2005). It is defined by the real educational context and the collaborative partnership between researchers and practitioners (Anderson and Shattuck 2012). A DBR approach was adopted because the research was situated in the real educational setting, it required a design that would accommodate cycles of iteration and improvement in the ipsative feedback intervention, and had to be responsive to real-time changes in students' perceptions and uptake of feedback processes.

The study had three distinct stages: the preliminary research (Stage 1), the prototyping phase (Stage 2) and an assessment phase (Stage 3) (Plomp 2007), which are presented in Figure 1. Stage 1 involved the analysis of a practical problem and the development of a relevant intervention. In Stage 2, which included three cycles, the design was implemented, reflected on and refined. The last stage included the documentation and reflection on the learning intervention.

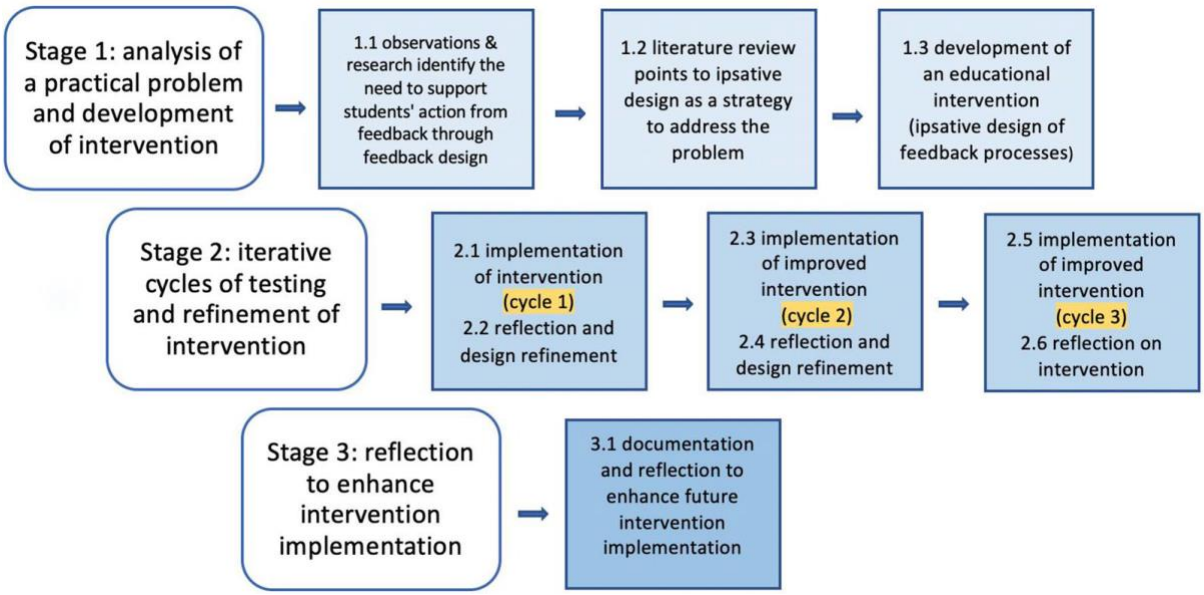

Fig. 1 Overview of study design (adapted from Amiel and Reeves (2008))

Context

The study was conducted with Direct Entry English for Academic Purposes (EAP) students at an English language centre affiliated with a university in Sydney, Australia. The majority of students at this centre come from mainland China, followed by Saudi Arabia, Thailand and Vietnam. Students enrolled have conditional offers from the university and on successful completion of the course begin undergraduate or postgraduate study in a variety of disciplines. The 5-week course, beside reading, listening and speaking classes, is heavily focused on writing. Students have 6 hours of writing classes per week composed of: 2 hours of writing skills (writing theory, genres and language), 2 hours of writing practice (sample analysis, actual writing) and 2 hours of writing workshop (whole-class and peer-review of students' own writing, language study). These are followed by weekly or fortnightly (depending on the course) one-on-one teacher consultations where students' work is analysed and commented upon in more detail. Regular feedback on students' writing is common in Direct Entry courses. The writing course follows a process genre approach (Badger and White 2000) with students learning to compose a variety of texts including paragraphs, summaries, discussion, argument and problem-solution essays, annotated bibliographies and reflective writing. The writing component of the course is taught by one teacher, often referred to as 'the writing teacher' to differentiate from teachers who focus on other skills. The writing teacher's responsibilities include teaching the content, weekly marking of students' scripts in accordance with the marking criteria and providing individual feedback on the progress of students' writing skills.

Research participants and ethical considerations

The research took place over three 5-week cycles and involved 10 participants (see Table 1). Cycles 2 and 3 were two iterations of the same 5-week course while cycle 1 was a different 5-week course. Both courses followed the process genre approach to writing. At the beginning of the second cycle, the mode of the course delivery changed due to COVID-19 and 8 participants completed the course online.

Table 1: Participants

Participants per cycle	Cycle 1 10 Feb -13 March 2020 (2)
	Cycle 2 16 March -17 April 2020 (5)
	Cycle 3 20 April – 22 May 2020 (2)
Nationality	Chinese (10)
Gender	Male (5), Female (5)
Pathway	Undergraduate (1), Postgraduate (9)
Mode of course delivery	Face-to--face (2 cycle 1), Online (8 cycles 2 and 3

The primary author was the writing teacher of the participants during each cycle. For this reason, it was important to ensure that any role-related conflict between the two parties was minimized and mitigated. The recruitment and data collection took place after students finished the course when the researcher was no longer in the teaching or assessment relationship with the participants. Participant recruitment and informed consent from each cycle was managed by three teachers from the centre who were not involved in this research. Institutional ethical approval for this study was obtained.

Implementation of e-portfolio

To implement ipsative feedback processes, students and teachers need to have easy access to students' past work as feedback comments necessarily need to refer to two or more samples of student work. Other features of good feedback practice such as student goal formulation and reflection also require students to have access to their work and feedback input to allow for these processes to be integrated alongside their work.

This research used an e-portfolio as a tool to implement ipsative feedback processes. A formative e-portfolio was designed for its affordances to collate student work and feedback. E-portfolios were divided into five parts corresponding to five weeks of study and each part had three pages (see Appendix 1). In addition to the ipsative features of the design, other features were included which were suggested by the research of Winstone et al. (2017) and Malecka and Boud (2021) to maximise the effect of the strategy on student learning and record it well. They included goal setting, reflection and action planning. Participants were asked to complete the e-portfolio tasks on a regular basis. Fig. 2 depicts a model of ipsative feedback process implemented in each cycle.

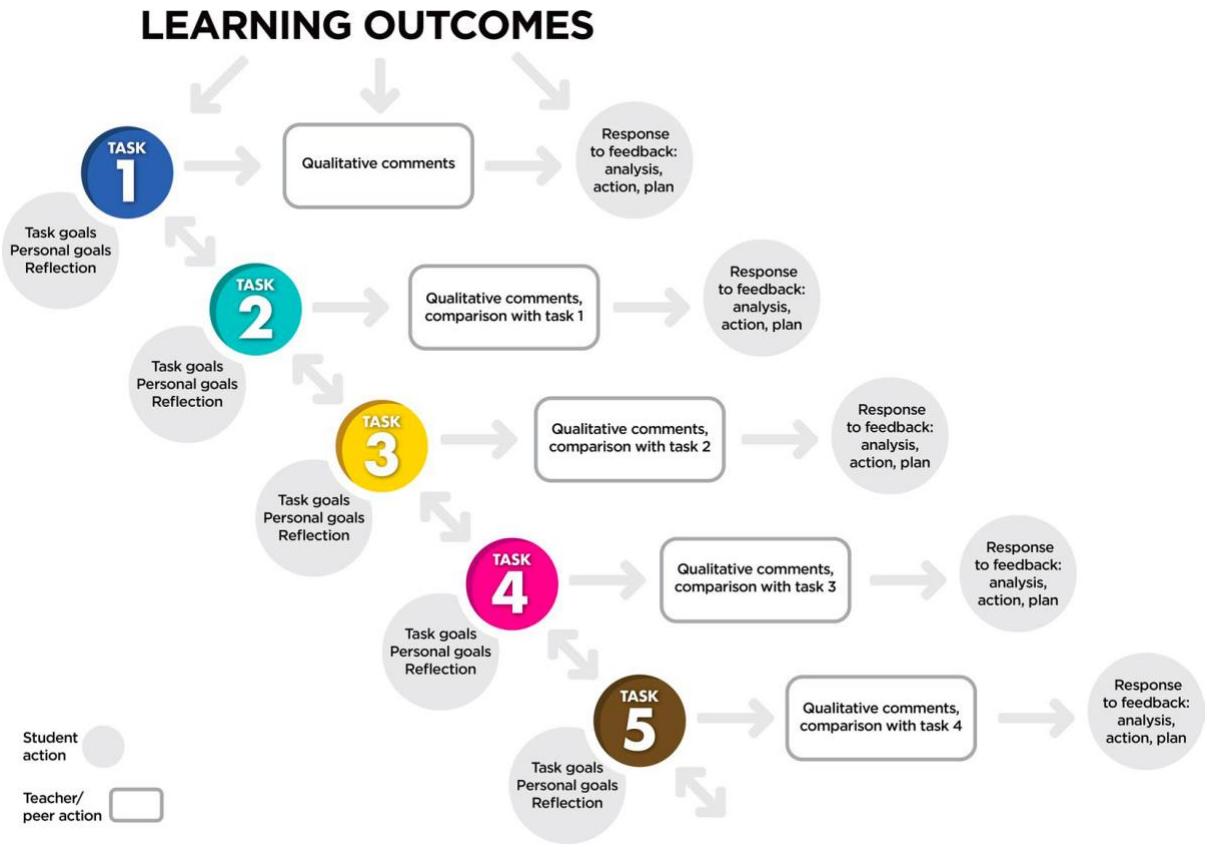

Fig. 2 A model showing ipsative design of feedback for consecutive tasks for the 5-week cycle

DBR calls for reflection and possible refinement of the intervention after each cycle of implementation. In cycle 1, students completed e-portfolios in Microsoft Word and posted them weekly on the Moodle Discussion Board. Yet, there were some problems as noted by the researcher: "Moodle is getting too cumbersome. Students are posting their portfolios in wrong threads [on Discussion Board] or posting not updated versions of their files" (field

notes, item 1:5). Therefore, for cycles 2 and 3, GoogleDocs was used. Both Moodle and GoogleDocs were utilised as open access platforms with all students being able to engage with their own and peers' work and facilitate multi-source feedback. Due to COVID-19, cycles 2 and 3 were conducted in a fully online mode. The change of the method of delivery meant that the course content had to be delivered in both asynchronous (Moodle) and synchronous manner (BlackBoard Collaborate on Moodle). However, learning objectives and tasks remained the same so no changes to the design or content of e-portfolios were necessary.

Data collection

Data included semi-structured interviews, student artefacts and teacher's field notes. The interviews focused on students' actions in response to the various feedback processes including teacher inputs. They were 1 hour in length and were conducted in English via ZOOM by the researcher after students completed the course and transcribed verbatim. Student artefacts included their 25-page-long e-portfolios. Each artefact was regarded as a formative data point, containing both quantitative and qualitative information about the student. Field notes were taken during each cycle to record teacher's reflections and observations about student engagement with the e-portfolios and, if necessary, refine the design before subsequent implementation.

Data analysis

To explore how ipsative design impacted students' reading of current and past feedback information, goal setting, action and reflection, data analysis involved thematic analysis of interview transcripts and artefacts, identifying themes within those data and classifying and interpreting the themes (Burnard et al. 2008). The coding process followed three cycles – open coding, axial coding and selective coding (Neuman 2014) and was informed by relevant feedback literature to focus on student actions in response to feedback. In the open coding stage, data were arranged according to two pre-assigned themes – processing and taking action on feedback. In the axial coding stage, initial themes were re-examined to find relationships between them and group them into sub-themes or more general categories. Then the coding process went through the selective coding stage where further review, elaboration and interpretation of themes happened. When referring to the data, the numerical system is used with the first figure indicating the cycle and the second the participant, e.g. 2.3 – cycle 2, participant 3. For the teacher's feedback comments, prefix T is used

Findings

The ipsative design impacted students' action from feedback in two key ways: (1) facilitating comparison processes, and (2) rewriting work.

1. ***Facilitating comparison processes***

Access to students' prior work and feedback comments was a necessary condition for the implementation of the ipsative processes. The teacher did the initial comparisons by providing feedback comments with reference to two samples of students' work – the current and previous one – as exemplified below:

> Some compare/contrast language used - however, focus more on academic expressions - avoid personal pronouns, the word 'people' and simple words. This is similar to last week so please continue to read more academic texts. (T 2.4)

> Well done for writing coherent paragraphs this week - I can see that you understand the structure :-) As your goal was more academic style, please continue to monitor the use of repetitions (as last week) and academic vocabulary (avoid phrasal verbs and simple verbs). Also, pay attention to linking words. (T 2.7)

Participants described in interviews how the ipsative design prompted them to make comparisons against a range of resources during the writing process (i.e. during planning, production, analysis and reflection on the written work). The three referents for comparison (previous work and feedback; learning goals; peers' work and feedback) are discussed below.

Previous work and feedback
Participants noted that the teacher's comments on their previous work directed their comparison processes.

> … before I need to write down this whole essay [in week four] I was looking for feedback in week three and I can find out what's wrong in my body paragraph and introduction in week two. Then I can find out my mistakes. (2.4)

This quote illustrates that a participant had selected a relevant source of information, i.e. feedback comments from preceding weeks, prior to starting a new task to generate insights as to how best to approach the task at hand.

Revisiting feedback helped students focus on problems, which were signalled in their previous work, as evident in these quotes:

> Looking up previous article and teachers' comments help us to avoid some errors we make. Yeah. It's very useful. (2.6)

> If I made the same mistake in two or three weeks' writing task, maybe I will see the last week's feedback again. I will put more attention to this point. (2.3)

Participants also noted that the continuity of the feedback processes implemented in the cycle allowed them to have an indication of their progress. Some mentioned the improvement in writing skills by referring to the reduced number of errors:

> The number of SVA [subject-verb agreement] and WW [wrong word] errors is reduced. (2.6)

> I made fewer mistakes in the week four writing practice compared with the week one or week two. (2.6)

Ipsative processes scaffold comparisons with previous performance, which gives students an indication of their progress. In this case, students were comparing their performance by looking at grammatical correctness of their current and past work to generate internal feedback.

Learning goals
Ipsative design scaffolded students' goal construction. Before each writing task, students were asked to write the learning goals they wanted to focus on. The goals were written on top of the page, above the writing task, so that students could easily refer to them while or after

writing. Students' learning goals also acted to focus the teacher's feedback comments. The goals focused mostly on grammar, vocabulary and essay structure. Participants commented on how the goals helped them engage with the task and direct their attention while and after writing.

> After I set these goals, I will remember and pay more attention to these points when I was writing. Then, after I finished my paragraphs, I review the paragraphs I will also pay more attention to them. (3.8)

> Writing down the goals are helpful for me to focus on the errors which happened before. (2.6)

The goals provided a tangible reference point against which students' completion of the task was assessed. This is important during the production of written work (as mentioned by participant 2.6) but also during the revision process (signalled by participant 3.8), which can frequently be unstructured for learners.

Participants also noted that seeing goals on top of the page motivated them to pay more attention to them.

> … by setting the goals in the Google documents, when I write, I can just look at [them] and remember what I need to focus on (2.3)

Initially, the goals were self-directed and based on students' personal beliefs as to what language area they needed to focus on but, with time, were influenced more by the teacher's comments on the previous work as evident here:

> I can, [hear] the teacher's voice in my head. "You need to focus on the academic and you need to focus on sentence structure." This is like another goal the teacher set for me. (1.2)

Some participants mentioned that once they noticed discrepancy between their goals and current progress, they drew on learning strategies to improve, while others noted how learning goals provided direction for discussion with peers.

> But sometimes I failed and, after the tutorial consultation, I found there is a huge gap between my goals and my current levels. So I have to review it and, and to remind me times by times that I should practise more to improve. (2.5)

> I think the learning goals can help me to know the drawbacks of my writing and I can discuss with my classmates and they will tell me other things. (3.9)

These findings support Nicol's (2020) claim that when the outcomes of comparison processes are unsatisfactory for students, they will seek relevant external information in the environment, e.g. from textbooks or peers to help them move towards a desired goal.

Peers' work and peers' feedback

Students were posting their weekly writing on Moodle (cycle 1) and GoogleDocs (cycle 2 and 3). This setup gave them continuing access to the work and feedback reports of other

students. In their interviews, participants mentioned how looking at peers' work helped them structure their own writing:

> I do look at others portfolio. Yeah. Because, I think when I don't know how to write an introduction in essays I will look to others to find out, I don't know, let's do this idea and then, yeah. (2.4)

> I always look for the other ones' portfolio (…) I think I gain a lot of knowledge (…). We use the different source to write the articles. We learn how to take different-exemplar or use the different structure, and I think I can gain a lot of knowledge from them. (3.9)

Participants assessed what qualities their peers' work had and, if appropriate, used it as a model to enhance their own work. Peers' work, therefore, served as an exemplar for those needing help with their own writing.

One participant expressed reticence at learning from peers' work.

> I think we all think each other not so good at writing, so we can't make progress if we communicate with each other. (2.7)

The lack of confidence in peers' expertise is often reported in peer feedback literature and is related to the notion of trust in the degree of peers' domain knowledge (Panadero, Jonsson, and Alqassab 2018). In this case, the participant did not value peers' competence, hence, did not consult their work. Another participant expressed similar reticence at discussing work with peers and attributed it to previous learning experiences.

Participants mentioned that apart from reading their peers' work, they also analysed teacher's feedback.

> We also read the feedback (…) because maybe this time you did not make this kind of errors. But it doesn't mean that you will not make these errors (…) next time so we can also learn something from others feedback. (2.3)

> Like when we share our feedback and we may find out there was similar mistakes from others and we can share our mistakes then fix it together. (2.4)

This is an interesting finding as it shows that students benefitted more from reading the comments peers received on their work than on what their peers had produced. It seems that by doing that, students want to learn from the mistakes of their peers so that they can avoid making them in their own work.

Granting open access to peers' work may have some risks as mentioned by two participants. For example:

> I think there are drawbacks of this method. I can see someone copied my article when I have not finished it. I feel very angry about these things. (3.9)

The intervention setup did not prevent the instances of copying or editing others' work so ensuring that there are relevant systems in place to enable viewing but disable editing of peers' work may be desirable for any future iterations.

2. Rewriting work

The 'Action page' in the e-portfolio asked students to complete a rewrite of the original task and an action log where they would specify skills needing further improvement and resources which could help develop these skills. Most participants were completing the rewrites regularly and noted the benefits of this process:

> I really liked the part that after your feedback, I need to rewrite to make a correct article or rewrite the mistake. Because without this part, maybe sometimes I will be lazy I won't review it. But because of this part, I will review and rewrite the article and I can have memory about the errors and which part I need to avoid. (2.7)

> When we rewrite one essay we all hope we have some improvement in our rewriting and then we will expect better comment from our teacher. (2.4)

For these respondents, rewriting work following feedback enhanced their learning behaviour and supported ongoing development. They seemed optimistic that, as a result, their future work would be improved.

Two participants from Cycle 2 mentioned that, while in their subsequent course there was no expectation to rewrite work, they continued to do so.

> Actually, the teacher didn't have us rewrite it. But because of the experience from you, I've been rewriting it. Because it's really a good way, to learn the skills about writing. (2.7)

> Q: So now are you rewriting your essay or not?
> A: I still do, but not quite as often as in last weeks. (2.4)

This is a reassuring finding which shows that these students appreciated the habits developed during the intervention and were keen to continue to use them.

Discussion

This research showed how an ipsative design of feedback processes can impact student action from feedback. The key feature of ipsative feedback design is a comparison of two or more samples of student work. In this intensive course, such a comparison was explicitly undertaken by the teacher on a weekly basis and was guided by task requirements and standards for that task. To form such a comparison, the teacher had to look back at students' past work and their learning goals to identify the areas to comment on. When reading feedback comments framed in this way, students could see where they improved and which areas remained problematic. Standards were incorporated through modelling, teacher inputs and goal setting. Good feedback practice should help learners make sense of their performance at a task so that the subsequent performance can be enhanced (Henderson et al. 2018). What ipsative design offers is clear articulation of how the performance has been enhanced since the previous task, sequenced in a tight way and, if it hasn't, what may be the recurring issues. This can provide guidance for the closing of feedback loops (Boud and Molloy 2013).

The findings suggest that, apart from gaining insights about their own progress from the teacher's comments, some learners generated this information themselves. Just as the teacher was looking for evidence of improvement so were the students. In the interviews, participants mentioned how the reduced number of errors in consecutive tasks gave them an indication of progress. Error correction and written corrective feedback have a long-established place in the second language writing pedagogy and there is evidence suggesting that ESL writers need and value error correction as accuracy matters to academic and professional audiences (Ferris and Roberts 2001; Hedgcock and Lefkowitz 1994). The focus on grammatical accuracy, therefore, is an important element in gaining writing proficiency for ESL learners so it is not surprising that participants were framing their progress in such ways. Moreover, ipsative design of feedback enabled students to set goals for each writing task and this acted as a form of motivation to monitor own performance and self-assess against. Once the students completed the task, they reviewed it in relation to these goals. The processes of monitoring and evaluating own progress through goal-setting help with self-regulation of learning and are fundamental to student-centred feedback practices (Winstone et al. 2017). Ipsative design encourages these processes to happen regularly as there is a particular emphasis on recursive cycles of comparison. In other words, the processes of ipsative design may be considered to co-regulate students to develop self-regulation of learning (Panadero et al. 2019).

Participants also reported the value of identifying other sources of comparison in the overall feedback design. Many comparison opportunities can emerge through unplanned interactions with others and resources in the environment, for example during class activities or through sharing practices (Nicol 2020). However, since these interactions are accidental, their potential to influence student learning is limited. As comparisons are inherent in the ipsative design, they encourage learners to make them systematically. The participants mentioned frequent rereading of past work and feedback to guide them in the completion of the new task. They referred to examples of peers' work as well as peers' feedback to re-examine strategies, compare performance and generate new insight on own work. These comparisons impacted students' own thinking and planning and were future-oriented.

The value of comparisons when students are acting as an assessor in peer feedback has been highlighted (Li and Grion 2019). Interestingly, in this study, the students were not required to assess peers' work, yet, they invested effort to interact with it to enhance their own learning. As these strategies of engaging with feedback through comparisons were self-initiated, they provide empirical support for Nicol's (2020) claim that learners continuously make analogical comparisons to generate internal feedback about their current performance and the adjustments they need to make. They also shed light on the feedback sources that ESL learners feel comfortable with. Literature frequently reports cultural barriers to feedback seeking behaviours for Chinese learners (MacDonald et al. 2013) where seeking help, e.g. asking a colleague for feedback, is cognitively and emotionally demanding. Here, the comparisons were generated as part of independent study and without direct interaction with peers, and peers' work was treated as an exemplar against which to check their own work.

The study also elucidates the important role of cognitive scaffolding of feedback processes in facilitating student engagement with feedback. Ipsative feedback design practices, such as teacher comments, students' goal setting, reflection, and rewriting were designed to build on earlier tasks with the links between them made explicit to students. This facilitated the transfer of feedback between tasks to improve students' subsequent performance. Participants reported how the outcomes of one cycle, for example tasks completed in Week 2, shaped

their knowledge in subsequent cycles. This is in line with Zimbardi et al.'s (2017) claim that students are more inclined to draw on feedback from preceding tasks once successive tasks are deliberately linked.

This study adds to existing literature exploring how students engage with feedback. It highlights the effects of ipsative design of feedback: fostering student motivation to engage with feedback beyond requirements, revisiting past work and revising current tasks. The findings reveal that students tend to look for evidence of progress. The comparative nature of ipsative processes directs students' attention to the improvements and inefficiencies of their work, thus articulating progress or lack thereof. This, in turn, builds learners' ability to regulate their learning and provides important data for teachers.

Implications and limitations

Implications for practice emerge from this research. First, the study empirically demonstrates the value of interconnected tasks which contribute to greater engagement with feedback. It reinforces the call (Ajjawi et al. 2021) for the inclusion of nested activities to provide consistent opportunities for the implementation of formative feedback. Moreover, this research reveals the comparison processes that students developed themselves which need to be replicated in the curriculum. Thus, efforts need to be made to design activities with explicit comparison tasks. Such comparisons, which could be against own or peer's work, learning goals, rubrics or sample task models, should be initially modelled by teachers who can explain relational structures and their significance and model relevant language. With time, as students gain proficiency with these processes, teachers' input can be minimised. Since our research found many comparison processes to be self-initiated, larger class sizes should not impact on students' interactions with rubrics or peers' work. Teachers' feedback literacy, i.e. their knowledge and dispositions to design feedback processes to stimulate student feedback uptake (Boud and Dawson 2021) is crucial to ensure the successful implementation of these recommendations. Even though the research was conducted with ESL students, its findings are relevant to areas beyond language learning. First year students of professional programs are most likely to benefit from the recursive and iterative cycles of ipsative feedback and the skills developed can potentially set them up for success in their further studies. In courses with constrained teacher resources, ipsative processes may be facilitated by peers who can provide comments on the fulfillment of personal goals or achievements in learning through reference to learning outcomes. Audio tools for feedback can also be considered to increase efficiency without impacting quality.

The main limitation of this study is the small sample size and single subject area, which while appropriate for the exploratory aims of the research, should be addressed in future inquiries. Second, participants were the primary author's former students, which may have potential risks of self-involvement and desire to please (Drake 2010) even though all assessments had been completed at the time of interviews. While a more intimate relationship between an interviewer and interviewees may generate better quality data (Yan and Brown 2017), future studies should minimise the possibilities of power imbalance. Finally, since all participants were from one cultural background, the investigation of cross-cultural factors which influence engagement with ipsative feedback processes is also recommended.

Conclusion

The current study has explored how the ipsative design of feedback processes has encouraged students to engage with feedback. Based on its findings, we now conclude with tentative

suggestions for further research. First, given the key role of comparisons in ipsative design, the cognitive and emotional processes involved warrant further investigation. Empirical research in different disciplines through stimulated recall, for example, could be useful in exploring students' thinking, planning and affective states during comparison-making. This would enrich our understanding of the impact of ipsative processes on student learning. Second, it would be valuable to examine if early scaffolding of feedback processes has longer term effects. Some data from this study suggests that, after the intervention, the participants continued goal-setting and rewriting. This may have been because they were already familiar with the course structure which adopted the same process approach to writing. However, what remains to be investigated is whether such sequences continue once the scaffolds are removed. Are the feedback interaction processes which students develop during the scaffolded interventions transferred into the future? Do students continue to use the strategies of engaging with feedback without teacher's direct input? Longitudinal studies which explore the transferability of these processes would aid teachers in designing learning-focused feedback designs and contribute to our understanding of how students build their feedback literacy.

References

Ajjawi, Rola, Fiona Kent, Jaclyn Broadbent, Joanna Hong-Meng Tai, Margaret Bearman, and David Boud. 2021. "Feedback that works: a realist review of feedback interventions for written tasks." *Studies in Higher Education*: 1-14.

Amiel, Tel, and Thomas C Reeves. 2008. "Design-based research and educational technology: Rethinking technology and the research agenda." *Journal of Educational Technology & Society* 11 (4): 29-40.

Anderson, Terry, and Julie Shattuck. 2012. "Design-based research: A decade of progress in education research?" *Educational Researcher* 41 (1): 16-25.

Badger, Richard, and Goodith White. 2000. "A process genre approach to teaching writing." *ELT Journal* 54 (2): 153-160.

Bird, Fiona L., and Robyn Yucel. 2015. "Feedback codes and action plans: building the capacity of first-year students to apply feedback to a scientific report." *Assessment & Evaluation in Higher Education* 40 (4): 508-527. https://doi.org/10.1080/02602938.2014.924476.

Boud, David, and Phillip Dawson. 2021. "What feedback literate teachers do: an empirically-derived competency framework." *Assessment & Evaluation in Higher Education*: 1-14.

Boud, David, and Elizabeth Molloy. 2013. "Rethinking models of feedback for learning: the challenge of design." *Assessment & Evaluation in Higher Education* 38 (6): 698-712. https://doi.org/10.1080/02602938.2012.691462.

Burnard, Philip, Paul Gill, Kate Stewart, Elizabeth Treasure, and Barbara Chadwick. 2008. "Analysing and presenting qualitative data." *British Dental Journal* 204 (8): 429.

Carless, David, and David Boud. 2018. "The development of student feedback literacy: enabling uptake of feedback." *Assessment & Evaluation in Higher Education* 43 (8): 1315-1325. https://doi.org/10.1080/02602938.2018.1463354.

Drake, Pat. 2010. "Grasping at methodological understanding: a cautionary tale from insider research." *International Journal of Research & Method in Education* 33 (1): 85-99.

Ferris, Dana, and Barrie Roberts. 2001. "Error feedback in L2 writing classes: How explicit does it need to be?" *Journal of Second Language Writing* 10 (3): 161-184.

Han, Ye, and Fiona Hyland. 2015. "Exploring learner engagement with written corrective feedback in a Chinese tertiary EFL classroom." *Journal of Second Language Writing* 30: 31-44.

Hattie, John, and Helen Timperley. 2007. "The Power of Feedback." *Review of Educational Research* 77 (1): 81-112. https://doi.org/10.3102/003465430298487.

Hedgcock, John, and Natalie Lefkowitz. 1994. "Feedback on feedback: Assessing learner receptivity to teacher response in L2 composing." *Journal of Second Language Writing* 3 (2): 141-163.
Henderson, M., Boud, D., Molloy, E., Dawson P., Phillips, M., Ryan, T., Mahoney, P. 2018. *Feedback for Learning: Closing the Assessment Loop – Final Report.* Australian Government Department of Education and Training (www.feedbackforlearning.org).
Hughes, Gwyneth. 2011. "Towards a personal best: A case for introducing ipsative assessment in higher education." *Studies in Higher Education* 36 (3): 353-367.
---. 2014. *Ipsative assessment: Motivation through marking progress*. Springer.
---. 2017. *Ipsative assessment and personal learning gain: Exploring international case studies*. Springer.
Jessop, Tansy, and Gwyneth Hughes. 2018. "Beyond winners and losers in assessment and feedback." *Teaching and Learning in Higher Education: Perspectives from UCL*: 64-84.
Jonsson, Anders. 2013. "Facilitating productive use of feedback in higher education." *Active Learning in Higher Education* 14 (1): 63-76.
Li, Lan, and Valentina Grion. 2019. "The Power of Giving Feedback and Receiving Feedback in Peer Assessment." *All Ireland Journal of Higher Education* 11 (2).
Lipnevich, Anastasiya A, David AG Berg, and Jeffrey K Smith. 2016. "Toward a model of student response to feedback." In *Handbook of human and social conditions in assessment*, edited by G.T.L. Brown and L.R. Harris, 169-185. New York: Routledge.
MacDonald, HA, LM Sulsky, Jeffrey R Spence, and Douglas J Brown. 2013. "Cultural differences in the motivation to seek performance feedback: A comparative policy-capturing study." *Human Performance* 26 (3): 211-235.
Malecka, Bianka, and David Boud. 2021. "Fostering student motivation and engagement with feedback through ipsative processes." *Teaching in Higher Education*: 1-17.
Malecka, Bianka, David Boud, and David Carless. 2020. "Eliciting, processing and enacting feedback: mechanisms for embedding student feedback literacy within the curriculum." *Teaching in Higher Education*: 1-15.
Molloy, Elizabeth, David Boud, and Michael Henderson. 2020. "Developing a learning-centred framework for feedback literacy." *Assessment & Evaluation in Higher Education* 45 (4): 527-540.
Neuman, L.W. 2014. *Social research methods: Qualitative and Quantitative Approaches, 7th ed.* Essex: Pearson Education.
Nicol, David. 2013. "Resituating feedback from the reactive to the proactive." In *Feedback in Higher and Professional Education: Understanding and Doing it well*, edited by David Boud and Elizabeth Molloy, 34-49. Milton Park: Routledge.
---. 2020. "The power of internal feedback: exploiting natural comparison processes." *Assessment & Evaluation in Higher Education*: 1-23. https://doi.org/10.1080/02602938.2020.1823314.
Panadero, Ernesto, Jaclyn Broadbent, David Boud, and Jason Lodge. 2019. “Using formative assessment to influence self- and co-regulated learning: the role of evaluative judgement”. *European Journal of Psychology of Education:* 34, 535–557.
Panadero, Ernesto, Anders Jonsson, and Maryam Alqassab. 2018. "Providing formative peer feedback: What do we know?" In *The Cambridge Handbook of Instructional Feedback*, edited by A. A Lipnevich and J.K. Smith, 409-431. Cambridge University Press.
Plomp, T. 2007. "Educational design-based research: An introduction." In *An Introduction to Educational Design-based research. Proceedings of the seminar conducted at the East China Normal University, Shanghai (PR China), November 23-26, 2007* edited by T. Plomp & N. Nieveen, 9-33. SLO Netherlands institute for curriculum development.
Price, Margaret, Karen Handley, and Jill Millar. 2011. "Feedback: Focusing attention on engagement." *Studies in Higher Education* 36 (8): 879-896.

Tilley, Emanuela, and Kate Roach. 2017. "Ipsative Learning: A Personal Approach to a Student's PBL Experience Within an Integrated Engineering Design Cornerstone Module." In *Ipsative Assessment and Personal Learning Gain*, 129-148. Springer.

Univio, Diana Jazmin, and Andrea del Pilar Pérez. 2019. "Ipsative assessment of essay writing to foster reflection and self-awareness of progress." In *Handbook of Research on Assessment Literacy and Teacher-Made Testing in the Language Classroom*, 157-180. IGI Global.

van der Meer, Jacques, and Phillip Dawson. 2018. "Feedback in Tertiary Education." *The Cambridge Handbook of Instructional Feedback*: 264-288.

Wang, Feng, and Michael J Hannafin. 2005. "Design-based research and technology-enhanced learning environments." *Educational Technology Research and Development* 53 (4): 5-23.

Winstone, Naomi, and David Carless. 2019. *Designing effective feedback processes in higher education: A learning-focused approach*. Routledge.

Winstone, Naomi E, Robert A Nash, Michael Parker, and James Rowntree. 2017. "Supporting learners' agentic engagement with feedback: A systematic review and a taxonomy of recipience processes." *Educational Psychologist* 52 (1): 17-37.

Yan, Zi, and Gavin TL Brown. 2017. "A cyclical self-assessment process: towards a model of how students engage in self-assessment." *Assessment & Evaluation in Higher Education* 42 (8): 1247-1262.

Zhou, Jiming, and Jie Zhang. 2017. "Using Ipsative Assessment to Enhance First-Year Undergraduate Self-Regulation in Chinese College English Classrooms." In *Ipsative Assessment and Personal Learning Gain*, 43-64. Springer.

Zimbardi, Kirsten, Kay Colthorpe, Andrew Dekker, Craig Engstrom, Andrea Bugarcic, Peter Worthy, Ruban Victor, Prasad Chunduri, Lesley Lluka, and Phil Long. 2017. "Are they using my feedback? The extent of students' feedback use has a large impact on subsequent academic performance." *Assessment & Evaluation in Higher Education* 42 (4): 625-644.