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Investigating how students receive, interpret, and respond to teacher feedback

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Abstract

Feedback has been studied extensively in relation to its impact on student learning and is established as a high impact intervention on achievement, emotions, confidence, and motivation. In order to be effective, feedback must be timely, actionable, related to learning goals, and provide advice as to next steps in the student's learning. Yet research has also demonstrated the significant variability relating to the influence, with research suggesting that effective strategies vary based on the characteristics of the learner.

However, the research is dominated by a focus on the giving of feedback and far less on how students receive feedback. Studies into student perceptions of feedback is lacking with little known about how the information provided is listened to, or received, along with the emotional responses that feedback may stimulate, and how this may influence learning. The aim of this thesis is to investigate student perceptions of teacher feedback, and to develop a deeper understanding of how students receive, interpret, and respond to it. Employing a cross-sectional research design using multi-methods, this study consisted of a large-scale questionnaire in which students responded to various feedback samples and gave insights as to their perceived usefulness and how each might engage the student. A smaller sample of students then participated in semi-structured interviews based on the themes that emerged from the survey data, providing insights as to how students respond to, make sense of, and apply feedback.

Findings give insights into a range of feedback processes. Firstly, learners assign their own meaning to the feedback regardless of whether the information provided to them is explicit or not. Secondly, they assign this meaning based on prior

feedback experiences, capacity to self-reflect, or through dialogue with teacher or peers. Thirdly, the emotional *affect* of the information provided influences its *effect* on learning. Finally, students have clear views about what constitutes effective feedback practice to enhance learning.

Declaration

I certify that:

I. This thesis comprises only my original work towards the *Degree of Doctor of Education*;

II. Due acknowledgement has been made in the text to all other material used;

III. The thesis is fewer than the maximum word limit in length, exclusive of tables, maps, bibliographies and appendices as approved by the Research Higher Degrees Committee.

Luke Mandouit

Date: 23rd July 2020

Preface and acknowledgements

For the past 20 years I have worked and studied in the field of education, and this research is grounded in my own experiences as a teacher and a school leader. I initially became interested in the study of feedback when undertaking action research in the Master of School Leadership at the University of Melbourne. This research investigated how student feedback could be used to enhance teacher practice and shape teacher professional learning in a secondary school. During this study, I was struck by two things. Firstly, in undertaking my initial literature review I was astounded at how little students were given a genuine voice in matters relating to teaching and learning, and education research. Secondly, in carrying out my own research, I realised how much students embrace the opportunity to share their perspectives, how articulate they can be, and that they bring unique and valuable insights to their own learning experiences.

Considering these insights and the ongoing discussion around the impact of teacher feedback on student achievement in the broader education landscape, I was keen to explore student perceptions of these phenomena more deeply. This led me to my doctoral research. I am thankful for Professor John Hattie's willingness to first meet with me and discuss my ideas, and then to support and guide me through the doctoral research process as my supervisor. Our discussions were often focussed on my research, but also on issues relating to education more widely and the tensions between research, practice, and policy. John, I would not have navigated through this without your guidance, advice, and critical insights. For that, I thank you.

I am also thankful to Professor Lorraine Graham who supported me as co-supervisor in the second half of my candidature. Lorraine, you were always open to me checking in to discuss my progress and providing fresh insights and perspectives

on my research area. I would also like to acknowledge the support of Professor Michael Bernard, who supervised my master's research and encouraged me to publish and pursue my research interests in completing my professional doctorate. I was also supported by Dr Amy Gullickson and Dr Melody Anderson, who made up my Advisory Committee and kept me on track. Thank you to Emma Curtin who proofread the thesis for spelling, punctuation, and formatting, whilst maintaining my academic voice and ideas.

I was privileged to undertake this research at the Melbourne Graduate School of Education at the University of Melbourne. I am thankful to colleagues at the University in the Science of Learning Research Centre and in the Master of Teaching program. Special thanks to Rob Mason who supported this work coding the open-ended questions and interview transcripts for purposes of reliability testing. In addition, thanks to Dr Daniela Acquaro, Dee Al-Nawab, Dr Amy Berry, Dr Cameron Brooks, Dr Ryan Dunn, Dr Stephanie MacMahon, Sophie Murphy, Kellie Picker, and Dr Luke Rowe for your friendship, encouragement, and support. This research has been supported by The Science of Learning Research Centre, a Special Research Initiative of the Australian Research Council. Project Number SR120300015.

Pursuing this academic goal has been a challenging and rewarding experience, and one in which I would not have been successful without the support of those who are close to me. Thank you to Leah who was always there to listen to me talk through ideas and push me through the challenging moments. I'd also like to recognise the support of my siblings, who also provided me with encouragement and distractions as required. Special thanks to my parents, who always supported and encouraged me to pursue my academic pursuits.

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Chapter 1: The nature of the research

General introduction

Within the educational landscape, the notion of the "evidenced-based practitioner" is one espoused in teacher education programs and throughout teacher professional learning. Teachers are amongst the most significant influences on student achievement (Hattie, 2009). When teachers understand high-level instructional practices and the ability to evaluate the impact of their actions, this influence is optimised. Instructional leadership, in which principals and other school leaders lead and monitor high-level teaching and learning practices, is deemed to enhance student outcomes even further (Robinson et al., 2008).

There is a range of literature and policy documentation to support these goals and outcomes in schools. In Victoria, Australia, where this research took place, this is supported by the Department of Education's (DET) "Framework for Improving Student Outcomes" (FISO) (DET, 2018) and "High Impact Teaching Strategies" (HITS) (DET, 2017) documents. The FISO framework (2018) presents a cycle for the use of data and evidence to inform the planning, implementation and monitoring of student outcomes; whilst the HITS (2017) identify ten high-impact evidenced-based teaching practices to inform teaching and learning in Victorian schools. Within the HITS (DET, 2017) document, feedback is identified as a practice that can support significant student growth if implemented effectively.

Feedback can be defined as information provided to a learner relating to their skills or understanding as demonstrated on a task (Hattie & Timperley, 2007). At its highest level, feedback will support students to develop actual understanding towards task mastery (Sadler, 1989), and is capable of stimulating significant growth (Hattie,

2009). The focus on feedback as an influence on learning is not a new concept, with early behaviourists proposing that the delivery of stimuli such as rewards and punishments can significantly shape human behaviour. However, in the education space, researchers recognise that the complexities of the classroom will influence how the student will receive, respond, and action feedback in shifting their behaviours (Brown et al., 2009; Hattie & Timperley, 1999; Brown & Wiliam, 1998).

The focus on the practice of feedback in contemporary Australian schools is significantly shaped by Hattie's synthesis of meta-analyses of influences on student achievement (2009), which positions feedback as having a 0.72 effect. In contrast to the average 0.4 effect equating to a year's growth, Hattie (2009) noted that feedback is amongst the most significant influences on achievement. However, whilst feedback is capable of stimulating significant growth, it is also an intervention with the widest variance in effect, with research suggesting that as much as one-third of all feedback has a negative effect on learning (Kluger & DeNisi, 1996).

In considering feedback, Hattie and Timperley (2007) proposed that it has four levels:

- "Task" level feedback is information relating to correct or incorrect responses presented by the student in completion of the task.
- "Process" level feedback is related to the strategies and processes utilised in completion of the task.
- "Self-regulation" is related to giving the students information to help them self-correct and self-monitor.
- "Self"-level feedback is directed to the learner and provides no information relating to skills or the learner's demonstrated understanding.

In considering the effectiveness of each of these levels of feedback, corrective task level feedback has been found to stimulate student learning, but feedback aimed at process and self-regulation is considered to have the most significant influence on achievement as such feedback is transferable to other contexts. Self-level feedback, which is generalised and usually communicated in the form of non-specific praise, has relatively little influence on student learning (Hattie & Timperley, 2007).

Statement of the problem

Despite the well-established influence of feedback on student achievement, as noted above, it remains an intervention with significant variance in its effect (Hattie, 2009; Hattie & Timperley, 2007; Kluger & DeNisi, 1996). Additionally, whilst much work has been done relating to the influence of feedback on achievement, much of this work ignores the social and emotional nature of the classroom (Harris et al., 2013). Much also remains to be learnt about how students receive and respond to feedback (Hattie et al., 2016). The classroom is a complex environment, with a range of factors having an influence on whether the student will receive, perceive, or respond to the feedback provided.

In practice, despite DET priorities and professional learning programs to upskill teachers in the delivery of effective feedback, the frequency of lower level feedback interventions remains dominant. In considering the frequency of feedback types, self and task level feedback remain overly dominant in both written and verbal teacher feedback and with the all-important question of "where to next?" going unanswered (Brooks, Carroll, et al, 2019; Harris et al., 2014a; Hattie & Timperley, 2007). One must consider why there is such a misalignment between practices supported in the literature, and those that emerge in classrooms. Do teachers simply not understand the research supporting these practices? Or, are these forms of

feedback useful for other purposes? Perhaps they serve another purpose in the process of teaching and learning based on teachers' knowledge of their learners and how they respond to feedback?

Much of the prior research into the impact of feedback has been done from a researcher and teacher perspective (Hattie & Gan, 2011) and with little insight developed into the experience of the student when feedback is delivered. Additionally, Hattie and Timperley's (2007) model of feedback, which is so prominent within the Australian educational landscape, remains an untested conceptual model. Whilst it is established that strong emotional responses are connected to feedback (Black & Wiliam, 1998; Brown et al., 2009; Harris et al., 2014a), there has been little research into how students respond to the different feedback levels (task, process, self-regulation, and self) in the classroom, or the affective influence of such levels of feedback.

In fact, research into student perceptions and insights into the learner's experience with feedback generally remains relatively limited at primary and secondary levels. Much of the previous research into student perceptions of teacher feedback has been completed in the tertiary setting, where access to participants and ethics processes is more conducive to research. This research aims to complement the body of work in the area of feedback and give a student voice to this crucial learning process.

Theoretical rationale

This study explores the student experience when presented with teacher feedback, developing a deeper understanding of how students receive, interpret, and respond to that feedback. It examines participant perspectives using Hattie and Timperley's (2007) feedback model (task, process, self-regulation, and self).

In doing so, this study employed a cross-correlational research design using multi-methods. This consisted of a questionnaire combined with semi-structured interviews, drawing on multiple cases at a single point in time (Bryman, 2012). The purpose of this approach was to use larger scale survey data to first establish patterns and relationships between variables. Following this, a sample of participants was selected for individual semi-structured interviews to explore emerging themes in more depth. The differences between these individual participants was considered, and each interview was regarded as an individual case study. Aligned with most multi-methods research, this study was broken into two phases: Study 1A - use of a survey instrument; and Study 1B - semi-structured interviews (Bryman, 2006).

Study 1A

Phase one of the study had a quantitative focus. It used a survey instrument to gather input from a large sample of students using open-ended and fixed-response questions. Open-ended questions were coded in a quantitative manner via content analysis. In completing the survey, students were presented with feedback samples aligned with each of Hattie and Timperley's (2007) feedback levels (task, process, self-regulation, and self). When presented with each sample, participants were asked to respond to two fixed-response questions: "What does the information given by the teacher tell the student about their performance on the task?" and "Based on the information the teacher has given the student on the work, what should the student do differently next time around to improve their performance on the task?" The purpose of this phase of the study was to gather baseline data to allow for further exploration in phase two of the study (Johnson et al., 2007). Additionally, this data would give insight into what meaning students assign to various forms of feedback, and what actions this information might prompt when applied to future tasks.

In addition to fixed-response questions, participants were asked to respond to the following open-ended questions: “Do you think this teacher's feedback will be useful to the student the next time they complete a similar task? Please explain why / why not.” “Which of these samples of feedback do you find most useful? Why?” and, “Thinking about yourself as a student, what feedback do you look for when you receive a piece of work back from a teacher? Please explain why”. The purpose of these questions was to determine what participants considered to be effective feedback. This information was then analysed alongside the existing literature to create a well-rounded picture of effective feedback though the lens of the learner.

Study 1B

Study 1B employed qualitative methods through semi-structured interviews with a small subsample of student participants. The purpose of these interviews was to build on the data gathered in phase one of the study to further clarify, explain, describe, and enrich the narrative (Jick, 1979; Johnson et al., 2007). This is consistent with a basic sequential mixed design approach to using multi-methods, with data collected at one stage of the study used to inform the next.

Based on the emerging themes from Study 1A, the researcher conducted semi-structured interviews to discuss student responses to the feedback samples. These interviews were guided by protocols and focussed on developing an understanding of the learner’s process in assigning meaning to feedback, as constructed between researcher and participant. Results were analysed and presented as individual vignettes (a form of constructed narrative discussed in Chapter Three), with each a case study of the larger sample from which it was drawn (Yin, 2006).

Research questions

This study sought to develop a deeper understanding of how students receive, interpret, and respond to teacher feedback, exploring the participants' perspectives of Hattie and Timperley's (2007) feedback model (task, process, self-regulation, and self). This investigation was guided by the following research questions:

1. How much do students understand when they are presented with feedback from teachers on a task?
2. To what extent does teacher feedback to students on task influence their future performance?
3. How do students make sense of the feedback that is provided to them?
4. What factors influence the likelihood of students receiving, interpreting, and actioning teacher feedback?
5. What do students consider to be effective feedback practices?

Thesis organisation and chapter summary

This chapter has introduced the nature of this investigation, identifying the research questions, and discussing the theoretical rationale. Chapter Two provides a review of the literature related to the research questions. Chapter Three introduces the methodology, discussing the research design, methods used, and the approach to recruitment of participants and sampling. Chapters Four and Five present the findings and analysis of quantitative and qualitative data relating to the two studies on student perceptions of teacher feedback. The overall findings of these studies are discussed in Chapter Six, along with concluding remarks and closing statements. This investigation is relevant given the current educational landscape and focus on evidenced-based practices, including feedback. Through exploring the learner experience, this research aims to give researchers and educators a deeper

understanding of how students receive, make sense of, and apply, teacher feedback in their learning.

Chapter 2: Feedback – A review of the literature

Introduction

Feedback has been defined as "information provided by an agent regarding aspects of one's performance or understanding" (Hattie & Timperley, 2007, p. 81). This information may come from a parent, teacher, peer, self or experience, and the purpose is to bridge the gap between what the student already knows and what they are to do next to improve their performance on the task. At its highest level, to be used effectively, feedback should provide explicit information relating to the performance of a task. This should develop student skills, capacities and understanding from actual performance towards the learning goal (Sadler, 1989).

Contemporary definitions of feedback not only recognise the provision of information relating to student performance and improvement, but also the role of the learner in this process. No longer a simple transfer of information relating to strengths and weaknesses that will be actioned, this perspective asserts the importance of students being able to make sense of the feedback provided to them. This will enable them to apply improvement strategies effectively and increase their learning outcomes (Boud & Molloy, 2013; Carless, 2015; Carless & Boud, 2018).

Instruction, assessment, and feedback are linked closely in the classroom. Whilst instruction may be considered the initial facilitation of student learning, assessment and feedback come after and involve the judgement of performance and information delivered to the student (Hattie & Timperley, 2007). This information may include statements relating to student effort or ability, corrective symbols relating to correct and / or incorrect responses, or process-based information that leads the student to the incorrect response. Hattie and Timperley (1999) proposed that feedback should answer three key questions: "Where am I going?" (Feed-up), "How

am I going?" (Feed-back), and "Where to next?" (Feed-forward). This information may be directed towards the task, process, self-regulation, or self (student).

The influence of feedback on student achievement is well established, with the potential to lead to significant learning gains (Kluger & DeNisi, 1996; Hattie, 2009; Shute, 2008). Hattie's (1999; 2009) meta-analyses of feedback indicate effect sizes of almost two years' achievement gains compared to the 0.40 growth expected from a standard year's schooling. More recent research into feedback reports an effect size of 0.48 (Wisniewski et al., 2020), further validating claims of its potential to enhance achievement. However, this does not necessarily mean more feedback is needed. In fact, some studies suggest that close to one-third of all feedback has a negative influence on learning (Kluger & DeNisi, 1996). Within the various forms of feedback there is significant variance in effectiveness, with praise, rewards, and punishment often having negative effect sizes, and cues and video / audio assisted feedback bringing significant learning gains (Kluger & DeNisi, 1996).

Additionally, assessment and feedback can have a significant influence on student motivation and emotions. As noted in Chapter One, the classroom is a complex social environment, with are range of factors having an influence on whether the student will receive, perceive, or respond to the feedback provided (e.g., the nature of the assessment and / or task; the classroom environment; the teacher / student relationship; and the individual needs of the learner) (Brown et al., 2009; Hattie & Timperley, 1999; Brown & Wiliam, 1998). Learner confidence and efficacy are linked closely to how students will respond to such information, with teachers encouraged to consider the perspectives and needs of the learner when delivering feedback (Hattie & Timperley, 2009; Black & Wiliam, 1998). Despite this, research into how students respond to and action feedback (Hattie et al., 2016; Nicol &

Macfarlene-Dick, 2006; Shute, 2008), or how they perceive that feedback (Dawson et al., 2018), is scarce.

Theoretical perspectives: Feedback and learning

Traditional perspectives

The relationship between feedback and learning has been studied for over a century. Early work by behaviourists explored how the use of positive and negative consequences, often in the form of rewards and punishment, would increase or decrease the likelihood of a behaviour occurring. Thorndike's (1933) law of effect proposed that any behaviour that resulted in a positive stimulus would be more likely to occur again, with any behaviour resulting in a negative stimulus being less likely. In conducting research into operant conditioning, Skinner (1963) explored these ideas further, establishing how reinforcement and punishment could shape behaviour.

With the benefit of hindsight, many of these studies would now be considered as focussed on "conditioning", in which the delivery of a stimulus is controlled to influence a particular response or behaviour. These behaviourist approaches to learning view feedback as something of a one directional transfer of information from the teacher to the student (Thurlings et al., 2012), and do not recognise the learner as playing an active role in this process. In the case of education, this may translate to the teacher delivering content and students replicating with some level of reinforcement or punishment supporting this process (Thurlings et al., 2012). Research into rewards as a positive influence on student achievement has since established that such approaches have a negative influence on learning (Dweck, 2007; Kluger & DeNisi, 1996).

Recognising the role of the student in the learning process, cognitivist perspectives consider how the learner processes the feedback presented to them. A

student may be presented with content from the curriculum, which they must process in order to achieve the desired learning outcomes. However, whilst considering the place of the learner in processing the feedback provided to them, like behaviourists, cognitivists see this process as linear (Thurlings et al., 2012).

In addition to identifying the place of both student and teacher in the learning process, social cultural learning theory also recognises that learning is built around dialogue and interaction (Vygotsky, 1978). This perspective of learning also recognises the learner's Zone of Proximal development (Vygotsky, 1978), in which feedback is provided to the student as they move through the learning process, with the teacher providing information on the next steps in learning. Again, like behaviourist and cognitivist perspectives of learning, the social cultural learning process is linear (Thurlings et al., 2012).

Contemporary perspectives

In contrast to traditional learning theories, more contemporary perspectives view the learning process as a continuous learning cycle in which feedback is provided to learners as they move through the learning process from stage to stage (Thurlings et al., 2012). In their review of theoretical perspectives, Askew and Lodge (2000) describe feedback in traditional learning theories as a gift, which the teacher delivers to the student in a one-way linear transmission of information. More contemporary learning theory views learning as a process in which feedback and dialogues occur in loops, with the learner active in the learning process (Askew & Lodge, 2000).

Reflecting this, meta-cognitive learning theory places emphasis on the student learning to learn (Brown, 1984; Thurlings et al., 2000). In doing so, teachers guide the student through the various stages in the learning process and support them in

becoming independent and active in their own learning. Based on this, the student is able to select learning strategies and self-monitor their progress towards the learning goal, developing the capacity to become a self-regulatory learner. An important distinction between this learning process and traditional perspectives is that it *starts* with the learner (Thurlings et al., 2000).

Social constructivist perspectives use a similar learning loop and also start with the student at the beginning of the learning process. Recognising that learning is built on prior learning experiences, social constructivism focusses on how students construct knowledge (Jonassen, 1991; Thurlings et al., 2000). In doing so, the teacher leads the student through the learning process, guiding them through dialogue, and providing opportunities for the learner to collaborate with peers (Thurlings et al., 2000). As with other contemporary learning theories, from a social constructivist perspective, learning occurs in stages and cycles, and both teachers and peers are recognised as providers of feedback.

Narrowing the lens further relating to feedback research, perspectives and practices mirror many of these theoretical perspectives. Similar to that of traditional perspectives, in the past, feedback has been conceptualised within the educational context as a one-way transmission of information from teacher to learner (Shute, 2008). In their respective reviews of the feedback literature, Shute (2008), and Hattie and Timperley (2007) both viewed feedback as information provided to the learner. However, contemporary literature has recognised that the delivery of feedback to a student does not necessarily lead to learning gains (Brookhart, 2012; Sadler, 2010), and this approach to feedback is not sustainable (Boud & Molloy, 2013).

More contemporary approaches move from feedback being viewed as merely a process of cause and effect and recognise the complexities of the learning process

and the roles of teacher, learner and peer. Aligned with social constructivist perspectives, feedback is viewed as a process in which dialogue and interaction with the teacher and peers shape the delivery, interpretation, and actioning of feedback (Price et al., 2011; Rust et al., 2005). Students are not only the recipients of feedback but play an active role in the learning process (Dawson et al., 2018), with their previous learning experiences and prior engagement with feedback influencing their capacity to respond to teacher feedback (Carless & Boud, 2018; O'Donovan et al., 2001; Sadler, 2010).

Instruction, assessment and feedback

Feedback is optimally utilised if it can build on some level of learning or understanding (Hattie & Timperley, 1999), and is linked closely to the instruction and assessment that precede or follow it. In order for feedback to maximise learning gains, it must follow effective instruction; the most effective feedback interventions are ones that direct student attention to gaps in understanding and provide cues for future learning (Kluger & DeNisi, 1996). Based on this, a learning sequence must consist of instruction, and be followed by assessment in which the teacher will make some sort of judgement of the learner's level of understanding. This assessment may be formal (e.g., a test or demonstration of skill), or informal (e.g., knowledge gaps that emerge in conversation or noticing a process being poorly executed when practicing). Teachers must then consider the learners next steps and how to deliver this feedback appropriately to maximise learning (Hattie & Timperley, 1999).

The instruction that precedes feedback is a complex process in itself. The teacher must consider curriculum descriptors and the nature of the students in their class, before designing a learning sequence and establishing a classroom environment that is conducive to learning. Direct instruction is one model that is well established,

with evidence suggesting significant learning gains and that assessment and feedback are critical elements of the learning process (Adams & Englemann, 1996; Hattie, 2009). In this model of direct instruction, the teacher first begins by communicating the learning goals and the criteria for success. Based on this, students know what they will understand as a result of the learning, and what they need to do to be successful. Then the teacher will build commitment in the learning sequence, in what traditionally may be termed "the hook", with this designed to capture student interest and engagement.

Following this initial stage of building engagement and communicating criteria for success, this model of direct instruction (Adams & Englemann, 1996) then outlines what elements the teacher must consider when designing the learning sequence. This includes factors such as: input – in how information will be presented to students; modelling – as to how the teacher will communicate what success looks like through demonstrations or use of exemplars; and, checking for understanding – in which the teacher monitors student progress before moving on to the next phase of the lesson. Following this period of explicit teaching, the lesson will then enter the phase of guided practice. It is in this phase that assessment and feedback become crucial, with students demonstrating their understanding in learning tasks, and with the teacher assessing them on their performance, and providing feedback to inform their next steps. As the lesson finishes, the teacher will then close the lesson, and often provide opportunities for independent practice through homework tasks, or follow-up learning activities.

It must be noted however, that this model of direct instruction requires the teacher to have a deep instructional understanding to design their lesson effectively, consider effective means of assessment, and leverage high-level feedback to

maximise learning gains in students. High level feedback is characterised by information that is direct to the learner's performance on the task relating to things done well, as well as explaining how and why other elements may be incorrect (Shute, 2008). In order to do this, assessments must be appropriately designed to provide information to the teacher on a student's level of performance relating specifically to the learning goals, and for which relevant feedback can be provided (Hattie & Timperley, 1999). Despite this, Black and William (1998) found that assessment typically focusses on surface level and rote learning, and often occurs at the end of a learning sequence in which any form of evaluation of performance or feedback is rendered useless. In order for assessment and feedback to be used effectively, teachers should consider designing formative assessment tasks in which feedback can be provided throughout the learning task, and support student progression towards the learning goal (Black & Wiliam, 1998; Clarke, 2001; Sadler, 1989).

Whilst feedback will usually be delivered once assessment has been completed, feedback provided to students may have an influence on their levels of understanding before assessment (i.e., it identifies learning goals), during assessment (i.e., students reflect on their performance compared to criteria), and after assessment (i.e., feedback relating to performance) (Shute, 2008). Also known as assessment *of* learning (Black & Wiliam, 1998), summative assessments typically occur after the event, and are often communicated in the form of grades using comments and rubrics to provide more specific feedback on performance. More often than not, these judgements are aligned with curriculum standards and statements for the purposes of reporting to parents on student achievement.

In terms of effectiveness, many researchers have questioned the influence of summative assessments on student achievement. Firstly, several have argued that assessment and the provision of feedback at the end of the learning period comes at a time in which the feedback cannot be actioned (Black & Wiliam, 1998; Wiliam, 2011). Feedback at this point, no matter how useful it is to the student's progression towards a learning goal, has no purpose or place. In addition to this, feedback in response to summative assessment tasks often consists of a grade and comment. Whilst research supports the use of comments to provide feedback to students, grades have been found to be less effective in improving student learning (Black & Wiliam, 1998; Crooks, 1988). Butler (1987) suggested that grades may increase engagement, but not achievement; whilst Wiliam (2011) contended that presentation of a grade halts student learning. Studies into student experiences with feedback in the classroom have suggested that feedback presented with a grade is likely to be ignored, with students considering the grade as more honest and specific than comments (Harris et al., 2014b). Researchers have suggested that grades are predominantly a measure of current understanding, as opposed to feedback relating to the next steps in learning. The presence of a grade will detract from any constructive commentary relating to how the student can improve next time they complete a similar task (Hattie & Timperley, 1999; Wiliam, 2011).

In contrast, formative assessment is considered to have a much more powerful influence on student achievement (Black & Wiliam, 1998; Hattie, 2009; Wiliam, 2011). Also known as assessment *for* learning (Black & Wiliam, 1998), formative assessment results in a less formal judgement of achievement and understanding and occurs during the learning sequence as opposed to at the end. Formative assessment (and the feedback that follows) is intended to indicate the student's current level of

performance in relation to the learning goal and identify their next steps in working towards that goal. Importantly, this feedback comes at a time when it is actionable and can be applied immediately. At its highest level, feedback delivered at this point is often dialogical, may take the form of cues and questions, is targeted at the learners next steps, and is actionable by the learner in subsequent trials (Black & Wiliam; 1998; Hattie & Timperley, 1999; Shute, 2008; Wiliam, 2011).

With the method of instruction and form of assessment utilised, both identified as crucial in maximising student growth, the forms of feedback adopted by teachers must also be considered. However, just as various approaches to instruction and assessment can influence student learning in varying ways (Adams & Englemann, 1996; Black & Wiliam, 1998; Hattie, 2009; Wiliam, 2011), the impact of feedback on learner growth can range from negative to positive and what constitutes effective feedback is debated (Kluger & DeNisi, 1996; Hattie, 2009; Shute, 2008).

The influence of feedback on student achievement

As Hattie (2009) noted: "The most powerful single influence enhancing achievement is feedback" (p.12). Feedback is capable of stimulating significant learning gains in students (Kluger & DeNisi, 1996; Hattie, 2009; Hattie & Timperley, 2007; Shute, 2008). In Hattie's (2009) synthesis of meta-analyses relating to student achievement, feedback was ranked amongst the highest influences, with an effect size of 0.79. Considering that the average effect size for a year's schooling is 0.40 (Hattie, 2009), this evidence is significant in illustrating the power of feedback on influencing student achievement. However, there remains a catch, with the meta-analyses also highlighting the considerable variability between different forms of feedback (Hattie, 2009). This variability in the impact of various feedback interventions extends from the positive to the negative in its effect. As indicated earlier, some studies even

suggest that as much as one-third of all feedback can have a detrimental influence on learning (Kluger & DeNisi, 1996). Despite the many studies into the impact of feedback on student achievement, contrasting results and findings still exist (Shute, 2008), with feedback remaining one of the least understood elements of the teaching and learning process (Cohen, 1985; Hattie & Gan, 2011). So, what feedback works? Which feedback does not? And what do teachers need to consider to maximise their impact?

Shute (2008) identified eleven types of task-level feedback, which she defined as specific, timely, and related to the student's performance on the learning activity. She proposed that this task-level feedback is formative by nature and intended to flag performance gaps, giving the student information to rectify errors. In summary, in order of complexity, Shute (2008) proposed that these eleven forms are:

- No feedback: The learner is presented with no information relating to their performance.
- Verification: Indicates correct or incorrect answers but with no additional information.
- Correct response: Provides the correct answer but no further information.
- Try again: Identifies an incorrect response and gives the student a second attempt.
- Error flagging: Highlights errors, without providing corrections.
- Elaborated: Explains why a response is correct / incorrect. Within the eleven forms of feedback, six relate to various forms of elaborated feedback, as follows:
    - Attribute isolation: Addresses specific understanding / skills being taught.

- Topic contingent: Relates to content / topic, often in the form of re-teaching.
- Response contingent: Specific to the correct / incorrect response.
- Hints / cues / prompts: Guides students to the answer without specific corrections.
- Bugs / misconceptions: Addresses errors and misunderstanding.
- Informative tutoring: Uses a range of the previously described feedback to support the student.

In reviewing the literature, Shute (2008) also presented a range of feedback features that may increase the likelihood of influencing future student performance. These recommendations take into account a range of factors relating to the nature of instruction, characteristics of the learner, and modes of feedback available to the teacher. Overall, Shute (2008) advised that feedback should be non-evaluative, provided in time to be actioned, targeted, and delivered in a supportive manner. Feedback should be focussed on the specific features of the task, with elaborated feedback provided to the "what, why, and how of a given problem" (Shute, 2008, p. 177). This feedback should be specific, presented in manageable chunks, and in a range of modes, setting clear goals of the next steps in the students learning. Feedback should also be unbiased, and not directed to learners themselves.

Shute (2008) cautioned against the use of praise, as well as against any threat of discouragement or risks to self-esteem. Students should also be given the time to attempt their own solutions. Teachers should consider the timing of their feedback delivery based on the complexity of the task, with more immediate feedback required for complex tasks. High achieving students benefit from delayed feedback in the form of cues and prompts, while low achieving students require more immediate and direct

feedback. Finally, at all times the focus should be on learning, not grade-based performance.

In considering the influence of feedback on student achievement, Kluger and DeNisi (1996) completed one of the more significant reviews into its effect. Their meta-analysis consisted of 131 studies, and 470 effect sizes from the 12,652 participants. All of these studies included a control group and measured student performance; however, many were not based in classroom contexts. Kluger and DeNisi (1996) found an average effect of 0.41, but also highlighted the significant variability in feedback interventions, with almost one-third (32%) having a negative influence on performance. This study provides evidence not only of the power of feedback, but also of its potential negative effects if not applied effectively.

In considering many of the contrasting feedback practices, Kluger and DeNisi (1996) found that: indicating correct responses (0.43) was more effective than highlighting errors (0.25); not feeling discouraged (0.33) more effective than discouraged (-0.14); no praise (0.34) more effective than praise (0.09); accessible feedback (0.55) over complex feedback (0.03); setting challenging goals (0.51) rather than easy goals (0.30); and, no threat to self-esteem (0.47) as opposed to feeling threatened (0.08). Feedback that provides information about how understanding has evolved over several trials was also deemed a powerful influence (0.55). Two of the feedback interventions deemed to have the most detrimental effects on student learning were praise and threat to self-esteem.

Drawing on Thorndike's law of effect and behaviourism, Kluger and DeNisi (1996) conceptualised positive feedback as reward, and negative feedback as punishment. In doing so, they found that positive and negative feedback can both stimulate learning gains, with the important mediator being at what level the feedback

is directed and how it can direct learning. In presenting their work, they proposed that feedback interventions influence performance due to five factors:

> (a) Behaviour is regulated by comparisons of feedback to goals or standards; (b) goals or standards are organized hierarchically; (c) attention is limited and therefore only feedback-standard gaps that receive attention actively participate in behaviour regulation; (d) attention is normally directed to a moderate level of the hierarchy; and, (e) Feedback Interventions change the locus of attention and therefore affect behaviour. (Kluger & DeNisi, 1996, p. 259)

In concluding, they suggested that whether feedback is positive or negative, it is at its most powerful when it enhances student efficacy and capacity to self-regulate, directing student attention back to the task and not the self, and motivating them to re-engage with the activity.

In considering further the negative effect that feedback can have on achievement, Deci et al. (1999) investigated the influence of extrinsic rewards for the purpose of increasing student motivation and learning. Through this lens, the use of such rewards is viewed as a form of positive feedback, and includes such incentives as gold stars, student awards, and other incentive-based systems. Deci et al.'s (1999) findings are further evidence of the variability in the effectiveness of feedback, with such rewards having a damaging effect on student learning. Considering that one year's growth equates to a 0.40 effect (Hattie, 2009), Deci et al. (1999) found that the use of extrinsic rewards had a -0.34 effect on task performance. The use of tangible rewards also had a significantly negative effect (-0.68) for interesting tasks; in contrast to 0.18 effect for less interesting tasks. Most significantly, when feedback

was delivered in a controlling manner, indicating that students had performed as expected, the effect on growth was -0.78 (Deci et al., 1999).

The reason for such negative effects is due to a lack of improvement-based feedback on tasks, and the diffusion of responsibility of the learner for their own motivation and self-regulation. Others argue that use of rewards should not be considered a form of feedback at all (Hattie & Timperley, 2007), however rewards are common practice in schools, particularly in the primary years. Such forms of positive feedback are intended to increase student motivation to learn, and their engagement on task. However, such studies suggest that they in fact *decrease* student application, curiosity, and interest in the task (Deci et al., 1999).

Building on this work, Hattie's (1992; 1999; 2009) various syntheses of meta-analyses into influences on student achievement provide further evidence of the power of feedback and its potential impact. The most recent study into feedback consisted of 23 meta-analyses comprising 1,287 studies, 2,050 effects, and 67,931 students. Taking these meta-analyses into account, Hattie (2009) reported the effect size of feedback as a learning intervention as 0.73. More recent calculations report the effect size as 0.48. However, as with previous research into the effects of feedback, Hattie's (1992; 1999; 2009; 2019) studies show the significant variance in the impact of different types of feedback, ranging from high to negative.

In considering what has the most positive influence on student achievement, Hattie (1999) reported that amongst the most powerful feedback interventions are cues (1.10 effect), reinforcement (0.94), video or audio assisted feedback (0.64), computer assisted feedback (0.52), and student learning goals (0.46). Consistent with previous studies, feedback in the form of rewards (0.31 effect), punishment (0.20), praise (0.14), and programmed instruction (-0.04) were deemed the least effective.

Reflecting on this further, Hattie (2009) proposed that feedback is at its most impactful when it is not only conceptualised as being provided by teacher to student, but when it is also from the student to the teacher. He noted:

> When teachers seek, or at least are open to, feedback from students as to what students know, what they understand, where they make errors, when they have misconceptions, when they are not engaged – then teaching and learning can be synchronised and powerful. (Hattie, 2009, p. 173)

With this information, teachers are then able to make appropriate decisions about what feedback to provide to students and when, thus maximising learning.

The relationship between feedback and student emotions

The studies and meta-analyses discussed above give researchers and educators an insight into the importance of feedback and how effective feedback may look. However, as noted, there has been limited research into the impact of feedback on students based on their individual characteristics and how it may influence their future behaviours (Harris et al., 2013; Hattie & Gan, 2011). There is a body of work evidencing the strong emotional connection students associate with the delivery and reception of feedback (Black & Wiliam, 1998; Brown et al., 2009; Harris et al., 2014a), along with the need to further understand how students perceive and make sense of feedback in order to maximise learning gains (Hattie et al., 2016; Nicol & Macfarlene-Dick, 2006; Shute, 2008). In one of the few studies in Primary settings into feedback and emotions, research suggests that student emotions in response to feedback can either enhance or interfere with the learning process (Hargreaves (2013).

Pekrun (2006) proposed that students' appraisal of the value of a task and their level of control arouse both activity (e.g., enjoyment, frustration) and outcome (e.g.,

hope, pride, anxiety) related achievement emotions. Whilst later work by Pekrun and Linnenbrink-Garcia (2012) reported that student academic engagement, motivation, self-regulation, and performance are affected by their emotional responses to their school environment and the tasks they are asked to perform. Assessment has also been found to elicit strong emotions in some students relating to self-concept and to their peers (Brown et al., 2009), whilst Black and Wiliam (1998) argued that perception and interpretations of assessment and feedback will influence students' sense of self and wellbeing.

Literature sources also establish clear links between a student's sense of self and expectations of performance, and how these influence their reception of, and response to, feedback. Self-consistency theorists proposed that an individual will seek feedback that fits with their own predictions of themselves in order to preserve their view of self (Swann, 1983; Swann et al., 1987). In this case a learner with a perceived level of competence in completing a task will seek feedback that confirms this belief. When feedback received aligns with the individual's viewpoint, it is considered more accurate and will influence how they engage with the feedback provided (Swann et al., 1987; Swann & Read, 1981).

In contrast to the search for feedback that is consistent with one's sense of self, self-enhancement theory suggests that individuals with a negative perception of self will seek feedback that improves self-worth and enhances their view of themselves (Swann et al., 1987). It is not that these individuals do not value the feedback provided to them, they simply cannot deal with the negative emotions such challenging feedback elicits (McFarland & Blascovitch, 1981; Shrauger, 1975). Considering these challenges, Murtagh (2014) advises that teachers consider the emotional needs of each student when providing feedback. These theories suggest a

clear link between the affective influence of feedback, and how a learner will receive and respond to the feedback provided to them. Given this, what influence does assessment and feedback have on student motivation, engagement, and emotions?

As noted earlier, feedback is linked closely to instruction and assessment. To maximise student growth, in most cases, effective instruction comes first and the means of assessment to identify knowledge gaps must be appropriate, leading to high-level feedback (Hattie & Timperley, 2009; Kluger & DeNisi, 1996). The assessment context in which the student is engaged, and how they feel about that task, influences their emotional and cognitive responses to the feedback that follows. In the classroom context, these assessments usually take the form of summative assessments (those relating to formal grades and judgements at the end of the learning sequence) and formative assessments (those relating to ongoing judgements throughout the learning task that inform teaching and feedback) (Hornby, 2003). Whilst formative assessment is considered to have a much more powerful influence on student achievement (Black & Wiliam, 1998; Hattie, 2009; Wiliam, 2011), it is often summative assessments that dominate in classrooms, with this form of assessment eliciting negative responses from some learners (Harris et al., 2009; 2014b).

Harris et al. (2009) conducted a notable study into primary and secondary school students regarding feelings about assessment and feedback. Divided into two studies, this research involved 46 students in study one, and 193 students in study two between grade five and year 10. In the first study, students were asked to draw a picture of what assessment is, and how it makes them feel. In study two, students were asked to do the same for feedback. Students were also asked to include a caption to explain their picture. These pictures were coded based on the depictions of teachers and students in the pictures, and the use of affective words and symbols. The

researchers hypothesised that student perceptions of assessment would be more negative than their perceptions of feedback and that secondary students would be more negative in their attitudes to assessment and feedback due to the pressures of performance in senior years of schooling (Harris et al., 2009).

In considering student perceptions of assessment, Harris et al. (2009) coded 46 pictures of assessment, with 91% depicting emotions. Of the primary students, 73% depicted positive emotions, in contrast to 27% depicting negative emotions. Students in years seven and eight depicted similar levels of positive (65%) and negative emotions (35%). This was in sharp contrast to students in the senior years of secondary schooling, with 100% of their images portraying negative emotions. In these images, positive emotions were represented by smiling faces and laughing, along with words of positive affect. Negative emotions on the other hand showed images of crying, sweating, swearing and, in one case, even a bullet to represent the looming sense of failure. Student captions in the senior years represented feelings of stress, fear of failure, feeling ill, and panic.

Student perceptions of feedback, however, were much more positive. Of the 193 pictures coded, 68% of drawings depicted emotions. In the primary years, 86% of students depicted positive emotions. Students in years seven and eight depicted entirely positive emotions (100%) and senior student drawings were 85% positive versus 15% negative. In these, positive emotions were depicted by smiling faces, statements of affirmation and the acknowledgement that the purpose of feedback is to support improvement. Feedback in the form of praise and corrective symbols was frequently depicted, as well as the use of grades, results, and test scores (Harris et al., 2009).

The importance of this study is that whilst educators are encouraged to consider the influence of their assessment design and feedback on student learning, in the real-world context, assessment and feedback also weigh significantly on student emotions. Importantly, Harris and colleagues (2009) reported that the difference in emotional affect between individual students may be related to how students perceive the information will be used. Considering this, they referenced Pekrun's (2006) notion that students' appraisal of the value of a task and their level of control will influence their emotions. They also noted that if students believe that assessments will lead to effective feedback that will help them improve, then the negative emotions associated with assessments in senior years can be minimised. Despite this, the high frequency of feedback depicted by students as grades, results, and scores in this study indicates that summative assessment approaches remain dominant in primary and secondary schools.

Student engagement and feedback

These studies provide evidence of the influence of feedback on student emotions, which is critically linked to how students engage with feedback and what process this takes. Sadler (1989) argued that feedback received that is not acted on is not feedback at all. Considering student emotions and the flow-on effect to engagement, if feedback is to have power, it must be welcomed and attended to. This is supported in Kluger and DeNisi's (1996) meta-analysis, which found that feedback that did not discourage (0.33 effect) was more effective than discouraging feedback (-0.14), and no threat to self-esteem (0.47) was more effective than feedback that threatened self-esteem (0.08). Considering this further, Wiliam (2007) proposed that, based on the individual ways students respond to feedback, they may choose to

increase or decrease performance, effort, motivation, and / or, simply decide the learning goal is too hard or easy to apply the feedback.

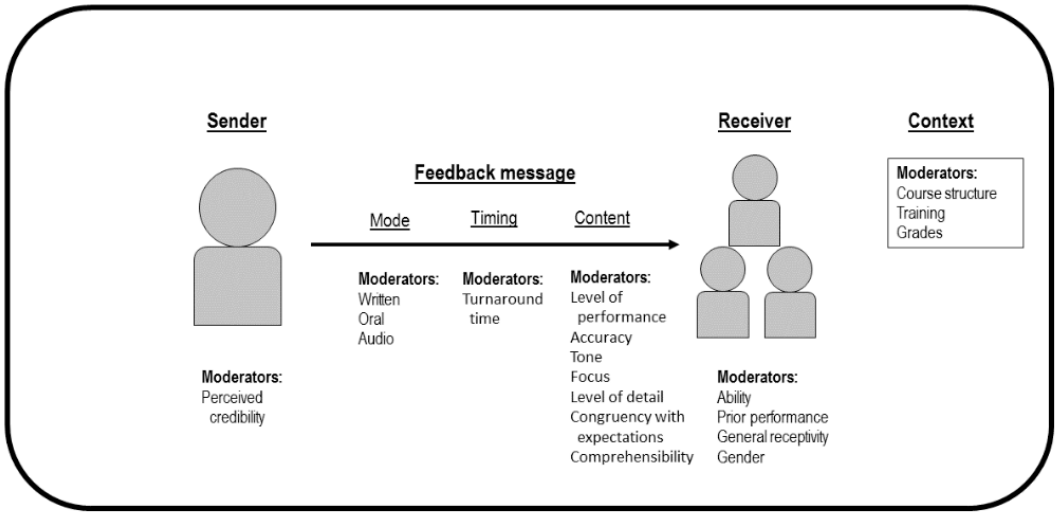
Hattie and Timperley (2007) acknowledge some of these issues when presenting their model of feedback. At the self-regulation level, they proposed that students will engage with feedback while considering the transaction costs. This includes the effort required to apply the feedback (effort costs), how others will view them for seeking feedback (face costs), and what the implications of failure might be (inference costs). Students may not seek feedback if they consider such costs to be too high. Consistent with self-enhancement theory (Swann et al., 1987) and drawing on Kluger and DeNisi (1996), Hattie and Timperley (2007) noted that the most effective feedback enhances student belief and self-efficacy. This motivates students to return to the task and work towards success. The flow-on effect of this is that students gain confidence and the resources to engage in error detection and the search for solutions.

It will be evident throughout this thesis that at times literature will be drawn from the field of higher education, as well as school settings. The reason for this is that studies from the tertiary context are much more common, with access to participants more readily available and without the need for parental consent and increased ethics approval. This is particularly the case in the area of learner engagement with feedback, with the following studies drawn from higher education settings. Despite the difference between schooling and tertiary settings it is acknowledged that insights from feedback studies each domain may inform research into the (Black & McCormick, 2010).

As presented in Figure 1, Jonsson and Panadero's (2018) feedback model considers the factors that influence a student's engagement with feedback. These factors (sender, feedback message, receiver, and context) all have an influence on the

learner and how they engage with the information provided to them. Jonsson and Panadero (2018) thus recognised the importance of the provider of feedback and their perceived credibility. Regardless of whether the provider of the feedback is a teacher or a peer, their influence relates primarily to trust and credibility (Jonsson & Panadero, 2018; Lipnevich et al., 2016; Winstone et al., 2012).

Figure 1
An overview of factors moderating student engagement with feedback (Jonsson & Panadero, 2018, p. 542)



There are also several of characteristics relating to the nature of the feedback message that will influence a learner's likelihood to engage in the feedback process. The effectiveness of varying modes of delivery is considered, with students' one-on-one dialogic feedback and written commentary preferred (Kluger & DeNisi, 1996; Jonsson, 2013). Additionally, as reported in previous sections, the timing of feedback is key to enhancing student engagement and achievement (Hattie & Timperley, 2007; Sadler, 1989; Wiliam & Thompson, 2008).

Jonsson and Panadero (2018) also reported a range of content related factors that influence how a learner will engage with feedback. Citing Lipnevich et al. (2016) and Winstone et al. (2016), they discussed the need for feedback to relate to learning

goals and to provide next steps. The specific nature of the feedback provided (e.g., positive or negative, specific or general, individual or group, grammar or understanding, corrective or suggestive) also influences how a particular learner may respond to the feedback provided (Jonsson & Panadero, 2018).

Importantly, in relation to this study in which feedback affect is considered along with feedback effect, is the factor relating to congruency with expectations. Jonsson and Panadero (2018) described congruency as the extent to which the feedback aligns with the learner's expectations of their performance. They warn that a mismatch between expectation and feedback received will trigger disappointment in some learners and influence the student's engagement with, and actioning of, feedback. This impact is further exacerbated by the use of grades relating to the context of the learning, which may trigger disappointment, reduced engagement, and influence the learners processing of feedback (Jonsson & Panadero, 2018).

Lastly the learner, or receiver, brings a range of characteristics that make them more or less likely to engage in the feedback process. Lipnevich et al. (2016) suggested that some students are more receptive to feedback than others, with this related to the student understanding the purpose of feedback, as well as their own ability and prior performance. Jonsson and Panadero (2018) elaborated further on these themes and suggest that, based on their review of the literature, students with high levels of efficacy, achievement, self-confidence, and self-regulation are more likely to engage with feedback provided to them as are females over males. However, they acknowledged that these suggestions are conceptual, and have not been tested.

In considering how teachers can guide students through this process, To (2016) suggested the need to develop feedback resilience in learners if they are to engage with, and act on, the feedback provided to them. Prior to assessment, To

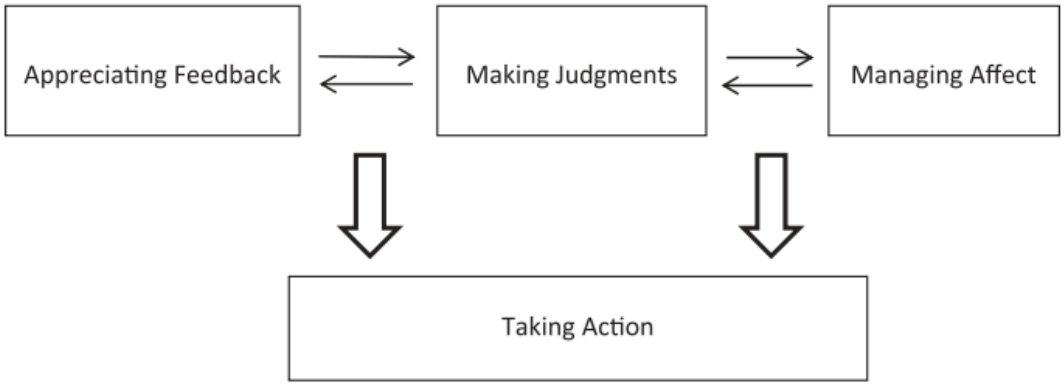
(2016) argued, students need to be provided with clear assessment requirements alongside exemplars, offering them assistance in achieving their learning goals. In addition to this, To (2016) suggested encouraging students to self-assess and consider their strengths and weaknesses before students and teachers identify the next steps in learning collaboratively. This, To (2016) argued, will build trust between learner and teacher and allow students to be better placed to tackle any negative emotions induced by the feedback.

This theme of developing student capacity to manage emotions has been discussed by a number of researchers have argued that this is a key element in responding effectively to feedback. Värlander (2008) proposed that an awareness of one's strengths and weaknesses will help students regulate their emotional response to the delivery of feedback. Considering this in a Primary classroom, Dann (2013) argues that a student's response to teacher feedback is influenced by their previous experiences. This may relate to positive or negative emotions, motivational factors, or self-perceptions.

Considering this more deeply, Carless and Boud (2018) argued that managing the affect of feedback is an essential element in maximising the response to feedback. As presented in Figure 2, they identified three features of feedback literacy that will maximise the potential for students to take action when presented with feedback. Interrelated and multi-directional, these three features are: appreciating feedback, making judgements, and managing affect. These are useful in considering what factors contribute to a learner's capacity to engage in the feedback process effectively and take action to maximise learning gain.

Figure 2

Features of student literacy (Carless & Boud, 2018, p. 1319)



Carless and Boud (2018) drew on social constructivist learning theory and the need for students not only to appreciate the feedback presented to them, but also to develop their capacity to make accurate judgements and change their behaviour in response. They considered the appreciation of feedback to be important in a student's understanding of the role of feedback in learning and for them to be active, recognising that feedback may come in a range of forms and from different sources. Carless and Boud (2018) also considered the need for students to make accurate judgements about their progress towards the learning goal, as well as providing feedback to their peers as part of the feedback process, with these skills becoming refined over time In considering the emotional affect of feedback, Carless and Boud (2018) explained that students need to self-regulate their emotions when receiving critical feedback in order to avoid becoming defensive, be proactive in seeking feedback, and strive for continual growth. With these three features prominent, the student must understand the need to take action, and in doing so draw on prior learning experiences in responding appropriately in the feedback process.

In one of the few studies to consider the process a learner may follow when they engage with feedback, Bangert-Drowns et al. (1991) synthesised the findings of previous research and presented a five-stage model of learning. The capacity to be mindful and self-regulate whilst learning and receiving feedback is implied, with students monitoring behavioural and cognitive changes that they apply throughout the process. In doing so, they consider their environment and how their actions influence their application on the task, with this enabling them to direct their own actions, set appropriate goals, and develop behaviours for growth (Bangert-Drowns et al., 1991).

Moving through these stages, Bangert-Drowns et al. (1991) proposed that the initial state of the learner (Stage 1) is their current state of mind, and establishes their level of prior knowledge, interests, goals, and current level of learner confidence and efficacy. Following this, the task or question activates search and retrieval strategies (Stage 2), which guides the learner's response (Stage 3). The delivery of feedback will elicit an evaluation from the learner (Stage 4), which, depending on the type, nature and effectiveness of the feedback, and how it aligns with student expectations, will influence their response. In the final stage, the learner will adjust their behaviours (Stage 5) and apply the feedback at some level. This will be influenced by the learner's goals and self-efficacy, and the evaluation of performance that preceded it. Bangert-Drowns et al. (1991) proposed that mindfulness is essential for feedback to be received and applied effectively, with the learner's prior experiences, motivations, expectations, goals, and the quality of feedback delivered, all shaping the likelihood for feedback to enhance student achievement.

Models of effective feedback

In order to carry out a study into student perceptions of teacher feedback, a model of feedback to frame this research must first be considered. Over time a number of feedback models have been proposed. However, those of Hattie and Timperley (2007), Sadler (1989), and Wiliam and Thompson (2008) are the three most prominent in educational research and are the focus of this chapter. These models emanated from the literature and are conceptual in nature. They share a range of common themes, with some distinct differences. These are discussed below.

In introducing his theory of formative assessment, Sadler (1989) explained that his work was prompted by two key issues. Firstly, at the time, he believed that a theory of feedback applicable to learning environments was lacking. Secondly, that whilst feedback was being provided, learners were not always demonstrating appropriate growth. Sadler (1989) reviewed the key feedback literature and weighed up the major tensions, before considering the key variables that influence effective feedback practices in relation to developing capacity for students to self-monitor. He proposed that, in order to support student growth and achievement, three feedback conditions must be put in place. Firstly, the learner must understand their learning or performance goal. Secondly, they must be able to reflect on their own performance related to the learning goal. Thirdly, the learner must know what actions and behaviours will bridge the gap between current performance and the learning goal. In discussing these three conditions, Sadler (1989) also stressed the need to provide clarity through modelling of such learning goals. He then discussed the need for teachers to allow students to be part of the evaluative process in order to maximise the effects of feedback interventions.

In contrast to Sadler's (1989) literature review, Hattie and Timperley (2007) considered the research informing effective feedback practices, in addition to presenting a synthesis of meta-analyses identifying the effect size of various feedback interventions. They proposed the use of their model to enhance effective feedback practices that could be considered relatively teacher-centred. As previously discussed, Hattie and Timperley (2007) proposed that effective feedback answers three key questions ("Where am I going?" "How am I going?" and "Where to next?") and works at four levels (self, task, process, and self-regulation). In closing, Hattie and Timperley (2007) considered the insights from the feedback literature and how their model might be utilised in practice.

Wiliam and Thompson (2008) presented their own model for identifying an effective feedback process. Whilst not completing a systematic review of meta-analyses like Hattie and Timperley (2007), they did consider the effect of feedback interventions, in addition to the role of teachers, learners, and peers in the feedback process. In considering the need for a refined model of feedback, Wiliam and Thompson (2008) cited the potential influence of feedback versus other interventions, but lament the time invested in teacher professional learning for little gains. Unlike Sadler (1989) and Hattie and Timperley (2007), Wiliam and Thompson (2008) ignore the role of feedback in summative assessment and focus on a model that will enhance the influence of feedback in formative assessment stages of learning.

In presenting their five key strategies of formative assessment (shown in Table 1), Wiliam and Thompson (2008) drew on the work of Ramaprasad (1983) and considered a number of instructional processes: where the learner is going; where the learner is right now; and, how to get there. Elaborating on effective feedback practices

in the literature, Wiliam and Thompson (2008, p. 15) identified five key strategies in formative assessment:

1. Clarifying learning intentions and criteria for success.
2. Engineering effective classroom discussions, questions, and learning tasks.
3. Providing feedback that moves the learner forward.
4. Activating students as instructional resources for one another.
5. Activating students as owners of their own learning.

Table 1

The five key strategies of formative assessment (Wiliam & Thompson, 2008, p. 15)

	Where the learner is going	Where the learner is right now	How to get there
Teacher	Clarifying learning intentions and criteria for success	Engineering effective classroom discussions, questions, and learning tasks that elicit evidence of learning	Providing feedback that moves learners forward
Peer	Understanding the learning intentions and criteria for success	Activating students as instructional resources for one another	
Learner	Understanding the learning intentions and criteria for success	Activating students as the owners of their own learning	

Each of these feedback models has had a considerable impact on the feedback literature, informing much of the research and subsequent feedback frameworks. Whilst each of these models offer their own unique insights and perspectives, they also share a range of common features. These are summarised in Table 2. Noting these similarities and differences between models is purposeful for anyone engaging in future feedback research.

Table 2

A comparison of the three chosen feedback models

	Sadler (1989)	Hattie & Timperley (2007)	Wiliam & Thompson (2008)
Feedback questions the learner needs answered	What they are aiming for (goals) Where they are in relation to the learning goals How to close the gap between what they currently know, and the learning goal	Where am I going? (Feed-up) How am I going? (Feed-back) Where to next? (Feed-forward)	Where the learner going Where the learner is right now How to get there
Common themes	Sharing with the learner the learning goal, and criteria for success The need for feedback to be timely, specific, and related to the learning goals The need for feedback to provide the learner with the next steps in their learning The importance of developing self-regulation in learners The power of formative assessment, and caution using grades		
Differing perspectives	Learner-focussed A model for developing self-regulatory learners	Teacher-focussed Also discusses various levels of feedback in practice	Teacher, learner, and peer focussed Significant focus on social elements of the classroom

When considering these models side by side, the first thing one recognises is that they all acknowledge the same three elements as important in effective feedback practices. Whilst worded differently, they all identify that effective feedback communicates to the learner: what the learning goal is that they are trying to achieve; how they are currently performing in relation to that goal; and, what things they need

to do next to achieve the learning goal. Secondly, they also share a number of themes in considering how to enhance feedback practice: the importance of sharing explicit learning goals and criteria for success with learners; the need for feedback to be timely and specific; the importance of bridging the gap in learner understanding; the importance of self-regulation in learners; and, the power of formative assessment in stimulating student growth (Hattie & Timperley, 2007; Sadler, 1989; Wiliam & Thompson, 2008).

There are also points of difference between these three models that need to be acknowledged. Sadler's (1989) model of feedback is the most learner-focussed of the three, with the goal of developing student capacity to self-monitor their progress towards the learning goal. In doing so, the learner begins to self-regulate, essentially becoming the provider of their own feedback. In contrast, Hattie and Timperley's (2007) model of feedback is the most teacher-focussed of the three. One could propose that this may be due to the fact that the vast number of meta-analyses that informed their model were teacher-driven interventions. They also presented a feedback typology identifying four levels of feedback and, in doing so, recognised the need for self-regulation feedback to be provided to the learner. Finally, Wiliam and Thompson's (2008) model of feedback is the most socially constructivist by design. Embedded in this framework is the role teachers, peers, and the learner themselves play in the provision of feedback.

Through all of this, the place of praise or self-related feedback remains an enigma. Each of the feedback models recognise the importance of feedback to motivate and empower students in future learning tasks, but caution against the provision of praise or feedback directed at the learner and not the task (Hattie & Timperley, 2007; Sadler, 1989; Wiliam & Thompson, 2008). Whilst non-specific

feedback in praise may not give students the next steps in learning, the effects of feedback considered to be discouraging or threatening to self-esteem has been found to have a negative effect on learning (Kluger & DeNisi, 1996).

Considering each of these models as frameworks for conducting further research into student perceptions of teacher feedback, the Hattie and Timperley model (2007) is the most applicable to the goals of this study. Firstly, the common themes of the three models allow for suitable crossover of discussion in considering the three feedback questions. Secondly, the teacher-focussed nature of Hattie and Timperley's (2007) model aligns well with the research focus on student perceptions of teacher feedback. Thirdly, in considering student response to teacher feedback, the four levels of self, task, process, and self-regulation lend themselves well to the development of feedback samples in this study. Finally, the Hattie and Timperley (2007) feedback model is the one used most frequently in the Victorian education system, so it is the best fit for the context of the research. A deeper discussion of Hattie and Timperley's (2007) model follows.

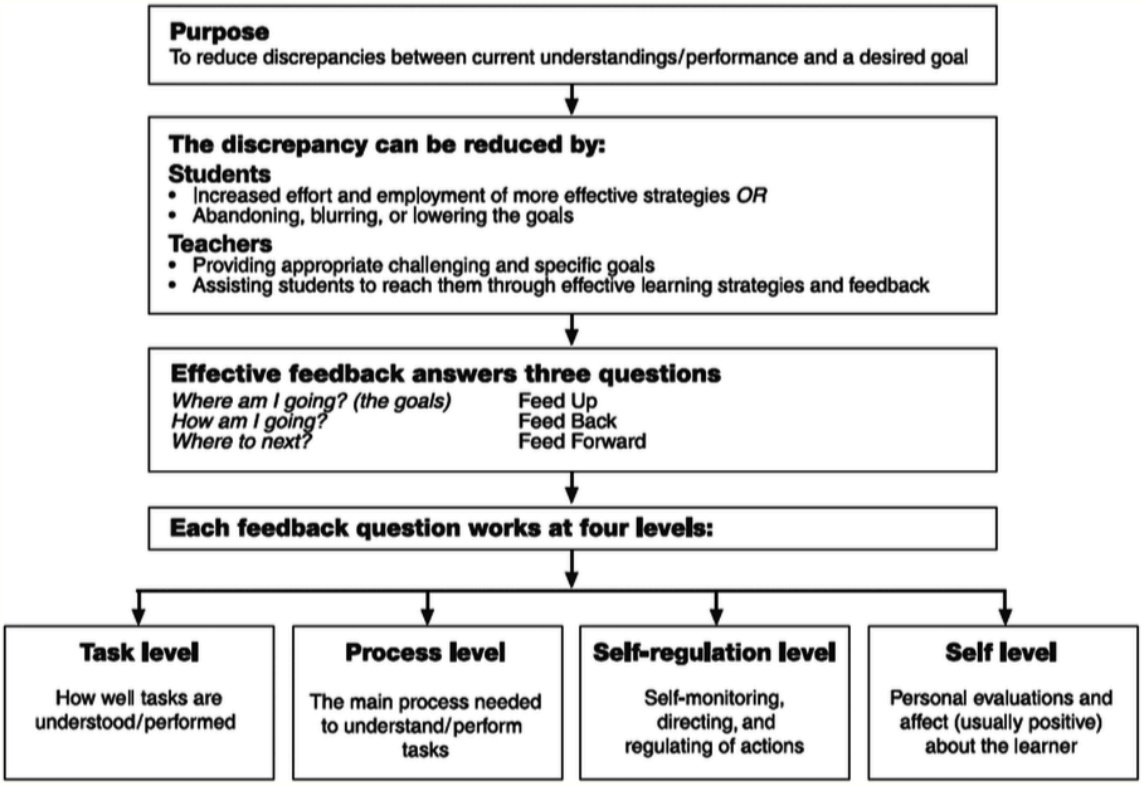
A model of feedback to enhance learning

Hattie and Timperley's (2007) feedback model (Figure 3) takes into consideration the potential impact of feedback on student learning, as well as the complexities encountered due to the wide variance in effect of various feedback interventions. The model considers Hattie's previous synthesis of meta-analyses into feedback, peer-reviewed empirical studies in the literature, and previous feedback models. Underpinning this model is the assumption that the purpose of feedback is to drive student achievement, supporting the learner in reaching their learning goal. The varying effectiveness of different feedback interventions in supporting the learner to

achieve this goal is acknowledged, with the model designed to reduce this inconsistency.

Figure 3

A model of feedback to enhance learning (Hattie & Timperley, 2007, p. 88)



As already indicated, Hattie and Timperley (2007) proposed that effective feedback must answer three key questions: "Where am I going?" (Feed-up), "How am I going?" (Feed-back), and "Where to next?" (Feed-forward). The feedback delivered by the teacher in answering these key questions works at four levels, as discussed earlier, and outlined here in more detail:

- Task (i.e., was the work correct or incorrect?).
- Process (i.e., what process related steps were used or not used?).
- Self-regulation (i.e., what cues and hints can students be given to self-correct?).
- Self (i.e., non-specific comments directed at the learner, and not the task).

Hattie and Timperley (2007) asserted that feedback should be targeted at the student's appropriate level of need in order for its impact to be harnessed and help develop student understanding. Additionally, they recognised the importance of effective instruction, acknowledging clearly that instruction and assessment occur before the delivery of feedback. In making a valid judgement through assessment about the student's level of understanding, the teacher can then decide which feedback questions and levels they will address with the learner.

Three feedback questions: "Where am I going?" "How am I going?" "Where to next?"

The first feedback question, "Where am I going?", is also known as "feed-up" and relates specifically to the learning goals of the task (Hattie & Timperley, 2007). Learning goals are important because if the student does not understand what the learning goal is, then they cannot be successful. Learning goals can be communicated in a number of ways, both orally or written, or through modelling or use of exemplars. The power of effective learning goals is in building commitment and motivation to be successful at the task. When students are engaged, and the learning goal clearly communicated, then student efficacy and commitment to achieve the goal is heightened (Hattie & Timperley, 2007; Kluger & DeNisi, 1996). Clear and specific learning goals also allow the teacher to give targeted feedback to support the student achieving that goal, with students also more likely to seek feedback (Locke & Latham, 1984). Additionally, in some students, clear articulation of learning goals will allow them to develop the capacity to self-monitor and self-assess as they work towards that goal (Hattie & Timperley, 2007).

The second feedback question, "How am I going?", is also known as "feed-back". This relates to how the learner is progressing towards their learning goal, is

often tied to assessment tasks, and will give an indication of the learner's progress based on their performance (Hattie & Timperley, 2007). In order to be useful, feedback should be specific, presented in a timely manner, and related to the learning goals of the lesson (Hattie & Timperley, 2007; Kluger & DeNisi, 1996). As stated earlier, feedback in the form of grades is not effective, nor is praise (Hattie & Timperley, 2007; Kluger & DeNisi, 1996; Wiliam & Thompson, 2008).

Hattie and Timperley's (2007) third and final question, "Where to next?", is also known as "feed-forward". If the purpose of feedback is to move students from their current level understanding towards task mastery (Sadler, 1989), it is this information that leads to those learning gains. In a formative assessment context (Hornby, 2003; Black & Wiliam, 1998), this will allow students to apply this information in subsequent learning tasks. In addressing this question and leveraging the powerful elements of feedback, effective teachers will set clear and challenging learning goals for the next steps, as well as provide cues, prompts to guide self-regulation, and strategies to improve task performance (Hattie & Timperley, 2007; Kluger & DeNisi, 1996).

Four levels of feedback: Task, process, self-regulation, and self

In addition to the three feedback questions posed, Hattie and Timperley (2007) proposed that the effectiveness of feedback is based on which one of four levels it represents. These four levels are task, process, self-regulation, and self. As with feedback interventions more broadly, these levels all vary in their influence on student outcomes. Self-level feedback is considered the least effective, in that it directs information towards the learner and not performance on the task. In contrast, self-regulation type feedback can lead to increased engagement and student efficacy, while process-based feedback can lead to greater levels of task mastery.

Task-level feedback also has the potential to be powerful, as indicated in studies by Lysakowski and Walberg (1982) (1.13 effect) and Tenenbaum and Goldring (1989) (0.74 effect). Up to 90% of verbal teacher feedback is aimed at this level (Airasian, 1997) and studies into written teacher feedback also indicate that task-level feedback is dominant (Harris, 2014). At its most effective, task-level feedback is useful in flagging errors and identifying areas for improvement (Hattie & Timperley, 2007). At its least effective, however, it may involve grades and test scores. The issue with task-level feedback in these forms is that it gives little information about what a student needs to do to improve and, when presented with constructive feedback, takes attention away from more impactful commentary (Black & Wiliam, 1998; Butler, 1987; Hattie & Timperley, 2007).

In contrast, process-level feedback is directed at processes and steps related to the successful completion of the task (Hattie & Timperley, 2007). Based on this level of information, process-level feedback is considered more effective than task-level feedback in enhancing student understanding and task mastery. Rather than simply flagging or correcting errors specific to the task (e.g., correcting spelling errors), process-based feedback will provide the learner with information that is transferrable to similar contexts (e.g., reiterating spelling errors).

Feedback at the self-regulation level opens students up to seeking, receiving, and applying feedback and, at its most powerful, allows the learner to self-correct and decide their own next steps (Hattie & Timperley, 2007). In these cases, high-level learners develop the ability to reflect on their current level of performance and develop strategies and routines to deal with learning challenges (Butler & Winne, 1995; Paris & Winograd, 1990). Less capable learners on the other hand, do not have

the capacity to self-regulate when faced with obstacles, and rely on the teacher for feedback (Hattie & Timperley, 2007).

One type of deeper level feedback that is effective in enhancing student understanding is feedback that uses cues. The reason that cues are so useful is that rather than simply flagging or correcting errors, this feedback assists the learner in the retrieval and use of effective strategies to successfully perform the task (Butler & Winne, 1995). For example, rather than correcting a spelling or grammar error, the teacher may provide a cue for a strategy or to suggest proofreading as part of their process. Alternatively, the teacher may provide a prompt relating to error detection, which over time, will support the learner in self-correcting without the aid of the teacher (Hattie & Timperley, 2007).

The final level of feedback proposed by Hattie and Timperley (2007) is self-level feedback. This feedback is directed at the learner themselves and not the task or concept being taught. This type of feedback is usually positive and often characterised by comments such as “good work”, “well done”, or “good effort”. Evidence suggests that this level of feedback has minimal effect on achievement due to the fact that it provides the learner with no information relating to performance on the task, or the processes that led to their successes or errors (Hattie & Timperley, 2007; Kluger & DeNisi, 1998; Wilkinson, 1981).

Another issue with self-level feedback is that this may lead the student to reducing effort, having misconceptions regarding their level of understanding, or direct student attention away from developing learning-based behaviours. If a student receives praise for a task, they may believe their level of task mastery is higher than it is, and thus reduce the effort applied to a task next time around (Hattie & Timperley, 2007; Meyer, 1982). Additionally, when feedback is directed at the learner, students

may develop a mindset in which they seek feedback directed to themselves, preferring approval of the teacher rather than deeper level feedback relating to the task and how they can improve (Hattie & Timperley, 2007). Conversely, such a mindset in students can lead to declines in self-efficacy and effort if they fail to receive affirmation through self-level feedback, when such a culture exists (Hattie & Marsh, 1995).

Previous research using Hattie and Timperley's (2007) feedback model

Hattie and Timperley's (2007) model is considered by many to be one of the preeminent pieces of work in the feedback literature (Harris et al., 2013), and it is cited widely by researchers, educators, and policy-makers. Despite this, there is a range of factors to contemplate when considering the model's application in our classrooms. Firstly, it must be noted that the focus of Hattie's previous synthesis of meta-analyses and this model related to the influence of feedback on student achievement (Hattie, 1991; 1999; Hattie & Timperley, 2007). It did not consider factors such as motivation, efficacy, and engagement. The impact of feedback and how it influences student affect, and its subsequent impact on learning is not considered as deeply. Additionally, many of the studies that have contributed to the feedback literature were completed using tertiary level participants or in settings other than classrooms, bringing into question the applicability of the evidence to primary and secondary school students. Based on these factors, a number of researchers have used Hattie and Timperley's (2007) model as a framework to learn more about feedback practices in schools.

In considering the application of Hattie and Timperley's model of feedback in the classroom, Harris et al. (2013) reviewed ten empirical studies related to the model and considered the strengths and limitations that emerged. In doing so, they found that the researchers of these studies reported positively regarding the application of the

model in studies involving academics, teachers, and high school students. When considering the limitations and issues that emerged in these studies, Harris et al. (2013) reported the need for further clarification of the four feedback levels, the application of these levels in the classroom, and their influence on learners.

In considering the clarification of the four levels, Harris et al. (2013) discussed the need to distinguish between process-level and self-regulation feedback. They reported that at times it can be unclear whether suggestion, and application, of a strategy is an example of process-level feedback, as it relates to correct execution of the task. Or is it an example of self-regulation feedback, in that it allows the learner to self-direct their learning, and self-correct when finding an error (Harris et al., 2013). For example, if a student is asked to consider a spelling strategy to correct an error, this could be considered a process-based suggestion, but it might also be used in the future for the learner to reflect on their own next steps, thus self-regulating.

Harris and colleagues (2013) also reported that the feedback level of self needs to be considered further. One limitation presented is that the model does not acknowledge the social or pastoral influence such feedback may have in building and maintaining student-teacher relationships, and thus influencing student outcomes (Harris et al., 2013). Whilst researchers have generally concurred that praise does not significantly enhance student performance, many have discussed its potential capacity to motivate and encourage learners (Harris et al., 2013; Knight, 2003; Pajares & Graham, 1998; Rattan et al., 2012; Torrance & Pryor, 1998). Harris et al. (2013) suggested that social factors in the classroom relating to peer-to-peer feedback and classroom culture need to be considered when applying this model in practice.

Considering the application of this model in practice, Brooks, Carroll, et al. (2019) investigated the prevalence of Hattie and Timperley's (2007) three feedback

questions and four levels in verbal feedback in a year seven English classroom in Brisbane, Australia. In doing so, they recorded and transcribed 12 hours of classroom audio and coded data using Hattie and Timperley's (2007) model as a framework. Results indicated that of the three feedback questions, "How am I going?" (Feed-back) was by far the most prominent, accounting for 50% of total feedback words. This was followed by "Where am I going?" (Feed-up) (31%) and "Where to next?" (Feed-forward) (19%).

When considering the focus of verbal feedback using Hattie and Timperley's (2007) levels of feedback, Brooks, Carroll, et al. (2019) found that task-level feedback was the most often used, with 79% of feedback aimed at the task level. Process-level feedback accounted for 16% of verbal feedback, whilst self-regulation feedback was by far the least prevalent, with less than 1% of feedback aimed at this level. The findings of such studies are significant in relation to the gap between literature and practice, which indicates that we need to know more about how effective feedback interventions are enacted in the classroom.

In analysing teacher written feedback using Hattie and Timperley's (2007) four levels, Harris (2014) found that task feedback was dominant (81%), followed by self-level feedback (13%). Deeper and more impactful levels of feedback were rare, with process-level feedback used 5% of the time, and self-regulation feedback in only 1% of the written feedback analysed (Harris, 2014). Additionally, Harris (2014) found that only one-third of feedback was delivered in comments, with teachers preferring to deliver feedback in the form of symbols such as ticks and crosses. Even when analysing the comments alone, task feedback was still the most dominant level of feedback delivered by teachers 61% of the time (Harris, 2014).

Researchers agree that we need to know more about how students receive, interpret, and respond to feedback in practice. This is made even more complex by the individual characteristics of learners within the classroom (Harris et al., 2013; Hattie & Gan, 2011; Price et al., 2010). As a result of their research into the applicability of Hattie and Timperley's (2007) model of feedback, Harris et al. (2013) identified processing of, and affective reaction to, feedback as an area for future research. Researchers agree that developing an understanding of student perceptions and processing is key to feedback being used effectively to enhance achievement and understanding. Despite these gaps, there is a body of work emerging in the assessment and feedback literature that is beginning to address these questions.

Student perceptions of effective teacher feedback

As discussed in the literature presented previously, numerous studies have examined feedback and learning. However, many of these have been focussed on its influence on achievement, with studies relating to student perceptions of feedback less plentiful (Brooks, Huang, et al., 2019; Dawson et al., 2019; Gamlem & Smith, 2013; Harris et al., 2014b; Hattie & Gan, 2011). Of the studies that have been conducted, as indicated earlier, the majority have occurred in tertiary settings with adult learners, with limited research in primary and secondary settings.

When considering student perceptions of feedback, previous research has provided the following insights. Firstly, a number of studies have indicated the need for feedback to be specific and useful in progressing learning (Gamlem & Smith, 2013; Pajares & Graham, 1998). Secondly, there is also evidence that indicates that students want feedback that relates to the criteria or standards they are assessed against (Brown et al., 2009; Beaumont et al., 2011). Thirdly, students communicate the need for feedback to be timely, with it optimised when delivered during the

formative stages of learning (Gamlem & Smith, 2013; Peterson & Irving, 2008; Smith & Lipnevich, 2009). Boud (1995) argued that rather than focussing on the delivery of feedback, we need to consider the effect of the feedback provided. Based on this, the perspective of the learner is important to consider if we are to maximise learning gains, as students can only respond to feedback they understand and are capable of acting on (Price et al., 2010). Also important to note is that these preferences may vary based on the characteristics of each learner (Williams, 2010).

With these issues in mind, Dawson and colleagues (2019) completed a large-scale study at two Australian Universities with 4,514 students and 406 staff, and coded open-ended responses relating to what each group thought feedback was for, and what constituted effective feedback. In considering the purpose of feedback, it would seem there was some agreement between teacher and learner, with 89% of staff and 90% of students identifying improvement as the goal. In addition, 7% of both groups mentioned feedback in identifying strengths and weaknesses in the work provided, with staff also indicating its affective purpose (14%) and its use in justifying a grade (8%), while students indicated lower frequencies against these codes.

However, in considering what makes feedback effective, and what qualities of feedback contribute to effect feedback practices, there was significant variation between student and staff perceptions. When indicating what elements of the feedback process were effective, 53% of staff responded that it was the feedback design. This refers to the design of the task, quality of assessment tools, and how much the teacher requires the students to engage with feedback. In contrast to this, only 17% of students indicated that feedback design contributed to effective feedback, with the vast majority (84%) responding that it was the quality of the feedback

provided to them in teacher comments that would lead to improvements in performance (Dawson et al., 2019).

The qualities in teacher commentary that contributed to effective feedback were also points of contention between staff and students. As summarised in Table 3, students were clear in identifying effective feedback as usable and related to skills and knowledge (49% of respondents), as well as detailed specific and thorough (20%). The next most prominent themes for students were that feedback is precise and direct (8%), and positive and constructive (8%). In contrast to this staff responses were more spread out across the feedback descriptions. While feedback that it is usable and related to skills and knowledge was most commonly associated with effective feedback, only 12% of staff identified this feature. Following this, staff reported that feedback needs to be detailed, specific, and thorough, but again only 10% identified this as important (Dawson et al., 2019).

Table 3

Qualities of comments that support effective feedback (Dawson et al., 2019, p. 32)

Description	Staff *(n)*	Staff (%)	Students *(n)*	Students (%)
Usable - relating to knowledge and skills	40	12	194	49
Usable - relating to learning strategies	8	2	15	4
Detailed / specific / thorough	32	10	81	20
Clarity / focused / precise / direct	5	2	31	8
Nice / positive / constructive	6	2	37	9
Supportive / encouraging / motivating	8	2	27	7
Personalised	9	3	26	7
Individualised	17	5	24	6
Generic	11	3	2	1
Relating to standards	7	2	7	2
Correct / accurate	1	0	1	0
Modelling	5	2	2	1
(unspecified)	2	1	4	1

This insight is significant in that not only does this demonstrate the differing perspectives between staff and students regarding what constitutes quality feedback, but between staff generally. Dawson et al. (2019) noted the positive and refined perspectives the students held relating to the purpose of feedback and its effectiveness. However, in presenting final conclusions, they noted that students in this study did not echo what might be considered the high impact feedback practices that have emerged in the literature (e.g., connecting feedback to standards or criteria for success; use of exemplars; the power of self-evaluation; or, the importance of peer feedback).

On reflecting on their findings more broadly, Dawson et al. (2019) recognised that whilst students shared a range of viewpoints on feedback practices and processes, there were also nuances based on the individual characteristics of each learner. They noted that some students prefer individualised feedback, whilst others like generic feedback. This reiterates Sadler's (2010) comments about the complexities of feedback and the learner, and the fact that there is no specific advice on timing, feedback type, or other feedback characteristics that can ensure effectiveness for all.

When considering student perceptions of feedback, Brooks, Huang, et al.'s (2019) study of Queensland primary school students supported a number of Hattie and Timperley's (2007) propositions relating to feedback and achievement. Their results suggested that students found the most useful form of feedback was that which delivered information about how to improve, relating specifically to the question: "Where to next?" Their findings also suggested that students saw feedback related to "Where am I going?" (connected to learning goals) and "How am I going?" (information about student progress) as task and process levels of feedback. Brooks,

Huang, et al. (2019) also found that students preferred explicit feedback relating to performance on the task over feedback that encouraged reflection and self-regulation.

In considering secondary student perceptions of feedback, Peterson and Irving (2008) carried out research with 41 students in years eight and nine of secondary school in New Zealand. Participants were divided into focus groups, with researchers leading a semi-structured discussion around feedback and assessment, relating to definition, purpose, and perceived impact. During these sessions, students demonstrated that they saw direct links between assessment and feedback. They also perceived the purpose of feedback to relate to reporting progress to parents, acknowledging the effort of the student, and providing information to the student about their level of understanding in order to improve their learning (Peterson & Irving, 2008). In considering what types of feedback they received, most students identified corrective feedback, outcome feedback (grades / scores), and process feedback in the form of constructive criticism or prompts (Peterson & Irving, 2008). What was most concerning about their findings, however, was the impact that praise and grades have on the uptake of feedback. In relation to teacher use of praise when being provided with feedback, students described these as “warm fuzzies”. Rather than being helpful, participants reported that praise often contradicts any purposeful feedback that may accompany it; they preferred honest and constructive comments that would help them improve (Peterson & Irving, 2008).

Considering the impact of grades on student responses to feedback, students indicated a clear tension between the constructive feedback provided and the measure of performance reported through the score provided (Peterson & Irving, 2008). Some participants indicated that they believed teachers had a duty to provide a grade when returning a piece of work. Others reported a range of responses, including: without a

grade there was no sense of accomplishment; the presence of a grade made it easier to interpret the teachers assessment of the work (e.g., high or low); or, when presented with a grade they focussed on this and not the accompanying comments (Peterson & Irving, 2008).

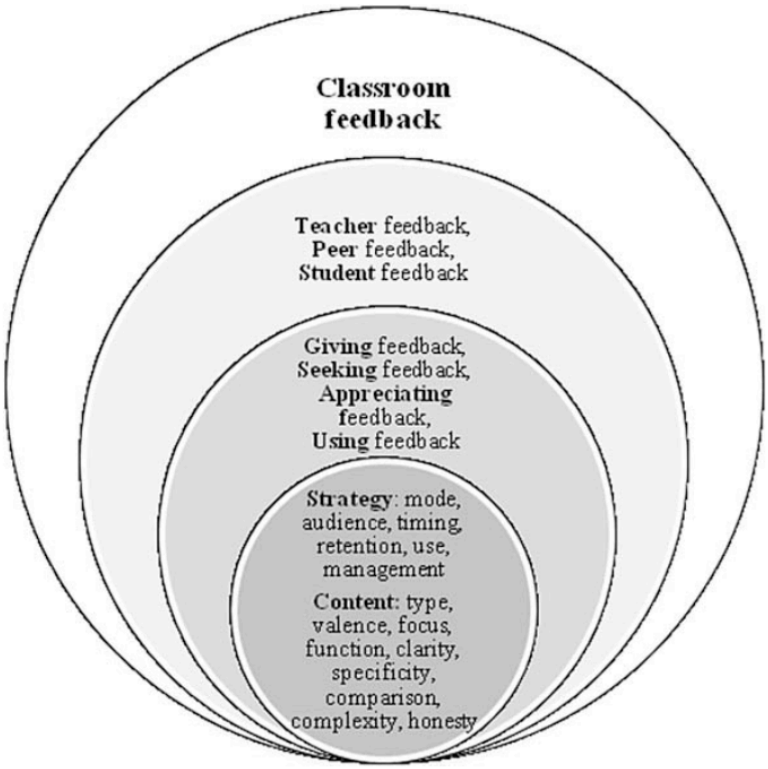
In presenting these results, Peterson and Irving (2008) acknowledged the exploratory nature of their study and its associated limitations. However, their findings mirror the complexities that have emerged in other studies between teachers and learners relating to feedback processes. Research into student perceptions of feedback in university settings also found participants frustrated when feedback was not delivered in a constructive or easy to understand way (Blair et al., 2012; Price et al., 2008). Students in other studies believed they should not only be recognised for performance on task, but also for assessment preparation, attendance, and engagement in learning more widely (O'Donovan, 2016). In contrast to this, staff recognise the tensions between teacher and student perceptions, with some acknowledging that feedback is not only a gauge of performance, but justification for the grade given (Price et al., 2010).

The final notable study into student perceptions of classroom feedback was conducted by Gamlem and Smith (2013) with students in years eight to 10 in Norwegian secondary schools. As presented in Figure 4, in completing analyses of observations and interview transcripts, Gamlem and Smith (2013) identified feedback sources of teacher, peer and self-assessment. They also grouped student perceptions of feedback based on giving, seeking, appreciating, and using feedback. Additionally, two categories were assigned to the nature of feedback provided: strategy, or method / approach for delivery; and content or features of feedback delivered. The three major

themes of feedback are valence (positive and negative feedback), relations and honest feedback, and feedback types.

Figure 4

Analytic model of classroom feedback (Gamlem & Smith, 2013, p. 159)



For Gamlem and Smith (2013) feedback valance relates to the positive or negative feedback provided to the learner, with students sharing different conceptualisations of what this looks like. Positive feedback in this study is defined as approval of things done well, recognition of effort, and identifying next steps in learning, whilst when negative, indicates things such as incorrect responses, working harder, including more accurate descriptions (Gamlem & Smith, 2013). The researchers argued that these are both forms of corrective feedback, with students viewing it as positive or negative based on two significant teacher-controlled factors. Firstly, if the teacher provides the feedback and does not give the student time to work on it, or follow-up on it, it is perceived as negative feedback. Alternatively, if

the feedback is provided with time for students to adjust their behaviours, and follow-up is provided, it is perceived as positive or improvement-based feedback (Gamlem & Smith, 2013). It seems the positive and negative valence is a consequence of opportunity to use the feedback.

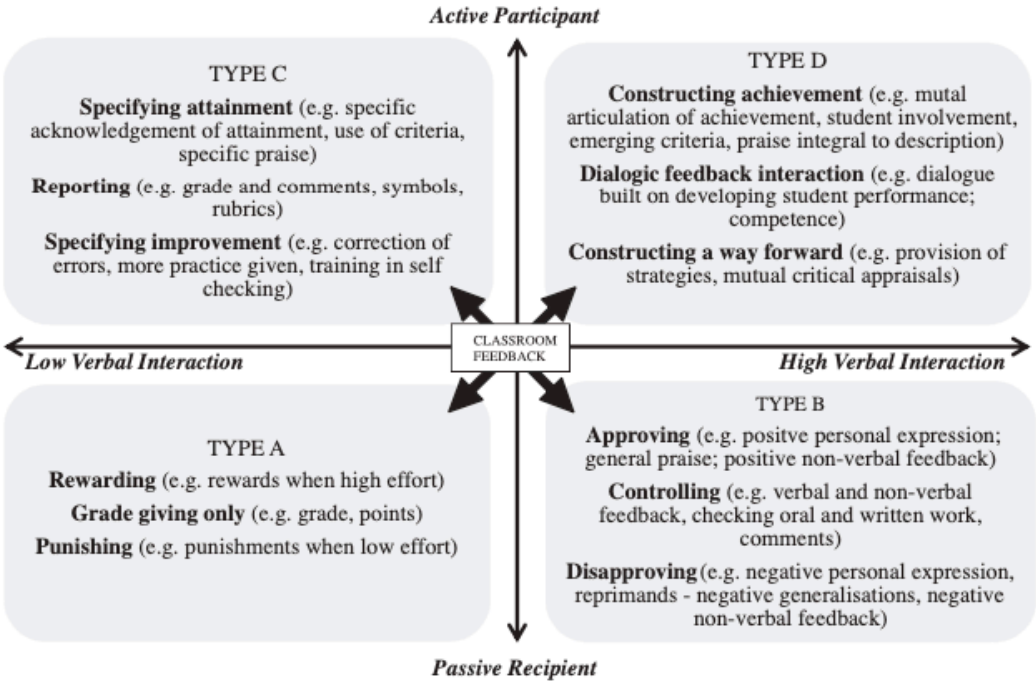
The feedback theme relating to relationships and honest feedback connects to the classroom environment in which feedback is provided, and the interactions between learner, teacher, and peers in the feedback process. As Gamlem and Smith (2013) reported, students in their study discussed the barriers that a lack of trust, honesty, and respect can have in relation to delivery of, and response to, feedback. Students noted, particularly, the challenges associated with feedback based on the nature of relationships. Teachers would encourage students to be positive in the delivery of feedback, and students felt tensions in providing overly constructive feedback to friends. In contrast to this, disapproving feedback from other students was sometimes viewed as retribution for social issues external to the learning task (Gamlem & Smith, 2013). Considering this more deeply, students expressed the need for feedback from teachers and students alike to be honest, providing them advice on what to do next. Echoing the sentiments of Sadler (2010), Gamlem and Smith (2013) discussed the need for clear criteria for success to be communicated to students in order for feedback to be perceived as accurate and constructive. Without this, critical feedback may be perceived as negative, or internalised by the recipient.

Finally, Gamlem and Smith (2013) found four feedback types emerging from their data: grade giving, controlling, reporting, and dialogic feedback interaction. Depicted in Figure 5, these were then mapped according to whether the learner is active or passive in the feedback process, and if the level of verbal interaction was high or low (Gamlem & Smith, 2013). Consistent with behavioural models of

learning (Skinner, 1963; Thorndike, 1933), participants saw grade giving as providing rewards for high effort, or punishment for low effort based on the student's work. Gamlem and Smith (2013) observed that when grades were given, justifications for the mark or next steps in learning were rarely given to learners. Considering this, students reported that they often did not know the reason for their grade but associated the mark with both effort and engagement.

Figure 5

Typology of classroom feedback (Gamlem & Smith, 2013, p. 162)



In considering controlling feedback, Gamlem and Smith (2013) argued that this can either be viewed as approving or disapproving, with this information being communicated through both verbal and non-verbal cues. Whilst not communicating high-level information about the students next steps, this feedback is often informal and communicated in formative assessment periods and lets the learner know if they are making progress towards the learning goal. An example of controlling feedback would be a smile or high five when a task is done well, or a prompt of "you're getting

there" when making progress. On discussing the effectiveness of such feedback, students in the study explained that it was helpful in developing relationships with teachers and motivation but did not help them improve their work (Gamlem & Smith, 2013).

In contrast to this, students viewed reporting feedback as useful for improving their work and appreciated this form of feedback, with Gamlem and Smith (2013) describing this feedback as improvement-focussed. Students viewed this form of feedback as critical to support their progress towards the learning goal but lamented that there was often no time given to respond to the feedback provided with this typically occurring after a test, unit of work, or at the end of the lesson. It also extends beyond the teacher being the provider of feedback, with student self-reflection on progress and peer feedback strategies also requiring active participation from the learner in this feedback type.

Finally, information in the form of dialogic feedback interaction is the most rarely used but the most valued by students in its contribution to supporting learning (Gamlem & Smith, 2013). Gamlem and Smith (2013) stated that in providing feedback that is so crucial to the learner, the teacher verbally gives information relating to progress towards the learning goal, whilst also providing the next steps to supporting improvement. This supports the contention of many researchers before them that high-level feedback gives an understanding of what the students know, and how they can bridge the gap in performance (Hattie & Timperley, 2007; Sadler, 1989).

In discussing how this feedback looks in practice, participants in Gamlem and Smith's (2013) study described dialogic feedback as the teacher moving around the room during formative periods of learning and discussing the learner's challenges and

misconceptions. Following this, the teacher corrected errors using examples and modelling. In addition to addressing immediate knowledge gaps, Gamlem and Smith (2013) argued that this form of feedback supports self-regulation and develops capacity for students to deliver peer feedback. The challenge, they noted, is creating a classroom environment with the conditions to support this type of feedback.

Summary: Gaps in the literature and the emerging research questions

Arguments supporting the power and variability of feedback are well established in the literature, with researchers agreeing on it its potential influence, while highlighting its varied effectiveness in application (Hattie, 2009; Kluger & DeNisi, 1996; Shute, 2008). At its most effective, feedback is timely, targeted, and related to the learning goal and standards that the student is working towards (Brown, et al., 2009; Beaumont et al., 2011; Gamlem & Smith; Pajares & Graham, 1998; Peterson & Irving, 2008; Smith & Lipnevich, 2009).

In contrast to the raft of studies relating to feedback and achievement, there is a void in the literature relating to how students receive, interpret, and respond to feedback in practice. Researchers agree that developing an understanding of student perceptions and processing is key to feedback being used effectively to enhance achievement and understanding. Studies relating to student perceptions of effective feedback are generally limited to tertiary settings, with few studies addressing these tensions in primary and secondary school settings.

In the studies that have been carried out, varied perceptions emerge between teachers and students as to what constitutes effective feedback, with students reporting that feedback is often not specific enough to be useful to them, and highlighting the strong emotional responses associated with the delivery of feedback

(Dawson et al., 2018; Harris et al., 2014b; Li & DeLuca, 2014; Poulos & Mahony, 2008; Price et al., 2011).

Examining this in greater depth, there are links in the research not only between quality feedback and enhancing student understanding, but also in how emotional affect, balance of praise, and recognition of effort influence the uptake. The balance of these variables is a complex one, with different learners preferring different feedback approaches. Additionally, researchers grapple with the tension in praise-based feedback being a motivator, but one that does not yield results (Hattie & Timperley, 2007; Sadler, 2007; Wiliam & Thompson, 2008).

Based on these gaps in the literature, this study aimed to investigate student perceptions of feedback to develop a deeper understanding of how students receive, interpret, and respond to such feedback. The investigation was guided by the following research questions:

1. How much do students understand when they are presented with feedback from teachers on task?
2. To what extent does teacher feedback to students on task influence their future performance?
3. How do students make sense of the feedback that is provided to them?
4. What factors influence the likelihood of students receiving, interpreting, and actioning teacher feedback?
5. What do students consider to be effective feedback practices?

Chapter summary

This chapter has explored theories of feedback, the influence of feedback on student achievement, motivation and emotions, and student perspectives of feedback. This has established feedback as having the potential to impact student learning

significantly, although its effect is varied and can be positive or negative. Additionally, feedback not only influences achievement but also has the capacity to affect student emotions, motivation, and engagement. In the classroom setting, the learner must be able to moderate a number of feedback factors relating to the delivery of feedback, quality of feedback provided, their emotional response, the feedback they expected to receive, and the applicability of the feedback if they are to respond in practice (Carless & Boud, 2018; Jonsson & Panadero, 2018; To, 2016). Yet, as indicated in this chapter, student voices are rarely captured in the feedback literature.

Hattie and Timperley (2007) proposed that effective feedback answers three key questions: “Where am I going?” “How am I going?” and “Where to next?”. They also argued that feedback works at four levels: task, process, self-regulation, and self. As outlined in this chapter, this study uses Hattie and Timperley’s (2007) model of feedback as a framework to explore student perceptions of teacher feedback. The following chapter presents a discussion of the research design and methodology used to address the research questions.

Chapter 3: Methodology

This thesis explores the student experience when presented with teacher feedback to develop an understanding of how students receive, interpret, and respond to teacher feedback. The study employed a cross-correlational research design, using multi-methods, to address research questions relating to student emotional and cognitive responses to teacher feedback, how students make sense of teacher feedback, what students view as effective feedback practices, and what the feedback process looks like through the eyes of the learner. This chapter explains the research design and provides a justification for the choice of that design using evidence from the literature. Following this, approaches to sampling, data analysis and reporting of findings are discussed.

This thesis is based around the central theme of exploring student perceptions of teacher feedback. As noted in the literature review, of the limited research that has been done in this area, the complexities of student engagement with teacher feedback are recognised. Based on this, this study was designed to explore student perceptions both widely, and with a degree of depth. Consistent with a cross-sectional research design (Bryman, 2012), the study was broken into two parts using a survey instrument along with semi-structured interviews. To answer the research questions specifically, Study 1A was primarily concerned with gathering data from a large number of students about their reactions to different types of feedback, what meaning they assign to different types of feedback, and what they view as effective feedback. Following this, Study 1B considered the emerging themes in the data set and explored the variables and influences on student responses to feedback with a smaller number of participants.

Research design

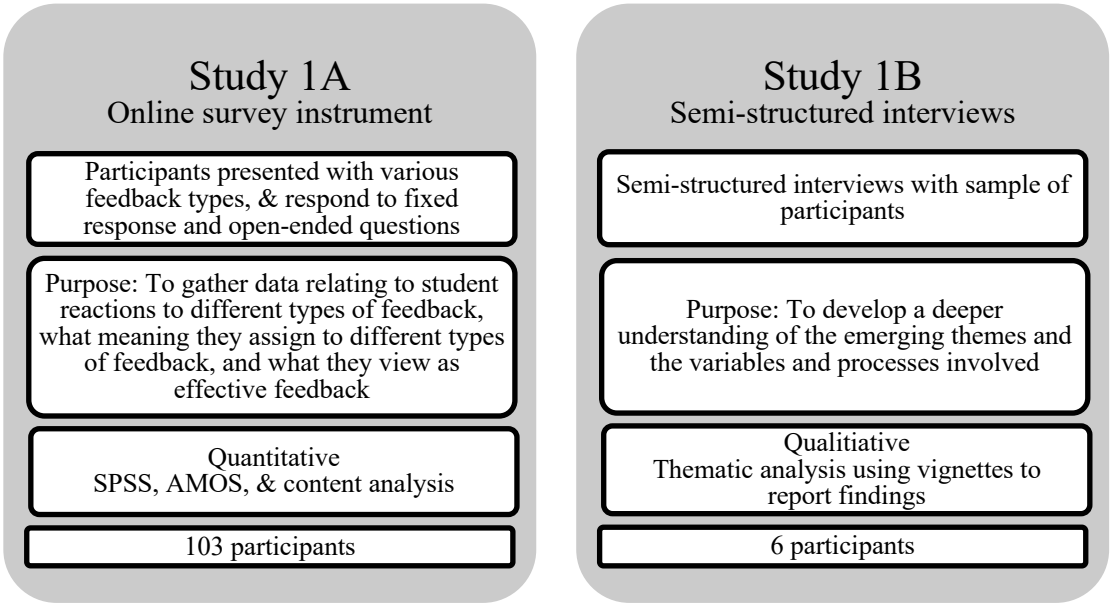
Modern multi-methods research integrates both deductivist and interpretivist research philosophies, and a range of approaches and methods in pursuit of answering the research questions (Brannen, 2017). Through this approach, researchers aim to integrate quantitative and qualitative methods in an attempt to "consider multiple viewpoints, perspectives, positions, and standpoints" (Johnson et al., 2007, p. 113). The purpose of integrating qualitative and quantitative research, as adopted this study, is to capitalise on the strengths of each method (Brewer & Hunter, 1989; Johnson & Turner, 2003), bringing multiple perspectives to concerns about confirmation, corroboration, and exploration (Rossman & Wilson, 1985). In considering the design of a multi-methods approach to answer the proposed research questions, this methodology was carefully considered to maintain levels of inference quality (Teddlie & Tashakkori, 2003). Despite the variation of approaches within the individual methods, the overall goal of understanding student perceptions of teacher feedback remained the constant thread, creating an integrated study (Yin, 2006).

Overall, this study can be considered a mixed approach to using multi-methods (Johnson et al., 2007), as both quantitative and qualitative methods were given equal weight. Whilst each phase of the study (1A and 1B) are discussed later in this chapter, Figure 6 outlines the research design across both elements of the study, including the types of data analysis and number of participants. Study 1A had a quantitative focus, using a survey instrument to gather input from a large sample of students. The survey consisted of fixed-response and open-ended questions, with responses to the latter being coded in a quantitative manner via content analysis. As indicated previously, the purpose of this phase of the study was to gather baseline data for further exploration in the interview phase (Johnson et al., 2007). Analysis and

reporting of this data involved statistical modelling using the statistical package for the social sciences (SPSS) and analysis of moment structures (AMOS) software.

Figure 6

Overview of the study



Study 1B employed qualitative methods in completing semi-structured interviews with a small subsample of student participants. The purpose of these interviews was to build on the data gathered in Study 1A, gathering data to further clarify, explain, describe, and enrich the narrative (Johnson et al., 2007; Jick, 1979). This is consistent with a basic sequential mixed design approach to using multi-methods (Onwuegbuzie & Johnson, 2006) in which data collected at one stage of the study is used to inform the next. As such, the research approach ensured that: "Each method can reach into the realm of the other, to produce a single mixed methods study" (Yin, 2006, p. 44).

Sampling

Consistent with cross-sectional research design (Bryman, 2012), this study gathered data drawn from a sample of cases at a single point in time, using survey data to establish patterns and relationships between variables. Following this, a

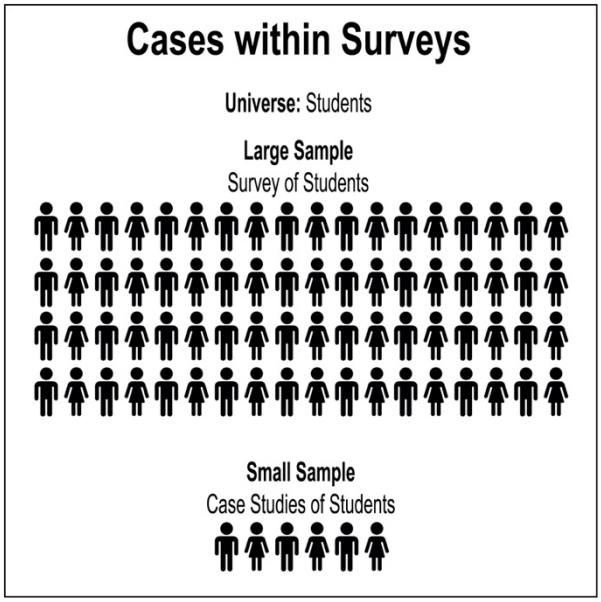
sample of participants were selected for individual semi-structured interviews, with the variation between students considered, and each interview developed as a different case.

As noted by Yin (2006), the approach to sampling for the purpose of multi-methods study needs to be carefully considered in order to maintain rigour in the application of a single study. Using the term "universe" to define the larger group, the sample is being drawn from, Yin (2006) suggested that samples from each study should be nested within one another to maintain a level of integration at the risk of decomposition. Yin (2006) suggested two possible integrated nesting patterns: cases within surveys (in which a larger sample of the group complete surveys, with small case studies drawn from the same group); or surveys within cases (in which a small number of case studies are created before a larger group of the sample population complete a survey).

Figure 7 illustrates how the study considered units of analysis and used sampling methods to maintain integrity and generate a genuine single study using a multi-methods approach to research. Aligned with Yin's (2006) cases within surveys approach to sampling, the study drew on the universe of secondary students, first surveying a large sample of student participants before drawing on a small sample nested within this larger group to complete semi-structured interviews.

Figure 7

An integrated approach to sampling (Adapted from Yin, 2006, p.45)



Participants

Aligned with Yin's (2006) integrated approach to sampling the specific universe, this study drew its sample population from a large government secondary school in a regional centre in Victoria, Australia. The reason for the school being selected was for convenience and accessibility, with the researcher employed as a teacher at the time. Ethics approval was granted by Principal, Department of Education, and University Ethics Committee. Parental and participant consent was also required in accordance with Ethics requirements. 160 psychology students from years 10 to 12 (109 females, 41 males) were invited to participate, with a total of 103 students (76 females, 27 males) agreeing to do so. Despite the gender imbalance, participant numbers were representative of the larger sample size invited to participate. As detailed in Table 4, this group consisted of 26 year 10 students (17 females, 9 males); 40 year 11 students (29 females, 11 males); and 37 year 12 students (30 females, 7 males). All 103 students (i.e. the large sample) completed the

online survey (Study 1A). Six of these participants from year 11 (4 females, 2 males) went on to form the small sample, participating in semi-structured interviews (Study 1B).

Table 4

Summary of participants: Studies 1A and 1B

	All years	Year 10	Year 11	Year 12
	Study 1A – Online survey instrument			
Total students	103	26	40	37
Female	76	17	29	30
Male	27	9	11	7
	Study 1B – Semi-structured interviews			
Total students	6	0	6	0
Female	4	0	4	0
Male	2	0	2	0

In considering the demographics of the participants, the majority of students at the school were Australian born, with English as their first language. Student achievement data for the completion of the Victorian Certificate of Education (VCE) indicated that, at the time of data collection, student results were comparable with the average across the state (Australian Curriculum, Assessment and Reporting Authority (ACARA), 2012). Student enrolment data indicated a relatively even spread across genders, and the only reason for the higher percentage of female participants in this study was due to their willingness to participate. Involvement in the study was within the participants' usual timetabled program, with ethical approval for the study granted by the University of Melbourne Ethics Committee (Ethics ID: 1543967.1) and the Victorian Department of Education.

Study 1A: Method

Study 1A of the multi-methods research study drew on a large sample of the student population to complete an online survey instrument. An online instrument was

employed in this first phase of the study because it was easy to administer and had the capacity to survey large numbers of student participants (Bryman, 2012). The online platform used was SurveyMonkey which provided a platform suitable for purposes of survey design, stability and reliability of access, usability of interface, and efficient extraction of data.

Survey design

The purpose of the survey was to gather data on participant insights into how the learner receives, makes sense of, and engages with teacher feedback. The survey was designed around a combination of fixed-response and open-ended questions. Responses to fixed-response questions allowed the researcher to examine large scale data trends using consistent units, while open-ended questions gave participants an opportunity to express their personal insights as learners engaging with teacher feedback. Previous literature in the area of feedback helped inform the design of the survey instrument. However, given the limited literature into student perceptions generally, and the exploratory nature of this study, new survey elements were added. The survey instrument is provided in full in Appendix A.

The first page of the survey communicated the aims of the study to participants, including details of the ethics approval process. It also provided instructions for completion of the survey. Following this, information relating to participant anonymity and withdrawal rights was presented. The data collected was de-identified. However, each participant provided their name to ensure their data could be tracked in case they wished to exercise their withdrawal rights during the study or after it was completed.

Page three of the survey consisted of a series of demographic questions seeking to establish any differences between various groups and their engagement

with feedback when analysing the data. These questions asked participants to indicate gender, age, and year level. Participants were also asked to self-rate against levels of learner confidence, effort at school, and performance compared to peers. None of the questions in the survey were mandatory; participants could skip questions if they lacked the confidence or desire to respond.

The remainder of the survey asked participants to respond to questions related to five feedback samples. These samples aligned with Hattie and Timperley's (2007) feedback levels: self, task (symbols), task (written), process, and self-regulation. Using a mock written response by a student based on a discussion of the character of Romeo in the play Romeo and Juliet (Smith et al., 2014), participants were asked to give their views of different levels of feedback through a series of questions. These different levels were presented as follows:

- Self-level feedback: participants were shown non-specific comments aimed at the learner and not the task, with statements such as "well done" and "great first effort!"
- Task-level (symbol) feedback: participants were shown teacher feedback in which errors and corrections were provided using ticks, crosses, and underlines.
- Task-level (written) feedback: participants were shown feedback communicated through written commentary and corrections. For example, spelling errors were corrected rather than simply flagged, and comments such as "great opening statement" referenced something done well.
- Process-level feedback: participants were shown comments relating to process-based factors in student performance, rather that corrective symbols or comments. In the case of simple errors, the teacher encouraged proofreading to

avoid such issues or, in the case of strengthening their written argument, encouraged the student to use examples from the play.

- Self-regulation feedback: participants were shown feedback that, in contrast to the above, attempted to develop the student's ability to self-monitor. In the case of spelling and grammar errors, the teacher provided prompts and required the student to re-read and self-correct. For deeper level understandings, the teacher asked the learner to reflect on the comments, asking "How do I see these changes occurring in the play?" in an effort to prompt a stronger response next time around.

When presented with each feedback sample, participants were asked to respond to a range of fixed-response questions to gauge their understanding of the meaning of the feedback, its effectiveness, and why it might be useful to the learner in terms of their performance. Specifically, these questions were:

- "What does the information provided by the teacher tell the student about their performance on the task?" (Options related to elements of performance [e.g., done well, done poorly, understands the play]).
- "Based on the information the teacher has given the student on the work, what should the student do differently next time around to improve their performance on the task?" (Options related to what the student needed to do to improve [e.g., no relevant information, try harder, develop better understanding of the plot]).
- "How often do you receive this type of feedback from your teachers?" (Options were never, sometimes, often, all the time).

In addition to these fixed-response questions, the final question for each feedback sample was an open-ended question asking: "Do you think this teacher's

feedback will be useful to the student the next time they complete a similar task? Please explain why / why not".

After participants responded to these questions regarding each feedback sample, they were presented with three final open-ended questions at the end of the survey, asking:

- "Which of these feedback samples of teacher feedback would you find most useful in helping you improve as a student on the task? Please explain why."
- "Thinking about yourself as a student, what feedback do you look for when you receive a piece of work back from a teacher? Please explain why."
- "What advice would you give to teachers who want to improve the effectiveness of the feedback they give to their students?"

These questions were designed to complement the quantitative data gathered, and deepen the researchers understanding of the student feedback experience. The survey was developed in consultation with Professor John Hattie at the University of Melbourne and tested with an independent group of participants prior to the completion of the study This ensured clarity of language and accuracy of questioning.

Implementation of the survey

Students in years 10 to 12 were invited to participate in the feedback study following an initial briefing on the aims of the study and requirements of participation. Interested students received a plain language statement and consent form to be signed by their parent or guardian as well as themselves. This was in accordance with guidelines provided by the University of Melbourne Ethics Committee and the Victorian Department of Education.

The researcher organised a range of sessions for the participants to complete the online survey. Information technology classrooms at the school were utilised as

each had 25 computers for participants to use to complete the online survey. This was arranged with teachers of the students, and within the participants' normal school day.

Prior to completion of the survey, the researcher briefed participants on the aims of the study and reiterated their rights. In addition to this, whilst the study was not considered high risk, participants were advised of wellbeing support available to them at the school should any of the questions raise anything that caused them distress. Again, this aligned with the ethical guidelines provided by the University of Melbourne and the Victorian Department of Education. After this briefing, participants commenced the survey, taking around 20-30 minutes to complete.

Analysis of fixed-response questions

Following completion of Study 1A, data from fixed-response questions was exported from the SurveyMonkey server and entered into SPSS (V. 24). Quantitative data were then analysed using analysis of variance (ANOVA), reliability testing, maximum likelihood factor analysis, and Pearson's correlations. In considering the application of factor analysis, a maximum likelihood factor analysis with an oblique (Promax) solution was used to better understand the dimensions of the items. In light of the factor structure, estimates of reliability were calculated for each scale (Cronbach's alpha).

Based on this analysis, a number of latent factors were considered as to what variables influence student feedback processes. A hypothesised structural equation model (SEM) was developed and further tested using AMOS (V. 24). The purpose of AMOS modelling was to evaluate the hypothesised relationship between the latent factors within the feedback perceived by participants in the study. The outcomes of these analyses and modelling are reported in the results section in the chapter relating to Study 1A.

Analysis of open-ended responses

In addition to responding to the various fixed-response statements relating to each of the five feedback samples, participants were invited to give further insights through a number of open-ended questions. Following completion of the studies, participant comments were entered verbatim into a spreadsheet and a content analysis was completed. This quantified the data and allowed measures of inter-rater reliability to be calculated, and theories to be developed from the data sets.

An inductive approach was taken to the content analysis (Mayring, 2000), whereby the data was reviewed word for word, and then re-read as themes and patterns emerged. As discussed previously, whilst the model of feedback proposed by Hattie and Timperley (2007) is well established, and numerous studies have been completed exploring student responses to feedback and assessment, there is little specific research into student perceptions of this feedback model. In entering into this coding process, the researcher did so with no perceived conceptions of what patterns might emerge and hoping to develop a deeper understanding of the emotional and cognitive processes associated with receiving feedback.

To ensure reliability, two coders completed separate content analysis on all data sets. The second coder was a researcher with a background in education and who had also conducted research relating to feedback and learning. These analyses were then entered into SPSS, and a measure of Cronbach's alpha was generated to give a measure of reliability. In the case of discrepancies, the two coders would meet and discuss their respective codes. The frequency of codes for the lead researcher (rater one) were used in data analysis.

Following on from the identification of codes isolated to each feedback sample, the total data set was merged to establish which of these factors combined to

make teacher feedback “useful” to students. These were entered into SPSS for the purpose of analysis. In completing the factor analysis, researchers were guided by the following assumptions: inclusion of correlations of at least 0.25; Kaiser-Myer-Olkin (KMO) test results of above 0.6; and diagonals of the anti-image correlation matrix over 0.5.

The analysis used the maximum likelihood method as it allows for correlations between factors to be calculated. Additionally, the rotation method employed was Promax with Kaiser normalisation, due to the size of the data set and, for ease of subsequent interpretation, because each variable tends to load onto one main factor. Following this, data trends and patterns were analysed with theoretical models presented.

Study 1B: Method

The second phase of the study drew on a small number of cases from those who completed the online survey in the larger participant group (Yin, 2006). These participants completed semi-structured interviews (Bryman, 2006) giving insights into their responses, thought processes and experiences as learners. Using the quantitative data gathered in Study 1A as baseline data, the qualitative element of the study explored the themes that emerged from this data set (Johnson et al., 2007). As already outlined, the purpose of this element of the study was to use the qualitative data gathered to help clarify, explain, describe, and shift thinking in the researcher (Onwuegbuzie & Johnson, 2006), as well as give a more defensible indication of the lived experience of students who engage with teacher feedback (Denzin & Guba, 2005).

In considering these goals, the second part of the research employed a case study approach. This approach allows for the investigation of one or several instances

of a particular phenomenon in depth, generating further explanations and theories (Blatter & Haverland, 2012; Eisenhardt, 1989). In contrast to the first phase of the study in which the research questions were not concerned with the specific setting of the larger sample, this smaller sample was purposefully selected to extend understanding of the phenomenon of feedback within this group of participants (Eisenhardt, 1989). The researcher used semi-structured interviews in the field to gather data from case studies (Eisenhardt, 1989) before reporting the results from individual cases through the use of vignettes (Hughes & Huby, 2012).

Semi-structured interview design and implementation

The semi-structured interviews were designed to explore the participants' perspectives, with the capacity to pursue themes as they were raised. This helped build a deeper understanding of how students respond to, and make sense of, teacher feedback (Bryman, 2012). In conducting these interviews, the interview guide (presented in Appendix B) provided a structure to follow across the interviews (Bryman, 2012). In each case, this involved the researcher talking through the participant's survey responses (Study 1A) and attempting to make sense of the emerging themes. This also involved the researcher preparing for each individual interview by considering what themes might be explored more deeply (Lofland & Lofland, 1995). For example, one participant's survey responses might have given insights into their emotional response to feedback, whilst another might have talked more specifically about their cognitive response. Given the unique nature of each individual participant's responses, discussion varied from interview to interview. There was also capacity to explore any themes that incidentally emerged as the interview was completed.

The goal of Study 1B is not to revisit these themes in more depth with the entire sample from Study1A, but to explore participant perceptions with a smaller number of cases. Participants from Study 1A were contacted and invited to take part in the second part of the study. Willing participants were given a plain language statement and consent form relating to participation in semi-structured interviews. These were signed by the participant and their parent or guardian. As in Study 1A, ethics approval processes were followed in accordance with the requirements of the University of Melbourne and the Victorian Department of Education. Interviews took place on school grounds during the school day, taking around 30-45 minutes each.

Analysis and reporting of case studies

In contrast to the concepts and statistical models generated from the quantitative data gathered in Study 1A, the focus of this data collection phase was to explore the lived experience of the learner. As indicated earlier, case study findings are reported in the form of vignettes. Vignettes are a form of constructed narrative that allow the researcher to communicate the unique perspectives, attitudes, and behaviours of each of the students interviewed (Hughes, 2012). The vignettes in this study were designed to give insight into how feedback impacts learners' emotions and motivations, how they might respond cognitively to feedback, and how the social context of the classroom and interactions between student and teacher, and between student peers, influences the feedback process.

In order to construct each vignette, interview transcripts were reviewed and key themes from each interview identified. Consistent with thematic analysis, a table was created to capture the coding and to summarise the themes with quotes from each interview. Columns were allocated to each of the feedback types included in the large-scale survey (self, task, process, and self-regulation). A column was also

allocated to note general information about the characteristics of the participant as a learner, as well as other columns for additional information that arose during the interviews. Using the emerging themes, vignettes were then prepared with the intention of reporting the student's individual emotional and cognitive responses. The vignettes also reported on other factors that might influence the process of receiving, making sense of, and responding to, feedback. In the absence of further participant access to check accuracy of vignettes, to establish validity and reliability in the construction of the vignettes a second researcher with experience in the field of feedback reviewed the interview transcripts, coding tables, and vignettes, and provided review comments to the researcher on any inaccuracies or gaps.

Chapter summary

This chapter discusses the methodology employed to carry out research into how students receive, interpret, and respond to teacher feedback. This thesis utilises a cross-correlational research design and uses multi-methods to gather data. This approach is justified by its capacity to draw on deductivist and interpretivist philosophies, and to integrate quantitative and qualitative methods in order to draw on the strengths of both approaches in developing a deeper understanding of feedback from the perspective of the learner. This chapter also presents the methods used for both phases of this study. In Study 1A this involved administering an online survey to 103 students that used various feedback samples to gather data about students' responses to different types of feedback. Following this, Study 1B explored the themes that emerged in the online survey with 6 participants who consented to semi-structured interviews. Chapter 4 will discuss the findings of Study 1A. Study 1B will be explored more deeply in Chapter 5.

Chapter 4: Study 1A

Introduction

As discussed in previous chapters, there is significant evidence to suggest that feedback has a high impact on learning, but with significant variance in effectiveness across its various forms (Kluger & DeNisi, 1996; Hattie, 2009; Shute, 2008). Despite the raft of studies into the influence of feedback on learning, there is limited research on student emotions and student perceptions of teacher feedback. Of the studies that have been completed, there is evidence of strong emotional connections to feedback processes, with complexities emerging in the feedback sought by students and how they receive it (Black & Wiliam, 1998; Brown et al., 2009; Harris et al., 2014b; McFarland & Blascovitch, 1981; Swann & Read, 1981). In considering student perceptions of feedback, studies completed at the tertiary level indicate that students view effective feedback as specific, timely, actionable, and related to their learning goals (Dawson et al., 2019; Harris et al., 2014a; Hattie & Gan, 2011; Peterson & Irving, 2008). However, there remains a significant divide between teacher and student perceptions of feedback, and how feedback is applied in the classroom, with little known about how students receive, interpret or action teacher feedback.

In the context of these acknowledged tensions, Study 1A focussed on gathering data to explore these themes. Specifically, its purpose was to gather data on student reactions to different types of feedback. This sought to determine student responses to the information the feedback provided about task performance, what information the teacher provided about how to improve, and how effective they deemed the feedback to be. This involved 103 participants completing an online survey consisting of fixed-response and open-ended questions. In completing the survey, participants were presented with five feedback samples aligned with self, task

(symbols), task (written), process, and self-regulation (Hattie & Timperley, 2007). Fixed-response questions were analysed using quantitative data analysis tools in SPSS and AMOS. Open-ended responses were coded using an inductive method of content analysis, with these responses quantified for analysis.

Participants

As summarised in Table 5, 103 students (76 females, 27 males) from a large government secondary school in a regional centre in Victoria participated in Study 1A. Of these, 26 were from year 10 (17 females, 9 males); 40 were from year 11 (29 females, 11 males); and 37 were from year 12 (30 females, 7 males). As indicated in Chapter Three, the reason for the higher percentage of female participants is simply due to a greater willingness to participate in the study.

Table 5

Summary of participants: Study 1A

	All years	Year 10	Year 11	Year 12
Total students	103	26	40	37
Female	76	17	29	30
Male	27	9	11	7

Results: Fixed-response questions

Factor analysis

As outlined in the methodology chapter, fixed-response data was exported into SPSS and analysed using ANOVA, reliability testing, maximum likelihood factor analysis, and Pearson's correlations. A maximum likelihood factor analysis with an oblique (Promax) solution was used to understand the dimensions of the items better. Seven factors were retained for the items relating to "What does the information given by the teacher tell the student about their performance on the task?"

The pattern matrix shown in Table 6 illustrates the factor loadings for participant responses to each of the feedback samples of self, task (symbols), task (written), process, and self-regulation, with a factor loading of 0.4 being considered acceptable. These loadings indicate high levels of correlation between factors, regardless of the feedback variable presented. Based on the characteristics of the two sets of correlating factors, groupings were labelled as either understanding or improvement.

The understanding grouping represented the following statements: “Student understands the task”; “Student understands the play”; “Student has done well”; and “The teacher is happy with the student”. This communicated information to the student relating to their performance on the task. Factors grouped under improvement represented the following statements: “Student needs to proofread more”; “Work on spelling and grammar”; and “Elaborate more on ideas”. This information related to advice that focussed on how the student might improve their performance on the task. In all cases, factor loadings exceed 0.4, excluding: “Student needs to work on spelling and grammar” (task - written) (improvement); and “Student has done well” (self-understanding and self-regulation) (understanding).

Table 6

Pattern matrix – What does the information given by the teacher tell the student about their performance on the task?

	Self		Task (symbol)		Task (written)		Process		Self-regulation	
	Under-standing	Improve-ment	Under-standing	Improve-ment	Under-standing	Improve-ment	Under-standing	Improve-ment	Under-standing	Improve-ment
Student needs to proofread more	0.05	**0.94**	0.05	**0.81**	0.22	**0.57**	-0.19	**0.73**	0.13	**0.67**
Student needs to work on spelling and grammar	0.06	**0.94**	-0.47	**0.49**	0.24	**-0.71**	0.15	**0.75**	0.13	**0.59**
Student needs to elaborate on ideas more	-0.04	**0.57**	0.17	**0.54**	-0.04	**0.58**	0.07	**0.49**	-0.23	**0.68**
Student understands the task	**0.79**	0.12	**0.82**	0.12	**0.58**	0.33	**0.84**	0.09	**0.81**	0.04
Student understands the play	**0.81**	-0.09	**0.73**	0.27	**0.79**	-0.04	**0.75**	0.12	**0.82**	0.04
Teacher is happy with the student	**0.71**	-0.05	**0.84**	-0.09	**0.76**	-0.11	**0.83**	-0.09	**0.41**	-0.21
Student has done well	**0.27**	-0.42	**0.77**	-0.04	**0.48**	-0.08	**0.83**	-0.09	**-0.11**	0.41

These loadings illustrate that participants consistently assigned meaning to the feedback provided on the task. This is regardless of whether the feedback was vague and non-specific (in the form of self-level feedback), communicated through symbols or comments aimed at the task, or related to processes and strategies to self-regulate. In responding, students assigned meaning based on the level of understanding of the task, and what improvement-based strategies might support them.

A similar process was applied in analysing participant responses to the question: "Based on the information the teacher has given the student on the work, what should the student do differently next time around to improve their performance on the task?" Following the application of a maximum likelihood factor analysis with an oblique (Promax) solution to understand the dimensions of the items, seven factors were retained (Table 7). Consistent with the previous analysis, two factors were identified for each of the variables, relating to understanding and improvement.

The variables relating to understanding were referenced by: "Develop a better understanding of the characters" and "Develop a better understanding of the plot". Considering how a learner might improve based on the feedback provided, improvement factors included: *"*Draft their work", "Ask more questions", "Use a spell checker", "Proofread", and "Not rush so much". Factor loadings exceed 0.4 in all cases except: "Ask more questions" (self and task - symbols) (improvement); "Use a spell checker" (task - written and self-regulation) (improvement); and "Proofread" (process) (improvement).

Table 7

Pattern matrix – Based on the information the teacher has given the student on the work, what should the student do differently next time around to improve their performance on the task?

	Self		Task (symbol)		Task (written)		Process		Self-regulation	
	Under-standing	Improve-ment	Under-standing	Improve-ment	Under-standing	Improve-ment	Under-standing	Improve-ment	Under-standing	Improve-ment
Draft their work	-0.15	**0.67**	0.15	**0.47**	-0.03	**0.77**	-0.01	**0.76**	0.3	**0.57**
Ask more questions	0.2	**0.34**	-0.08	**0.37**	-0.2	**0.46**	-0.19	**0.54**	-0.12	**0.63**
Use a spell checker	0.08	**0.86**	-0.05	**0.68**	0.44	**0.32**	0.34	**0.52**	-0.04	**0.35**
Proofread	0.04	**0.87**	-0.04	**0.63**	0.43	**0.56**	0.21	**0.35**	-0.19	**0.45**
Not rush so much	-0.08	**0.6**	0.04	**0.61**	-0.09	**0.64**	-0.41	**0.44**	0.12	**0.53**
Develop a better understanding of the characters	**0.92**	0.08	**0.9**	-0.05	**0.78**	-0.16	**0.84**	0.08	**0.77**	0.16
Develop a better understanding of the plot	**0.87**	-0.1	**0.87**	0.03	**0.75**	-0.22	**0.86**	-0.01	**0.86**	-0.26

As with the previous analysis and model, these loadings indicate that students consistently assigned meaning relating to their gaps in understanding, and what they needed to do to improve. Task-based knowledge gaps relate to levels of understanding of the characters and plot (content related), as well as improvement-based solutions (drafting, spell checking, proofreading, taking time to complete work, and asking questions of the teacher if necessary).

Modelling of structural equations using AMOS

The structural models (i.e., the pattern matrices shown in Tables 6 and 7) were analysed using AMOS software, evaluating the hypothesised relationship between the latent factors of understanding and improvement as perceived by participants in response to various feedback samples in the study.

For each model, only the observed variables that related to the expected factor were estimated. In the case of the model relating to the question "What does the information given by the teacher tell the student about their performance on the task?", this included observed variables that were indicative of understanding in: "Student understands the task", "Student understands the play", "The teacher is happy with the student" and "Student has done well". When considering the latent factor of improvement, this included observed variables: "Student needs to proofread more", "Student needs to work on spelling and grammar", and "Student need to elaborate on ideas more". Figures 8 to 12 present the AMOS modelling for each of the feedback samples.

Figure 8

Self-level feedback – "What does the information given by the teacher tell the student about their performance on the task?"

Feedback type: Self	**χ2**	**df**	**RMSEA**	**r**	**p**
	29.09	13	.11	-.18	.132

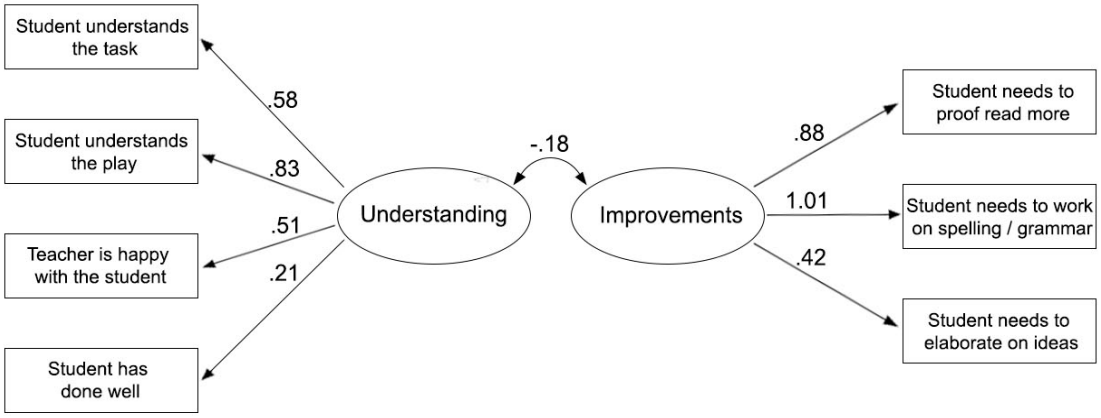


Figure 9

Task (symbols) feedback – "What does the information given by the teacher tell the student about their performance on the task?"

Feedback type: Task (symbols)	**χ2**	**df**	**RMSEA**	**r**	**p**
	33.30	13	.12	-.56	<.010

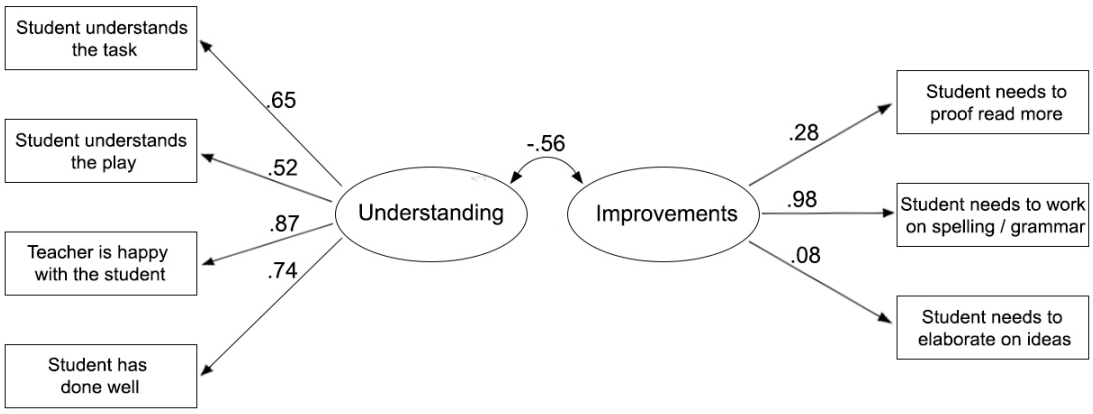


Figure 10

Task (written) feedback – "What does the information given by the teacher tell the student about their performance on the task?"

Feedback type: Task (written)	**χ2** 18.06	**df** 13	**RMSEA** .06	**r** -.58	**p** .781

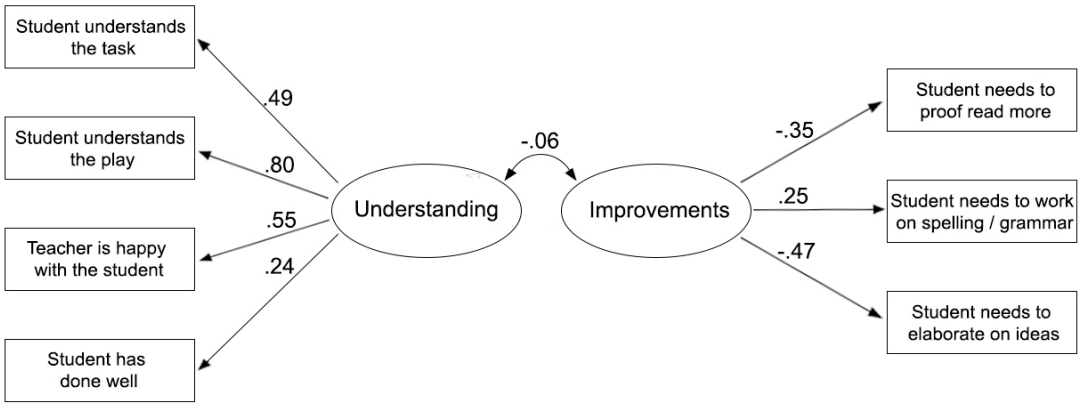


Figure 11

Process feedback – "What does the information given by the teacher tell the student about their performance on the task?"

Feedback type: Process	**χ2** 43.50	**df** 15	**RMSEA** .14	**r** -.12	**p** .465

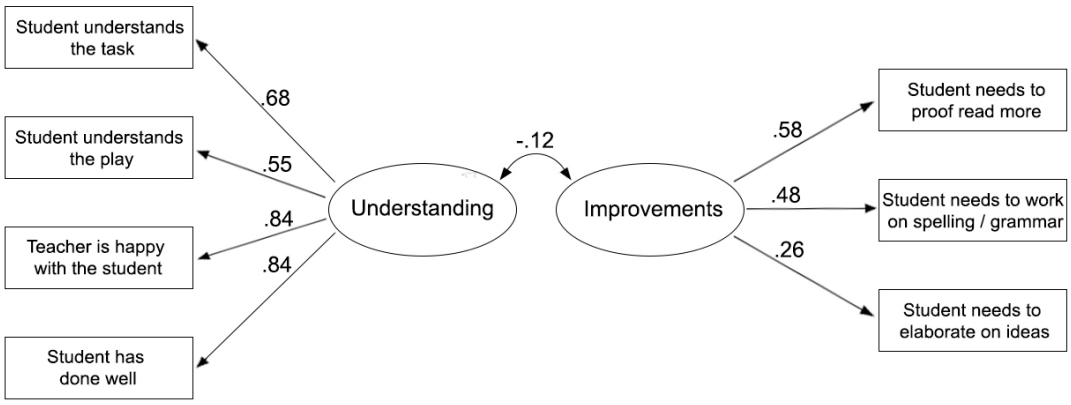
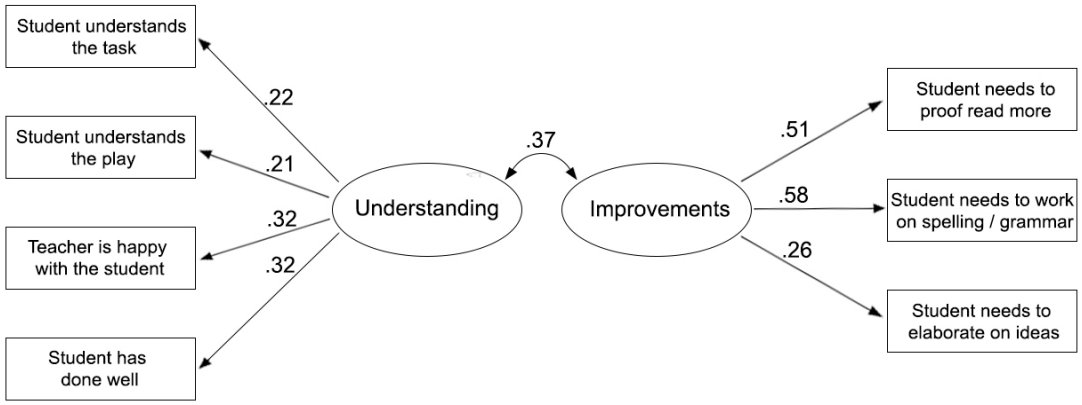


Figure 12

Self-regulation feedback – "What does the information given by the teacher tell the student about their performance on the task?"

Feedback type: Self-regulation	**χ2**	**df**	**RMSEA**	**r**	**p**
	42.50	18	.12	.36	.205



In considering the measures of fit for the AMOS modelling relating to the question "What does the information given by the teacher tell the student about their performance on the task?" (Table 8), in all cases, aside from task (written), the root mean square error of approximation (RMSEA) exceeds 0.8 and the ratio of chi-square to degrees of freedom (df) exceeds 3. Whilst chi-square measures of fit are sensitive to sample size, RMSEA of above 0.8 indicates that the hypothesised models are not a good fit for the data (Schreiber et al., 2006). In the case of the model relating to task (written), the RMSEA is .06, which indicates the hypothesised model is a good fit for the data.

Table 8

Goodness-of-fit relating to models of "What does the information given by the teacher tell the student about their performance on the task?" (For understanding and improvement)

Feedback type	$\chi 2$	df	RMSEA	r	ρ
Self	29.09	13	.11	-.18	.132
Task (symbol)	33.30	13	.12	-.56	<.010
Task (written)	18.06	13	.06	-.06	.781
Process	43.50	15	.14	-.12	.445
Self-regulation	42.50	18	.12	.37	.205

It is evident in all cases other than Task (symbols) that the goodness-of-fit measures are not statistically significant different from zero. This indicates that there is no relationship between the latent variables of understanding and improvement. In the case of Task (symbols) the correlation is shows a reverse relation between understanding and improvement, which means that the higher the levels of understanding then the lower the levels of improvement, and vice versa. It is likely that there are too many possible interpretations of symbols that this could lead to confusing messages about improvement. The implications of these trends are elaborated on in the discussion section of this chapter.

Statistical modelling of the question: "Based on the information the teacher has given the student on the work, what should the student do differently next time around to improve their performance on the task?" also identified latent factors of understanding and improvement from the observed correlating factors. The observed variables that influenced the concept of understanding within these models were: "Develop a better understanding of characters" and "Develop a better understanding of the plot". In contrast to this, improvement within this model, found relationships between items: "Draft their work", "Ask more questions", "Use a spell checker",

"Proofread", and "Not rush so much". Figures 13 to 17 present the AMOS modelling for each of the feedback samples.

Figure 13

Self-level feedback – "Based on the information the teacher has given the student on the work, what should the student do differently next time around to improve their performance on the task?"

Feedback type: Self	χ2	df	RMSEA	r	p
	29.33	14	.10	.00	.984

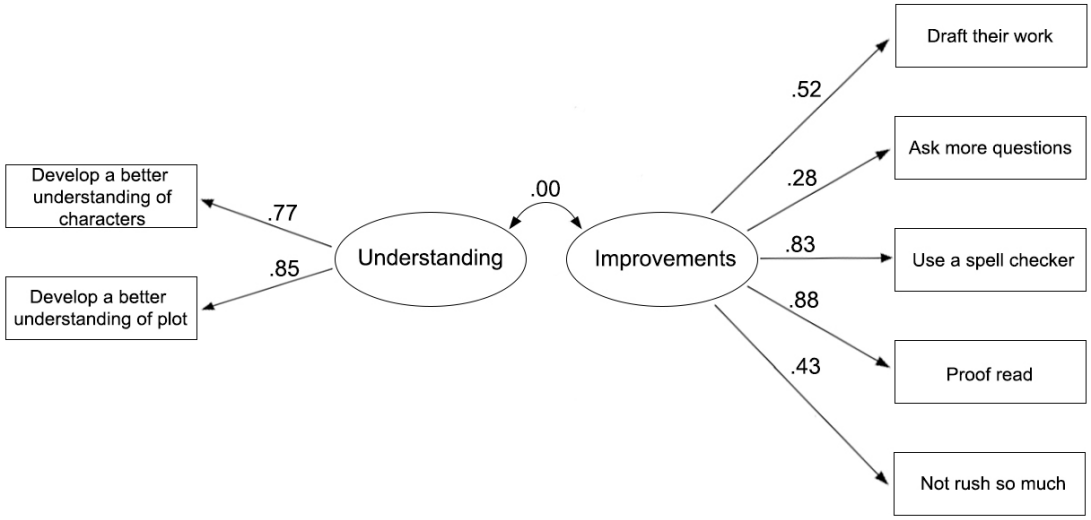


Figure 14

Task (symbols) feedback – "Based on the information the teacher has given the student on the work, what should the student do differently next time around to improve their performance on the task?"

Feedback type: Task (symbols)	χ2	df	RMSEA	r	p
	16.58	13	.05	.23	.314

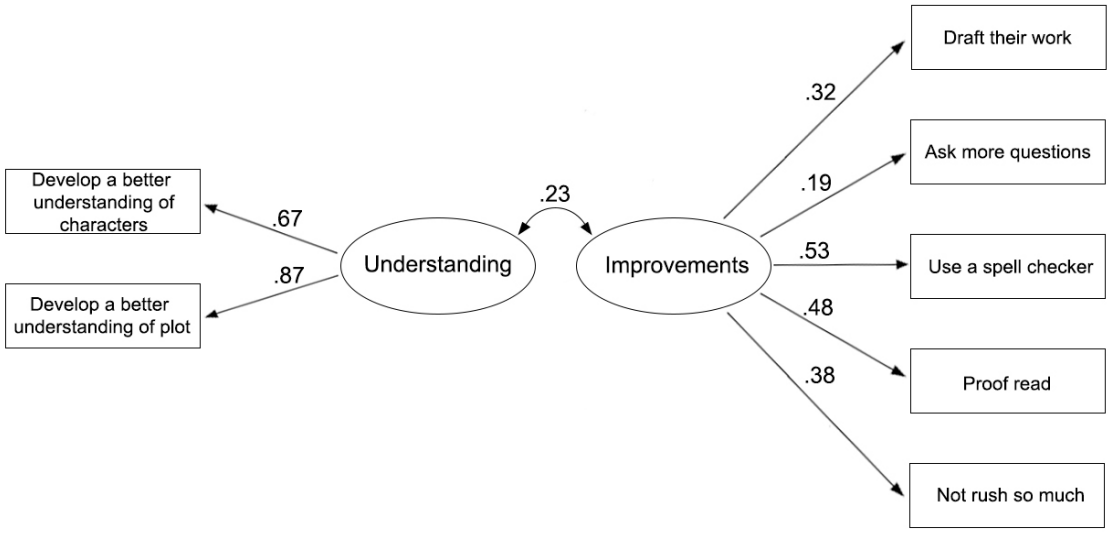


Figure 15

Task (written) feedback – "Based on the information the teacher has given the student on the work, what should the student do differently next time around to improve their performance on the task?"

Feedback type: Task (written)	**χ2**	**df**	**RMSEA**	**r**	**p**
	23.43	13	.09	-.08	.390

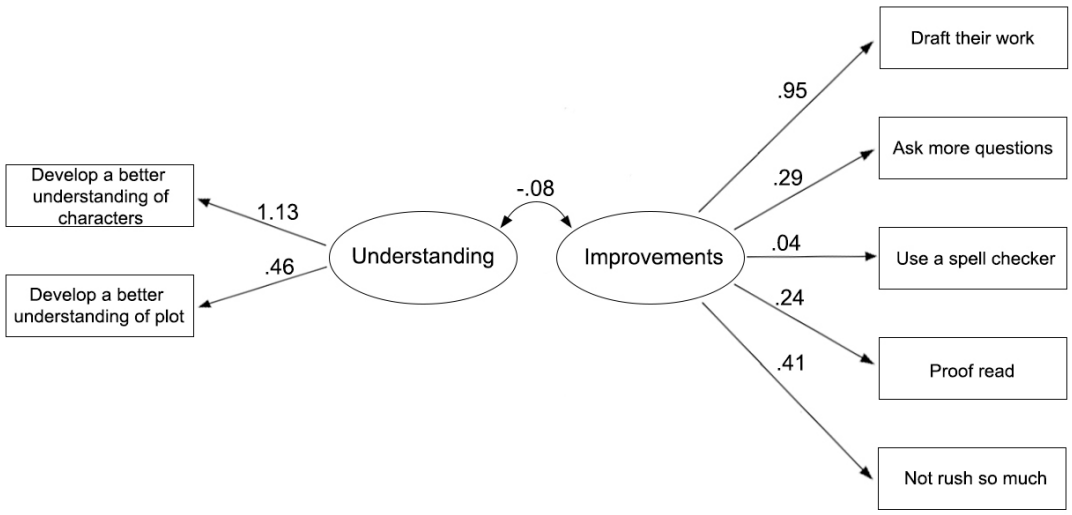


Figure 16

Process feedback – "Based on the information the teacher has given the student on the work, what should the student do differently next time around to improve their performance on the task?"

Feedback type: Process	$\chi 2$	**df**	**RMSEA**	**r**	**p**
	17.62	14	.05	.08	.541

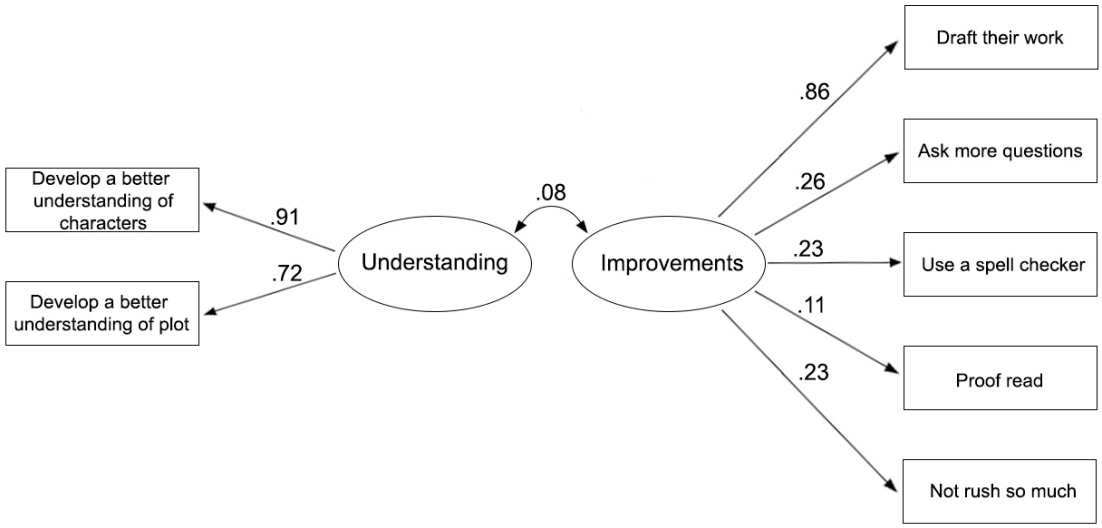


Figure 17

Self-regulation feedback – "Based on the information the teacher has given the student on the work, what should the student do differently next time around to improve their performance on the task?"

Feedback type: Self-regulation	**χ2**	**df**	**RMSEA**	**r**	**p**
	9.95	13	.00	.20	.036

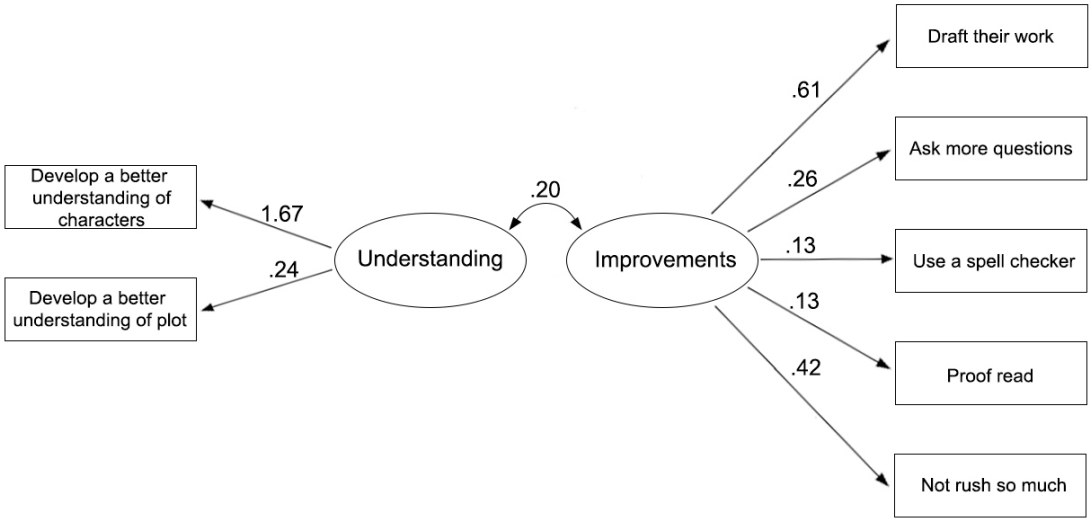


Table 9 presents the measures of goodness-of-fit for the AMOS modelling relating to the question: "Based on the information the teacher has given the student on the work, what should the student do differently next time around to improve their performance on the task?" Hypothesised models relating to task (symbols), process, and self-regulation pass goodness-of-fit criteria relating to RMSEA <.08 and the ratio of chi-square to df (Schreiber et al., 2006). The RMSEA for task (written) feedback is .089, which, it could be argued, is a weak fit for the data. Measures of fit relating to the self-level feedback model do not pass confidence testing.

Table 9

Goodness-of-fit relating to "Based on the information the teacher has given the student on the work, what should the student do differently next time around to improve their performance on the task?" (For understanding and improvement)

Feedback type	$\chi 2$	df	RMSEA	r	ρ
Self	29.33	14	.10	.00	.984
Task (symbol)	16.58	13	.05	.24	.314
Task (written)	23.43	13	.09	-.08	.390
Process	17.62	14	.05	.08	.541
Self-regulation	.132	13	.00	.20	.036

cIn addition to goodness-of-fit measures, correlations between understanding and improvement indicates that the two latent variables have a positive relationship in models relating to self, task (symbol), process, and self-regulation. This is significant in that increases in responses to understanding variables will correspond with increases in improvement variables, and vice versa. In relation to task (written) however, there is a slightly negative correlation. The implications of these trends are elaborated on in the discussion section of this chapter.

Results: Open-ended responses

"Do you think this teacher's feedback will be useful to the student the next time they complete a similar task? Please explain why / why not."

In completing the online survey, participants were presented with a range of feedback samples aligned with self; task (symbols); task (written); process; and self-regulation (Hattie & Timperley, 2007). Participants were first asked to give a self-rating using a variety of fixed-response answers to the questions: "What does the information given by the teacher tell the student about their performance on the task?" and "Based on the information the teacher has given the student on the work, what should the student do differently next time around to improve their performance on

the task?" In responding to the question: "Do you think this teacher's feedback will be useful to the student the next time they complete a similar task? Please explain why / why not", participants were able to give researchers a deeper understanding of what effective feedback looks like to learners.

The results of the content analysis from the 103 participants' responses to this prompting question are presented in Table 10. A total of 13 codes or themes were identified in the answers to this prompt, with a total of 1,549 instances reported by two raters. The nature of these codes revealed much about learners' various responses to teacher feedback. Some codes were simple and assigned to responses such as "useful" or "not useful". There was also evidence of positive and negative emotional responses to feedback, and the capacity for feedback to help learners to reflect on future learning. There was also a clear distinction between feedback aimed at "grammar" and deeper level content-related feedback.

Table 10

Frequency of coding: "Do you think this teacher's feedback will be useful to the student the next time they complete a similar task? Please explain why / why not"

Code	Self	Task (symbol)	Task (written)	Process	Self-regulation
Useful	32	68	91	75	69
Not useful	66	23	0	11	10
Stimulate positive emotions	38	3	20	2	2
Stimulate negative emotions	0	6	1	17	8
Will lead to improvement	5	23	49	31	36
Will not lead to improvement	66	21	1	5	1
Gives information on writing conventions / grammar	0	54	35	25	33
More information required	83	62	15	19	23
Provides deeper level feedback	0	0	37	31	45
Corrective	0	51	50	40	24
Develops reflective skills for future learning	0	5	1	3	25
No information on content knowledge / understanding	29	43	5	8	3
No information on writing conventions / grammar	18	2	0	0	0

Table 11 presents each of the codes that emerged in completing the content analysis, along with an example of the type of responses that aligned to each code. This gives a clearer picture of how participants communicated their perceptions of feedback relating to the five samples.

Table 11

Examples of responses and allocated codes: "Do you think this teacher's feedback will be useful to the student the next time they complete a similar task? Please explain why / why not"

Code	Example of response
Useful	"Yes" (Participant[P] 6; task-written) "I think this would be very useful" (P3; task-written)
Not useful	"No, this feedback would not be useful" (P24; self) "Isn't very useful because…" (P12; process)
Stimulate positive emotions	"It will encourage" (P15; task-symbol) "…will make the student feel happy" (P65; self)
Stimulate negative emotions	"…will make student feel deflated" (P23; task-symbol) "May cause them to become destressed" (P37; process)
Will lead to improvement	"Has the ability to improve the student's work" (P41; process) "Helps the student improve" (P63; process)
Will not lead to improvement	"…students are getting no ideas of how to improve" (P35; self) "They are not being told what they need to improve or how to improve" (P33; self)
Gives information on writing conventions / grammar	"…shows grammar and spelling mistakes" (P5; task-symbols) "…they can use their weakness in spelling mistakes and grammar to practise more" (P98; task-written)
More information required	"Teacher needs to give advice on how to improve…" (P4; self) "…more explanation is required" (P47; task-symbols)
Provides deeper level feedback	"Advice given is much more elaborate" (P46; process) "In depth teacher comments support the student…" (P14; self-regulation)
Corrective	"…helpful for the student to see errors" (P22; task-symbol) "…teacher also corrects misspelt words and grammar" (P39; task-written)
Develops reflective skills for future learning	"…the teacher has included a question in their comment, in order to get the student to think more about the work" (P50; self-regulation)
No information on content knowledge / understanding	"…offers no insight into the other aspects of writing e.g. content" (P24; task-symbol) "…no information on how to broaden understanding" (P62; self)

No information on writing conventions / grammar	"…doesn't say how the student can improve their writing skills" (P75; self) "Grammar and spelling needs to be corrected… yet there was no mention here" (P96; self)

In completing this process, rater one and rater two coded responses for all five feedback samples against the coding scheme. Discrepancies between raters on individual responses were then examined, with the majority of cases being resolved by mutual agreement. Cohen's kappa (*K*) values were calculated in SPSS v24 as a measure of inter-rater reliability. When code frequencies differed between raters, the rating from rater one was assigned as the frequency. Cohen's kappa (Table 12) indicated a high level of inter-rater reliability. Any kappa measures below 0.6 were a result of few responses coded, rather than a high level of disagreement. As each of these feedback samples were presented and responded to in isolation, they are presented as such in the next section. Following this, the wider implications of this data in relation to the wider literature are considered.

Table 12

Inter-rater reliability results of coding: "Do you think this teacher's feedback will be useful to the student the next time they complete a similar task? Please explain why / why not"

Code	Self			Task (symbol)			Task (written)			Process			Self-regulation		
	Rater one	Rater two	***K***	Rater one	Rater two	***K***	Rater one	Rater two	***K***	Rater one	Rater two	***K***	Rater one	Rater two	***K***
Useful	32	31	**0.98**	68	71	**0.93**	91	89	**0.91**	75	75	**0.95**	69	69	**1.00**
Not useful	66	69	**0.94**	23	27	**0.79**	0	3	**0.00**	11	11	**1.00**	10	10	**1.00**
Stimulates positive emotions	38	37	**0.98**	3	4	**0.85**	20	15	**0.83**	2	2	**1.00**	2	2	**1.00**
Stimulates negative emotions	0	1	**0.00**	6	6	**1.00**	1	1	**1.00**	17	13	**0.84**	8	8	**1.00**
Will lead to improvement	5	4	**0.88**	23	20	**0.91**	49	31	**0.64**	31	26	**0.88**	36	31	**0.89**
Will not lead to improvement	66	56	**0.72**	21	13	**0.72**	1	2	**0.66**	5	3	**0.74**	1	2	**0.66**
Gives information on writing conventions / grammar	0	0	**1.00**	54	53	**0.94**	35	35	**0.96**	25	25	**1.00**	33	33	**0.96**
More information required	83	81	**0.88**	62	58	**0.88**	15	10	**0.77**	19	11	**0.69**	23	23	**0.94**
Provides deeper level feedback	0	0	**1.00**	0	0	**1.00**	37	36	**0.72**	31	26	**0.73**	45	35	**0.80**
Corrective	0	0	**1.00**	51	43	**0.80**	50	40	**0.77**	40	29	**0.76**	24	18	**0.82**
Develops reflective skills for future learning	0	0	**1.00**	5	3	**0.74**	1	0	**0.00**	3	1	**0.49**	25	21	**0.89**
No information on content knowledge / understanding	29	22	**0.82**	43	39	**0.92**	5	1	**0.32**	8	4	**0.65**	3	3	**1.00**
No information on writing conventions / grammar	18	18	**1.00**	2	2	**1.00**	0	0	**0.00**	0	0	**1.00**	0	0	**1.00**

Feedback sample: Self

The self-level feedback sample consisted of no information pertaining to the student's understanding of the task, content, or grammar. This feedback was aimed at the student, and was praise-related, commending the student on their "great first effort". The lack of information presented in this form of feedback was reflected in the participant responses, with 66 respondents (64%) deeming this feedback sample as "not useful", in contrast to 32 respondents (31%) who rated it as "useful". A small number of respondents did not clearly indicate whether the feedback sample was useful or not.

Overwhelmingly, the student participants indicated that more information was required (82% of respondents), with the self-level feedback sample seen as lacking detail. In addition, 66 participants (64%) indicated in their response that this type of feedback would "not lead to improvement". This is in contrast to other feedback samples which received ratings associated with "will lead to improvement", "gives information on grammar", and "provides deeper level feedback". The self-level feedback sample failed to register any of the desired points (e.g., leading to improvement or giving deep-level feedback) with the respondents. However, it was the only feedback sample that did not register in "stimulating negative emotions". The factor for which the self-level feedback sample received the highest rating, compared to other samples, was "stimulates positive emotions", with 37% of participants reporting this. When participants discussed positive emotions in their responses, they mentioned that this form of feedback would build learner confidence, stimulate motivation, and help them feel positive when tackling the next task.

Feedback sample: Task (symbols)

The task feedback sample was focussed on communicating corrective feedback on the completion of the task. This was achieved by indicating correct responses, and error flagging through the use of symbols. Symbols used in this sample were ticks, crosses, underlines, and circles. Twenty-three respondents (21%) deemed this feedback useful, the second lowest ranking of effectiveness of the five samples presented. This ranking of ineffectiveness was also reflected by the 68 participants (66%) who responded that this task (symbols) feedback sample was "not useful". While this feedback was more focussed on the task than the self-level feedback sample, many participants indicated that the feedback was vague and non-specific. This was reflected in the fact that over half of the participants indicated that more information was required (60%), and with 44% indicating that no information was provided on content knowledge or understanding. Despite this, the task (symbols) sample received the highest ranking in giving the reader feedback on their use of writing conventions (52%). In terms of emotional affect, participants were relatively unresponsive to this sample, with relatively few reporting that it stimulated any positive or negative emotions.

Feedback sample: Task (written)

The feedback sample relating to task (written) was similar to the previous sample in that it communicated task-related feedback. However, this involved the use of words (not symbols) in the form of comments to help correct errors. It was this feedback sample that had the highest rating of usefulness, at 89%, with no respondent indicating that it was "not useful". Whilst a number of participants indicated that more information was required (15%), the majority responded favourably to this feedback sample. A third of participants (33%) noted that this feedback sample gave

information on writing conventions and, despite the written feedback being considered corrective (49%), some also indicated deeper levels of feedback in their responses (35%). Many reported that this feedback was the most likely of the five samples to lead to improvement (47%).

In terms of emotional affect, respondents (20%) also reported that the feedback was positive in affect, in that it stimulated confidence and motivation and made them feel good. For example, in response to the comments presented in the feedback sample indicating correct writing, one participant noted: "…[it] encourages the student and says they have written a 'good statement'" (Participant 37).

Feedback sample: Process

This feedback sample presented participants with process-related information. Rather than flagging and correcting errors, suggestions focussed on how processes might be altered to avoid such errors. In terms of grammar, this related to writing processes and conventions, such as suggesting proofreading or reiterating grammar rules. In relation to content, this pertained to considering sourcing evidence to support claims. The majority of the respondents (73%) deemed process-related feedback to be "useful", with 11% of participants indicating that it was "not useful".

Almost a third of participants (29%) indicated that this feedback would lead to improved performance on the task. Only a minority of responses indicated that it would not lead to improvement (5%), and that more information was required (19%). Some participants commented on the useful nature of the process-level feedback sample, stating:

> … [it] gives the student a better understanding on what they did wrong and what to improve on. Like proofreading their work multiple times to get the

ideas right and spelling grammar and also strengthening their examples of the text. (Participant 33)

The high level of negative affect that this sample might elicit was noted by 17% of participants. This was coded “stimulates negative emotions”, and included words such as “harsh”, “disappointment”, “intimidating”, and “discouraging”. Despite the high level of feedback provided to participants on the task, as indicated in responses, the process-related feedback sample elicited the most negative emotional response.

Feedback sample: Self-regulation

The self-regulation sample communicated deeper-level feedback designed to allow for transfer, so that students could self-monitor their learning in the future. In the absence of praise and corrective feedback, the comments in this sample were intended to develop the student’s capacity to reflect and their ability to use the feedback beyond this particular context. This feedback sample was considered “useful” by 67% of participants. A small number of participants (10%) indicated that the self-regulation feedback sample was “not useful”, and 23% of participants failed to respond one way or the other.

In considering why they thought the self-regulation sample was “useful”, 34% of participants indicated that this feedback communicated information about grammar, as well as deeper-level information relating to content (43%). A minority of participants responded that the feedback sample would not lead to improvement (2%) and needed to provide more information to be useful (23%). Despite these themes emerging in pockets of the data, 36 participants indicated that of all the samples they responded to, the self-regulation feedback was likely to lead to improvement (35%).

The self-regulation feedback sample was the only one of all the samples that elicited this response: “develops reflective skills for future learning” (24% of respondents). This was typified in responses such as: “I think that this feedback would be useful to the student, because the teacher has included a question in their comment, in order to get the student to think more about the work …” (Participant 50).

Despite the range of positive comments describing the self-regulation feedback sample’s capacity to help students in “thinking about how to improve”, 8% of participants thought this sample stimulated negative emotions. This is supported by comments containing words such as: “derogatory”, “mean”, and “deflated”. As one participant noted: “I don’t think it would be helpful at all. Everything that the teacher said feels really condescending and I personally would lose all confidence because of that” (Participant 2).

“How often do you receive this type of feedback?”

In addition to responding to fixed-response and open-ended questions relating to the type of information presented and the usefulness of the feedback, participants were asked how often they received each feedback type from their own teachers. This was indicated using a weighted rating scale of “never”, “sometimes”, “often”, and “all the time” against each sample. Responses to this question were collated, and a weighted mean was calculated to identify which forms of feedback were more widely used in practice.

Table 13 presents the data collected in response to the question “How often do you receive this type of feedback?” As indicated by the weighted mean, task (written) feedback was identified as the most used feedback type, followed by task (symbols). Self-level feedback was identified as the third most utilised form of feedback. Self-regulation and process-level feedback were indicated as the least used, with 20% of

participants indicating they never receive process-based feedback, and 18% that they never receive self-regulation feedback.

Table 13

Frequency of responses against feedback types

	Total responses	Never (1)	Sometimes (2)	Often (3)	All the time (4)	Weighted mean
Self	103	7	58	33	5	2.35
Task (symbols)	103	5	51	37	10	2.5
Task (written)	102	7	39	47	9	2.57
Process	101	20	54	25	2	2.09
Self-regulation	101	18	50	31	2	2.17

"Which of these samples of feedback do you find most useful? Why?"

After responding to a range of fixed-response and open-ended questions associated with each of the five feedback samples in isolation, participants were asked to consider: "Which of these samples of feedback do you find most useful? Why?". Consistent with the method used in analysing responses to the first set of questions, an inductive category development approach was adopted. All participant responses were analysed to identify commonly occurring words or themes. This analysis was then used to create coding categories. Once all responses had been examined, codes were reviewed for redundancy and clarity. Discrepancies between raters on individual responses were then examined, with the majority of cases being resolved by mutual agreement. In the case of differences in coding, the frequency of the lead researcher's (rater one) coding was reported.

In coding these responses, it became clear that participants were in fact answering two questions: which of the feedback they preferred as a learner; and what it was about that feedback sample that made it so useful. The results were analysed accordingly and are discussed separately in the following sections under *"*Preferred feedback type" and "Factors leading to feedback being deemed 'useful' to the learner".

Preferred feedback type

Participants were clear in identifying their preferred mode of feedback. Of the 103 participants, all identified a preferred sample, with several participants identifying more than one. Based on this, a total of 127 preferences were allocated. The two coders were in total agreement in their assignment of the codes (i.e. self, task-symbols, task-written, process, and self-regulation). The frequencies are presented in Table 14.

The sample in which written task-based feedback was presented was identified as "most useful", with 54 of the 103 participants (52%) indicating this in their responses. Feedback samples in the form of self-regulation and process were also deemed to be useful by a high number of participants with 37 (36%) and 31 (30%) responding accordingly. The feedback sample in the form of self was considered useful by only four participants (4%), with task-level feedback communicated in the form of symbols only deemed useful by one participant.

Table 14

Preferred feedback type

Feedback sample	*f*
Self	4
Task (symbols)	1
Task (written)	54
Process	31
Self-regulation	37

It is worth noting that all participants who rated self and task (symbols) feedback samples as "most useful" identified additional feedback types in their response. These respondents were among the 24 participants who identified several samples as the "most useful". This is illustrated by one respondent who identified the self and task (written) samples as "most useful" (Participant 58); and another who responded with self, task (symbols), and task (written) as their preferences (Participant 101). Of the 83 participants who clearly identified only one preferred feedback sample, all aligned their responses to the high-frequency samples of task (written), process, or self-regulation.

Factors leading to feedback being deemed "useful" to the learner

Once participants identified which feedback sample they preferred as a learner, they were asked to identify *why* the sample was "most useful". In these responses, a degree of clarity emerges as to what elements of each feedback type are useful to students. In analysing the responses, coders identified 16 codes in the data set, with a total frequency of 307 codes identified within the 103 participant responses. Cohen's kappa (*K*) values were calculated in SPSS (v24) as a measure of inter-rater reliability (Table 15). Lower kappa measures were a result of outliers with only a few responses coded, rather than a high level of disagreement.

Table 15

Inter-rater reliability of "Please explain why" the selected feedback sample is "most useful"

	Coder 1	Coder 2	*K*
Positive emotions	30	17	0.64
Highlighted good	32	27	0.83
Highlighted errors	53	47	0.77
Indicates / Explains how to improve	69	61	0.67
Grammar info	23	14	0.71
Content info	15	9	0.72
Feed forward / Next time	23	26	0.87
Cues / Hints / Prompts / Suggestions	14	10	0.81
Informative / Lots of info / Deep	6	5	0.90
More detail needed	1	1	1.00
Corrective	9	5	0.70
Criticism / Critical	4	4	1.00
Self-regulation / Self-reflection	7	6	0.92
Precise / Clear / Specific	16	13	0.88
Easy to understand	3	3	1.00
Process info (e.g., Proofread, rules)	2	3	0.80

As reported previously, some participants identified several feedback samples as "most useful". In cases where the participant clearly identified what factors led to each sample being useful, these were coded separately for the purposes of reporting why each sample is "useful". In the case of the self and task (symbols) feedback samples, participants did not clearly indicate which factors led to them being "useful". Based on this, isolated codes are only reported for the task (written), process, and self-regulation feedback samples.

Table 16 presents a sample of the responses that were allocated to each code following the content analysis. This not only gives a clear picture of how participant statements were allocated to codes, but also provides a rich picture of the emotions, responses, and factors that influence students as they engage in the feedback process.

Table 16

Examples of responses and allocated codes: "Please explain why" the selected feedback sample is "most useful"

Code	Example of response
Positive emotions	"…allows student to develop confidence" (P1; self) "boosts my self-esteem" (P43; task-written)
Highlighted good	"tells the student what they did correctly" (P74; process) "acknowledges where student did well" (P101; task-written)
Highlighted errors	"shows what student did wrong" (P6; task-written) "errors… were pointed out" (P57; task-written)
Indicates / Explains how to improve	"some explanation of how to improve" (P40; task-written) "gives them ways of how to improve" (P36; self-regulation)
Grammar info	"spelling and grammar" (P39; task-written) "how I could do better… grammar and punctuation" (P15; task-written)
Content info	"how to improve… understanding of task and play" (P12; self-regulation) "give feedback on… content written" (P53; task-written)
Feed forward / Next time	"what I could do better next time" (P41; task-written) "helpful on what to do next time" (P18; self-regulation)
Cues / Hints / Prompts / Suggestions	"teacher has given me hints and ideas" (P25; self-regulation) "gives ideas on how to improve" (P42; task-written)
Informative / Lots of info / Deep	"gives the most information" (P35; Self-regulation) "Goes into most detail" (P103; Self-regulation)
Corrective	"correction of spelling and grammar" (P39; task-written) "involves the most corrections" (P46; self-regulation)
Criticism / Critical	"balances criticism" (P40; task-written) "shows critical feedback" (P98; process)
Self-regulation / Self-reflection	"included a question… to think about… if I write it again" (P72; Self-regulation) "allows student to think about how they can improve: (P101; self-regulation)
Precise / Clear / Specific	"I am clearly directed…" (P26; process) "It's really precise" (P66; task-written)
Easy to understand	"is easy to understand" (P58; task-written) "I can easily gain an understanding" (P61; self-written)
Process info (e.g., Proofread, rules)	"shows to proof-read" (P5; process) "the inclusion of grammar rules enables the student to learn from their mistakes" (P76; process)

When participants indicated that the task (written) feedback sample was the "most useful", they did so by noting the following: "highlights good" (30 responses), "highlights errors" (20), and "explains how to improve" (20). Participants who found

the process feedback sample to be the "most useful" responded similarly: "highlights good" (10), "highlights errors" (23), and "explains how to improve" (14). Process-based feedback was also considered useful for information relating to "grammar" (10) and "content" (10). For the self-regulation feedback sample, participants who identified this as the "most useful" did so by indicating the importance of "highlights errors" (19) and "explains how to improve" (23), as well as acknowledging the importance of "what the student should do next time" (14).

In addition to gathering such insights from the responses to each sample individually, it was also important to analyse the qualities that contributed to feedback being "useful" collectively, across all five samples. This analysis would provide a picture of what factors generally constitute "useful" feedback across all levels of feedback preference, year level, gender, and other learner characteristics.

Table 17 presents the combined results of an analysis of all open-ended responses associated with feedback qualities related to the usefulness of the various samples. In these responses, participants indicated that the most important factors of "useful" feedback are: "highlighted errors" (54% of respondents) and "explains how to improve" (70%). This also led to a range of participants indicating that "useful" feedback provided them with information that would support their work moving forward or "what to do next time" (24%). Factors such as "highlighted good" (32%) and "stimulate positive emotions" (31%), were also deemed important by participants. In terms of information on task completed, feedback on both "grammar" (24%) and "content" (16%) were considered desirable. Lower frequency feedback qualities that emerged in the data, included "informative / lots of information / deep" (7%), "corrective" (10%), "criticism / critical" (5%), "self-regulation / self-reflection" (8%), and "cues / hints / prompts / suggestions" (15%).

Table 17

Overall qualities of "useful" feedback

	f
Positive emotions	30
Highlighted good	32
Highlighted errors	53
Indicates / Explains how to improve	69
Grammar info	23
Content info	15
Feed forward / Next time	23
Cues / Hints / Prompts / Suggestions	14
Informative / Lots of info / Deep	6
Corrective	9
Criticism / Critical	4
Self-regulation / Self-reflection	7
Precise / Clear / Specific	16
Easy to understand	3
Process info (e.g., Proofread, rules)	2

"Thinking about yourself as a student, what feedback do you look for when you receive a piece of work back from a teacher? Please explain why".

An important distinction between this open-ended response question and the previous questions is that the former required participants to identify what types of information in the samples presented led to the feedback being considered "useful". This question did not limit the participant to simply referencing the feedback samples but allowed them the space to discuss any type of feedback or information that they look for when receiving a piece of work back from a teacher. Coding of these responses was consistent with the procedures followed in analysing responses to the previous questions. Two coders used an inductive method of content analysis, with the lead researcher's codes accepted if any discrepancies occurred. Coding of responses resulted in a total of 24 codes in the data set, with a total frequency of 340 codes identified within the 103 participant responses. Consistent with earlier data sets, Cohen's kappa *(K)* values were calculated in SPSS (v24) as a measure of inter-rater

reliability. As illustrated in Table 18, these values indicate a high level of inter-rater reliability with all measures being above 0.9. Table 19 presents a sample of the participant responses aligned with each code in the content analysis.

Table 18

Inter-rater reliability: "What do students look for in feedback?"

	Coder 1	Coder 2	*K*
Positive feedback	16	16	1.00
Positive emotions	10	10	1.00
Error flagging	52	52	1.00
How to improve	53	53	1.00
Writing	5	5	1.00
Done well	42	42	1.00
Elaborate ideas	6	6	1.00
Suggestions / Examples / Tips	13	12	0.95
Corrective feedback	11	11	1.00
Feed forward / Next time	36	36	1.00
Constructive	9	9	1.00
Does not stimulate negative emotions	1	1	1.00
Grammar	15	15	1.00
Content	14	14	0.97
Mark / Grade / Figure	9	9	1.00
Praise	4	4	1.00
Explains errors	7	7	1.00
Negative	1	1	1.00
Specific / Precise / Clear / Detailed / Depth	15	15	1.00
Critical thinking / Self-regulation	4	4	1.00
Comments / Notes	13	13	1.00
Understanding	2	2	1.00
Honest	1	1	1.00
Expression	1	1	1.00

Table 19

Examples of responses and allocated codes: "What do students look for in feedback?"

Code	Example of response
Positive feedback	"I look for positive feedback" (Participant [P] 1) "I look for positive comments" (P30)
Positive emotions	"should include some encouragement" (P39) "I need to be reassured" (P44)
Error flagging	"I look for mistakes" (P35) "What I can improve on" (P60)
How to improve	"I look for how to advance myself" (P49) "how to improve" (P81)
Writing	"enhance my capability on how to write" (P33) "areas of weakness in my writing" (P74)
Done well	"I look for… what I did well" (P3) "where I went well" (P36)
Elaborate ideas	"where I should elaborate… my ideas" (P44) "how to elaborate on points" (P91)
Suggestions / Examples / Tips	"Examples of what I should have done instead" (P23) "Advice and tips are better" (P97)
Corrective feedback	"with corrections" (P5) "Mistakes identified and corrected" (P64)
Feed forward / Next time	"help me improve my work the next time I do a similar task" (P40) "improvements I can work on in future tasks" (P63)
Constructive	"I look for… constructive feedback" (P68) "I look for constructive criticism" (P92)
Does not stimulate negative emotions	"feedback that… doesn't degrade me" (P8)
Grammar	"Punctuation circled as well as grammar" (P12) "notes on grammar and spelling" (P81)
Content	"feedback on… structure and information" (P89) "feedback that tells me if my ideas are developed" (P93)
Mark / Grade / Figure	"score or mark" (P17) "it is also good to have a grade or a mark" (P77)
Praise	"Praise the student" (P19) "I appreciate when I get praise" (P36)
Explains errors	"Why it is not correct" (P26) "why it is wrong" (P70)
Negative	"I look for comments (positive and negative)" (P64)
Specific / Precise / Clear / Detailed	"I look for precise feedback" (P65) "I look for specific comments" (P75)
Critical thinking / Self-regulation	"Comments that allow me to question what I've done" (P50) "questions to ask yourself when writing" (P84)
Comments / Notes	"insightful comments" (P68) "I look for comments" (P71)

Understanding	"their understanding of the play" (P11) "level of understanding I have" (P32)
Honest	"Being honest" (P33)
Expression	"express my ideas better" (P44)

Considering the frequency of these codes (Table 20), it is clear that students look for varying characteristics when receiving feedback. This is evident in the range of codes with low frequencies: "writing" (5%), "elaborate ideas" (6%), "constructive" (9%), "does not stimulate negative emotions" (1%), "mark / grade / figure" (9%), "praise" (4%), "explains errors" (7%), "negative" (1%), "critical thinking / self-regulation" (4%), "understanding" (2%), "honest" (1%), and "expression" (1%). In addition to this, a variety of other factors were represented by more mid-range frequency codes: "suggestions / examples / tips" (13%), "corrective feedback" (11%), "grammar" (15%), "content" (14%), "specific / precise / clear / detailed / depth" (15%), and "comments / notes" (13%).

Despite these variation, a number of feedback characteristics that many participants "look for" when receiving feedback also emerged in the data: "error flagging" (50%), "how to improve" (51%), "done well" (41%), and "feed forward / next time" (35%).

Table 20

Frequency of codes: "What do students look for in feedback?"

	f	%
Positive feedback	16	16
Positive emotions	10	10
Error flagging	52	51
How to improve	53	51
Writing	5	5
Done well	42	41
Elaborate ideas	6	6
Suggestions / Examples / Tips	13	13
Corrective feedback	11	11
Feed forward / Next time	36	35
Constructive	9	9
Does not stimulate, Neg. emotions	1	1
Grammar	15	15
Content	14	14
Mark / Grade / Figure	9	9
Praise	4	4
Explains errors	7	7
Negative	1	1
Specific / Precise / Clear / Detailed / Depth	15	15
Critical Thinking / Self-regulation	4	4
Comments / Notes	13	13
Understanding	2	2
Honest	1	1
Expression	1	1

"What advice would you give to teachers who want to improve the effectiveness of the feedback that they give to their students?"

The final open-ended question of the online survey was: "What advice would you give to teachers who want to improve the effectiveness of the feedback they give to their students?" Consistent with the analysis of the other open-ended questions in this study, the qualitative results were quantified by means of content analysis using an inductive approach to coding. The challenge faced by the researcher in this instance was in the nature of the responses elicited by participants to this prompt. While reactions to the previous open-ended questions were relatively consistent and

general in their wording, the answers to this question were varied, personal, and often more emotive. This included responses such as: “Don’t just go crazy with a red pen” (Participant 13), “Don’t sugar coat anything” (Participant 8); and “Be kind as well as critical” (Participant 20).

Based on these factors, and the themes that had emerged from previous open-ended question analyses, the codes “manage affect” and “enhance effect” were allocated. Participant responses relating to managing affect provided advice around the importance of feedback that would effectively manage student emotions in response to feedback provided. In contrast, responses coded as enhancing effect were concerned with advice relating to how the teacher can maximise the impact of their feedback on learning. In some cases, a participant may have indicated that both were important in their response. Considering the results against these codes, the researcher was able to establish if participants wanted teachers to provide feedback that managed their emotions, maximised the effect of the information that was provided, or both. Table 21 presents a sample of participant responses aligned with each code to illustrate typical comments.

Table 21

Examples of responses and allocated codes: What advice would you give to teachers who want to improve the effectiveness of the feedback that they give to their students?

Codes	Example of response
Manage affect	“Try to soften blows with sprinkles of positivity” (P37) “Positive feedback is important, so student doesn't lose confidence being bombarded with mistakes” (P35)
Enhance effect	“Give feedback on spelling, grammar, content and structure” (P52) “When giving feedback make sure reasoning is given to why something is done correctly and provide comments on what to improve” (P45)

Table 22 presents the frequency of codes related to participant responses to the question "What advice would you give to teachers who want to improve the effectiveness of the feedback they give to their students?" In responding to this question, 45% of participant responses indicated that teacher feedback should "manage affect" and 96% of all responses recognised the need for feedback to "enhance effect". Many participants considered both important, with 43% of participants providing advice relating to both *effective* and *affective* elements of feedback in their written responses. This was typified by statements such as "Give constructive criticism and point out also what the students did well on so they will continue that and make them [sic] a bit more confident in that area" (Participant 9). In contrast to this, 43% of participants responded only providing advice relating to how teachers may enhance the *effect* of their feedback in their answer, and 2% provided responses only relating to *affect*. A small number of participants' answers did not align with either code, providing no advice relating to improving feedback practices. For example, one responded: "Nothing, all the teachers [sic] feedback is usually good" (Participant 18).

Table 22

Frequency of codes: "What advice would you give to teachers who want to improve the effectiveness of the feedback that they give to their students?"

Codes	*f*	%
Manage affect	45	45
Enhance effect	96	96

Consistent with previous content analyses in this study, two researchers independently coded these responses with the lead researcher's codes being reported. Cohen's kappa *(K)* values were calculated in SPSS (v24) as a measure of inter-rater

reliability. These are presented in Table 23 and indicate a high level of reliability between coders.

Table 23

Inter-rater reliability of "What advice would you give to teachers who want to improve the effectiveness of the feedback that they give to their students?"

	Coder 1	Coder 2	*K*
Manage affect	45	35	0.96
Enhance effect	96	96	1.00

Discussion

The first phase of this study investigated how students respond to teacher feedback when presented with samples aligned with Hattie and Timperley's (2007) four feedback levels: self, task, process, and self-regulation. Data gathered from 103 Victorian students from years 10 to 12, using an online survey consisting of fixed-response and open-ended questions, support previously held beliefs that different types of feedback communicate different levels of information to the student on their performance, and with varied effectiveness. It was established that less effective forms of feedback (i.e., self and task) communicated more surface-level information, such as that related to effort and grammar, in providing "feed-back" to the student on how they are going on the task (Hattie &Timperley, 2007). In contrast to this, deeper levels of feedback (i.e., process and self-regulation) gave students information they could use to "feed-forward" (Hattie & Timperley, 2007), enhancing future performance by communicating process-related writing strategies and encouraging deeper-level discussion of the text that is transferable to other tasks.

However, these results raise further questions about how students assign meaning to teacher feedback. Whilst feedback aligned with self and task, particularly praise and task-based feedback communicated through symbols, was deemed to be

non-specific and not useful, it is clear that students do their best to assign meaning to such feedback in the absence of specific information. Rather than ignoring this non-specific feedback, students will work to assign their own meaning to it by drawing on prior learning experiences to interpret or construct meaning with their peers. Additionally, a connection emerged between the informational effect of the feedback provided and the emotional affect that teacher feedback might stimulate.

What meaning do students assign to teacher feedback?

In responding to the various feedback samples aligned with self, task (symbols), task (written), process, and self-regulation (Hattie & Timperley, 2007), participants were asked to indicate, using fixed-response survey questions, what the teacher communicated to the student about their performance on the task and, based on the information provided, what the student should do to improve. In considering how students respond to these types of feedback, various forms of statistical analysis and modelling were undertaken.

As reported in the results, despite the varying types of feedback presented, participants consistently assigned similar meaning based on the information (limited or detailed) provided in the sample. These variables were grouped into two latent factors: understanding and improvement (Figure 18). The latent factor improvement consisted of "Student understands the task", "Student understands the play", "The teacher is happy with the student", and "Student has done well". The understanding factor consisted of "Student needs to proofread more", "Student needs to work on spelling and grammar", and "Student needs to elaborate on ideas more".

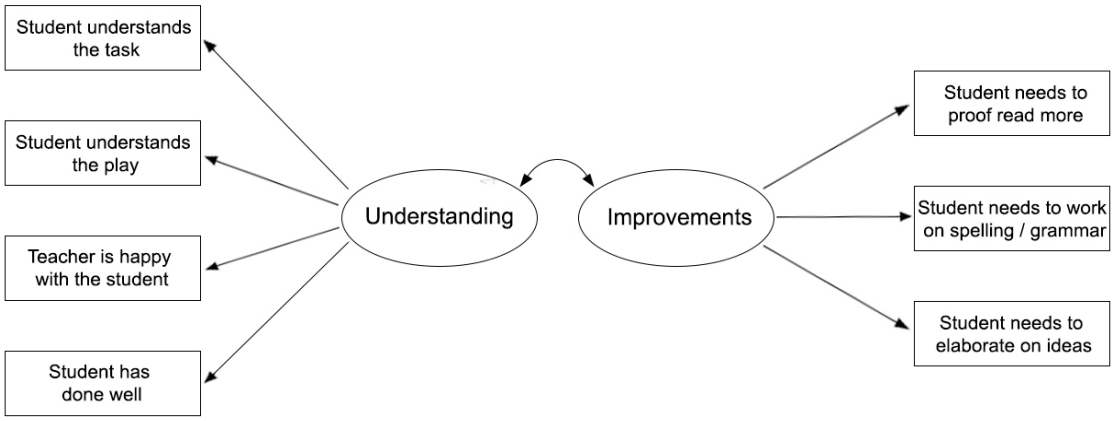
That students consistently contributed the same meaning to various forms of feedback, despite the varying levels of information provided, is a significant point of interest. For example, the sample presented to participants for self-level feedback only

presented non-specific teacher feedback in the form of praise, with no errors flagged or specific areas of achievement identified. Yet, despite this, participants consistently identified that the student understood the task and play, and that the teacher was happy with the student. In considering what they would do differently next time around, if completing a similar task when receiving such feedback, participants indicated that they would proofread, work on spelling and grammar, and elaborate on ideas, despite there being no improvement-based feedback provided. Of particular note is that the one factor relating to self-level feedback that participants did consistently assign meaning to was that the student had done well. Despite the feedback providing non-specific praise, on reading the comment and the work being assessed, participants knew that the feedback did not reflect the level of performance on the task. This supports the work of researchers who propose that students can see through unwarranted praise (Peterson & Irving, 2008).

Other forms of feedback in task (symbols), task (written), process, and self-regulation (Hattie & Timperley, 2007) samples also fit with this model. In most cases, these factor loadings are consistently high, regardless of the feedback presented to the participant. One exception to this is in task (written), “Student needs to work on spelling and grammar” (improvement), which has a negative loading. One could hypothesise that the corrected spelling and grammar errors provided by the teacher in this feedback sample influenced this outcome. The other exception to the consistent loadings is in self-regulation, “Student had done well” (understanding), which would make sense given the negative emotions some students associated with such feedback.

Figure 18

"What does the teacher's feedback tell the student about their performance on the task?"



When considering correlations relating to understanding and improvement (summarised in Table 24), in most cases the relationship was negative. This implies that the more the student reported they understood the feedback, the less they improved. In contrast, it also suggests that the less a student understands the feedback, the more improvement strategies they identify. This was the case for all feedback types except self-regulation.

Table 24

Correlations between latent factors of understanding and improvements relating to "What does the information given by the teacher tell the student about their performance on the task?"

Understanding < - - > Improvements	
Self	-.18
Task symbols	-.56
Task written	-0.6
Process	-.12
Self-regulation	.37

The concept of "feedback literacy" (Carless and Boud, 2018; O'Donovan, 2016; Price, et al., 2010; Sutton, 2012) may be a possible explanation for this

phenomenon. This proposed that different groups of students are either more or less capable of responding to the feedback provided to them. In this case, participants with a low level of feedback literacy may consider lower level feedback, such as self or task (symbols), as informative, but still not know what to do to improve. Alternatively, those students who have a high level of feedback literacy know that lower levels of feedback provide little information relating to understanding, but they know what to do to improve based on their ability to self-monitor and correct.

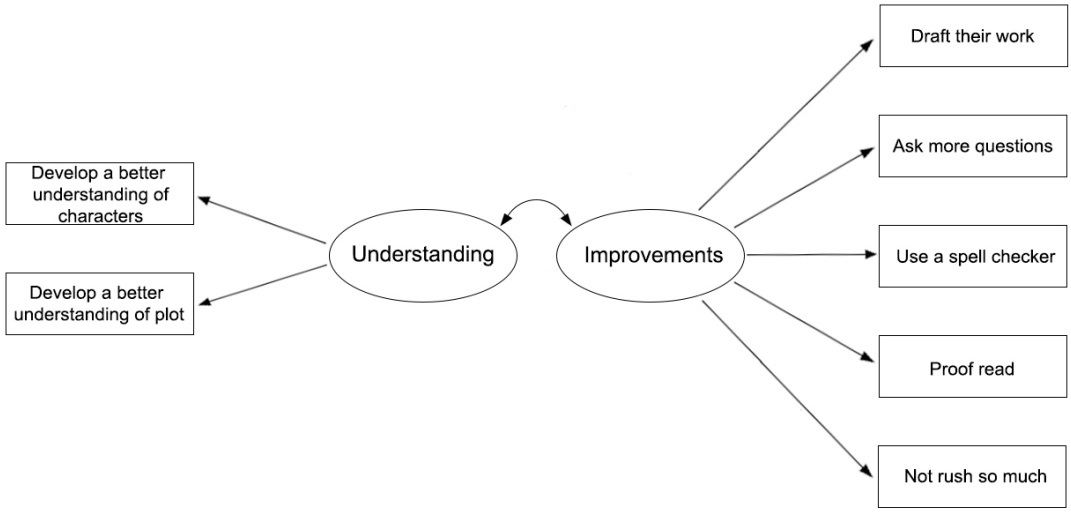
Task (symbol) feedback, which elicited the most negative responses, can be used to illustrate this point. The feedback is vague and non-specific as far as advising the student what to do next to improve. Students with a high level of feedback literacy and appropriate learning experience have their own learning strategies, allowing them to correct independently. For those who see corrective feedback using symbols as the norm, the opposite is true. The only form of feedback that elicited a positive correlation between understanding and improvement was self-regulation. In this case, regardless of the characteristics of the learner, increases in factors relating to understanding corresponded with increases in those relating to improvement.

Literature originating in the field of social learning theory may provide an alternative explanation for such relationships, in that some learners will seek feedback that enhances their sense of self, or affirms their expectations of performance (Swann et al., 1987). Those students who seek feedback that is self-enhancing may only acknowledge the positive feedback provided; they may not consider the improvement related feedback that will lead to changes in their learning behaviours. In contrast, students who look for feedback that affirms that they need to get better, may ignore the affirmations relating to understanding and only consider feedback relating to performance.

Similarly, when participants were asked what the student might do differently next time they complete a similar task based on the feedback, comparable trends emerged (Figure 19). As with the previous model, improvement-based factors were consistent, regardless of the level of feedback and detail of information provided. In regard to what the student would need to do to improve understanding, participants responded that they would need to: "Develop a better understanding of the characters" and "Develop a better understanding of the plot". In regard to what behaviours and strategies might help them improve, the following were consistently identified in the data: "Draft their work", "Ask more questions", "Use a spell checker", "Proofread", and "Not rush so much".

Figure 19

"Based on the information the teacher has given the student on the work, what should the student do differently next time around to improve their performance on the task?"



Correlations between these latent variables (summarised in Table 25) demonstrate a positive relationship between levels of understanding and improvement. In contrast to the previous model relating to: "What does the

information given by the teacher tell the student about their performance on the task?", which demonstrated predominately negative correlations, this model relating to how they can get better elicits mostly positive relationships between understanding and improvement. Considering these two prompts, in order to mitigate the potentially negative effects of feedback, student reflections should be focussed on what they can do better, rather than on what they understand of their performance. This supports Hattie and Timperley's (2007) notion that the question "How am I going?" is nowhere near as powerful as "Where to next?".

Table 25

Correlations between latent factors of understanding and improvement relating to "Based on the information the teacher has given the student on the work, what should the student do differently next time around to improve their performance on the task?"

Understanding < - - > Improvements	
Self	.00
Task symbols	.23
Task written	-.08
Process	.08
Self-regulation	.20

That students assign such consistent meaning to varied forms of feedback is a significant insight. Despite the time and effort spent by teachers in classrooms delivering written feedback to students, it appears that students will make meaning aligned with points of understanding and improvements regardless. How students are interpreting and making sense of this information in such a way is a question that remains for further study. One might argue that, based on this, teachers should spend more time developing student capacity to self-assess, than providing feedback themselves.

How useful are the various forms of feedback?

Whilst the various feedback samples and fixed-response questions provided a consistent framework in which to consider the responses to such feedback, the open-ended responses gave participants more space to consider if the feedback was useful or not useful, and why. In considering Hattie and Timperley's (2007) four level feedback model (task, process, self-regulation, and self), this allowed researchers to examine student perceptions of these types of feedback and how these connected to the existing literature. Participant response frequencies are presented in Table 26 and are referred to throughout this discussion.

Table 26

Frequency of codes: "Will the feedback be useful next time?"

	Self	Task (symbol)	Task (written)	Process	Self-regulation
Code	*f*	*f*	*f*	*f*	*f*
Useful	32	68	91	75	69
Not useful	66	23	0	11	10
Stimulate positive emotions	38	3	20	2	2
Stimulate negative emotions	0	6	1	17	8
Will lead to improvement	5	23	49	31	36
Will not lead to improvement	66	21	1	5	1
Gives information on writing conventions / grammar	0	54	35	25	33
More information required	83	62	15	19	23
Provides deeper level feedback	0	0	37	31	45
Corrective	0	51	50	40	24
Develops reflective skills for future learning	0	5	1	3	25
No information on content knowledge / understanding	29	43	5	8	3

No information on writing conventions / grammar	18	2	0	0	0

Self-level feedback

In considering self-level feedback, the majority of participants (66%) identified that this is not useful to students and would not lead to improvement. In considering why, participants responded that more information was required; no information was provided on content and understanding, or on writing conventions and grammar. These points from the perspective of the learner support previous insights from the literature, which indicate that non-specific feedback aimed at the self and not the task does not give the student a clear understanding of their current level of performance, or what they need to do to improve (Hattie & Timperley, 2007; Sadler, 1989; Wiliam & Thompson, 2008). Interestingly, in contrast to this, feedback directed to the self was identified as having the most powerful influence on positive emotions, described in open-ended responses as motivating and confidence building.

Overall, the themes emerging in this sample were quite clear, with the self-level feedback sample being relatively shallow in stimulating deeper cognitive responses in learners, but deeper in the positive affect. This is illustrated in responses such as: “It was useful in the way of providing confidence in writing ability, but it provided no suggestions on how to improve for next time” (Participant 6) and “To some extent, on one hand the student may of gained confidence from the teachers praise. However, there is no constructive criticism from the teacher, meaning the student may not know how they can improve” (Participant 37). Participant 25 gave a well-rounded response, indicative of how many others responded, stating:

> Yes [it would be useful] because it gives the student a confidence boost and the teacher is being honest. However, it could be argued that the student may think that because there was positive feedback and no constructive criticism that, the student may not be pushed to fix any errors or have clear direction on areas they may want to focus on more for next time in improving their skills.

Task (symbols) level feedback

In contrast to the information provided in the self-level feedback, task-level feedback using symbols was identified as useful by the majority of participants (66%). Participants supported previous conceptions of task (symbols) in the literature in identifying that is was corrective (Hattie & Timperley, 2007; Shute, 2008) and communicated information on writing conventions and grammar. Participant responses were mixed in terms of whether they thought it would lead to improvement, but many communicated that there was no information presented on content knowledge or understanding (52%), and that more information was required (60%). This was typified in statements such as:

> This type of correction will help the student to work on using better grammar as well as improving their spelling. There isn't proper correction of the work though as it does not tell the student the proper way to word or spell rather it just shows where mistakes are. (Participant 38)

Other participants clearly grappled with the prospect of being presented with such feedback, stating:

> The feedback would be very useful for the student in future since it highlights the points that need to be corrected, and gives the student a path on how he/she could improve. However while the spelling and grammar mistakes in the piece were highlighted, the teacher failed to explain why it was incorrect

> or even explain/show how it should have been spelled or improved. This would leave the student in a state of slight confusion and would leave him/her in a "stand still". (Participant 72)

The notion of such feedback error flagging without providing enough information on how to improve is well supported in the literature. Many argue that feedback directed at the task is primarily aimed at answering the question "How am I going?" and ignoring the important question "Where to next?" which would provide students with the information required to improve in subsequent tasks (Hattie & Timperley, 2007; Shute, 2012).

Task (written) level feedback

Task-level feedback communicated through written comments was considered the most useful (89%) by participants, and the most likely to lead to improvement (49%). Participants explained that this level of information was useful because it communicated corrective feedback, information on grammar and writing, and deeper-level feedback on content and understanding. Additionally, this feedback sample was deemed the most likely to stimulate positive emotions.

These insights are in contrast to much of the literature, which considers task-level feedback to be primarily concerned with giving students information on their current performance on the task, and not enough information about how to improve next time around. Could it be that, as proposed earlier, students in fact assign their own meaning to all levels of feedback, and task (written) feedback gets the balance right between error flagging, corrections, and comments, whilst also preserving the student sense of self? From the perspective of the student participants, this is evident in statements such as:

> That feedback from the teacher is fantastic! It shows the student exactly where they went wrong and gave them tips on what they should improve on. This will help the student in the future as they would know exactly what to and what not to do. (Participant 17)

Others communicated: "Yes [it is useful], the feedback highlights where improvement is needed, however the things the student did right were pointed out and praised" (Participant 38).

In terms of emotional affect, respondents (20%) reported that the feedback: "stimulates confidence", "enhances motivation", and made them "feel good". In terms of negative affect, only 1% reported this in their responses. This was attributed by some to the written comment presented in the sample, which indicated correct writing: "…[it] encourages the student and says they have written a 'good statement'" (Participant 37).

Despite this, some participants had reservations, as evident in the following comment:

> In a way, it was because the teacher left notes for the student on their errors and mistakes but the teacher didn't provide an overall report on how well the student did or what needs to be improved next time they complete the task. No constructive criticism was noted and no praise for the work the student completed. (Participant 32)

In considering both the emotional and cognitive affect of this sample, another participant elaborated:

> This is good feedback for students as it not only tells students where they went wrong with spelling errors but also encourages them with saying that they did have some good material in their work. However, it is slightly chastising

which may be a little discouraging to some students. This is a useful way to give students feedback on their work. (Participant 36)

Process level feedback

Process-level feedback was perhaps the most effective of all the feedback samples presented to participants, seen as providing process-based information to the learner on the actions that led to the error. This is consistent with Hattie and Timperley's (2007) interpretation of process-level feedback as one of the more effective forms of feedback. Three quarters of participants indicated that it was useful, and one third that is would lead to improvement. Participants also considered it corrective, giving information on grammar, content and understanding. In contrast to this, however, a sample of participants communicated that more information was required (19%) and that this type of feedback stimulated negative emotions (17%).

Comments relating to process-feedback included: "This is perfect, as the teacher goes into great detail into how he can improve and how to correct these mistakes" (Participant 7). Other participants elaborated further, discussing the strategies that the feedback provided if the student were to complete a similar task, rather than simply providing corrective feedback. However, others did not respond as well to the suggestive nature of process-based feedback, cautioning:

> … the teachers need to elaborate more and be more specific with what they want the student to write. They need to give the student more specific examples of what they need to do to getter a better mark next time. (Participant 11)

Whilst acknowledging the high-level feedback provided in this sample, several students also indicated the negative level of emotional affect the process-level feedback might elicit. For example, one stated:

> This type of feedback, whilst informative and thorough, is very discouraging to a student. Receiving no praise for their hard work can really affect some students and may cause them to become distressed. On the contrary, it is very informative and tells the student where they can improve their work. (Participant 36)

Another participant explained further, noting the balance of the information provided in the feedback, and lack of positive affect:

> Yes this teacher's feedback would be very helpful toward the student, in both gaining an understanding of the areas that need improvements and by advising the student to work on areas before their final piece of the task is submitted. But as there are no comments on what a student has done well on in their piece of text, this could create and give the student a lack in confidence in their work, and without confidence they may not have the drive to do better and improve on their next task. (Participant 60)

The high level of negative affect that this sample might elicit was noted by almost one fifth of participants. This was reflected in such words as "harsh"; "disappointment"; "intimidating", and "discouraging". Despite the high level of feedback provided to participants on the task, process-related feedback was the sample that elicited the most negative emotional response. Given the diverse range of learner abilities in our classrooms, perhaps this supports Hattie and Timperley's (2007) contention that task-level feedback is more appropriate for students grappling with foundational level understandings, with deeper feedback, such as process-level, being more suitable for students moving towards task mastery.

Self-regulation level feedback

Self-regulation feedback is considered the deepest level of feedback, in that it develops student capacity to self-monitor and self-teach when encountering learning difficulties (Hattie & Timperley, 2007). Feedback aimed at self-regulation is not only applicable in a current task, but subsequent tasks leading towards transfer (Hattie & Donohue, 2016). Participants in this study supported this notion, with the majority deeming it useful (67%) and 35% identifying that it would lead to improvement. In addition to providing information on grammar and writing conventions, it was also the most effective form of feedback in communicating deep-level feedback on understanding (44%). One quarter of participants also identified that it developed reflective skills for future learning, an indication that this level of feedback is successful in developing capacity to self-regulate (Hattie & Timperley, 2007). Despite this, a quarter of all participants (22%) communicated that more information was required to be useful. This was typified in responses such as: "I think that this feedback would be useful to the student, because the teacher has included a question in their comment, in order to get the student to think more about the work …" (Participant 50). Participant 7 elaborated:

> this [feedback] allows the student to learn himself instead of the teacher doing it all for him and telling him what he did wrong he has to find these problems out himself which is the best way to learn" (Participant 7).

Despite the range of positive comments describing the capacity of self-regulation feedback to support students in thinking about how to improve, this sample was also deemed to stimulate negative emotions by 8% of participants. As with the process-level sample presented before it, this was supported by comments containing words such as: "derogatory", "mean", and "deflated". As Participant 2 noted: "I don't

think it would be helpful at all. Everything that the teacher said feels really condescending and I personally would lose all confidence because of that". Many participants commented on the useful nature of the self-regulation feedback sample but noted the negative affect it could produce. This is evident in the following comment:

> This is a very informative way to give students feedback and can help them improve the next time they do a similar task. However, it is a very harsh way to go about it. There is no praise and encouragement is needed to convince a student to do better next time. This is an okay way to give feedback but could affect student motivation negatively. (Participant 36)

In addition to the emotional impact of the self-regulation feedback sample, some participant comments touched on its complex nature, with one stating: "Well, it looks useful but it's confusing at the same time. The teacher is using a complicated language …" (Participant 26). Whilst others urged the teacher to be more direct in their feedback: "… as a student, I would prefer more specific feedback given on more individual errors, as well as the more common mistakes that are made" (Participant 60). These complexities were explained clearly by one participant:

> … instead of saying what the student should be doing, it [the feedback] instead asks the students to just think about what they could do. I think the distinction between should and could is important, as the student may not actually "reflect" as the teachers asks, and may not improve the next time they complete a similar task. (Participant 69)

What do students think effective teacher feedback looks like?

One of the key aims of this research was to gather data on student perceptions of teacher feedback practice, in relation to how students receive, respond to, and

action that feedback. As identified in the literature referenced previously, student perspectives of what constitutes effective feedback are lacking in the literature, especially in primary and secondary school contexts. There is evidence of the strong emotional connections associated with delivery of feedback, in addition to the complexities associated with what feedback individual learners need in order for them to move forward (Black & Wiliam, 1998; Brown et al., 2009; Harris et al., 2014b; Hattie & Gan, 2011; McFarland & Blascovitch, 1981; Swann & Read, 1981).

In considering what learners view as "effective feedback", previous studies cite the need for feedback to be specific, timely, related to the learning goals that have been communicated to them, and delivered in formative stages of learning in order to have impact (Dawson et al., 2019; Harris et al., 2014a; Hattie & Gan, 2011; Peterson & Irving, 2008). With this in mind, data relating to the question about what students look for in teacher feedback gives a range of insights into secondary student perspectives specifically, and allows for the development of a model of effective feedback through the eyes of the learner.

The frequency of codes assigned to participant responses in open-ended questions were discussed in the results section of this study (see Table 19 earlier in this chapter). With these data points identified as key elements of effective feedback to the participants in this study, the researcher sought to consider the characteristics of these factors more deeply. This involved a process of synthesising codes in like groups in order to present these findings in a cohesive and applicable model.

As shown in Table 27, fifteen codes were synthesised into four groups: "done well", "where to improve", "how to improve", and "what to do next time". Each of these groups represents an important element of feedback identified by participants as important to them as learners. "Done well" feedback relates to information

communicated about things executed correctly on task. “Where to improve” indicates where errors have occurred, and what needs to be fixed. “How to improve” provides corrections and strategies on how to correct these errors. Finally, “what to do next time” relates to how this information is applicable to future tasks, or how the student can develop the capacity to self-monitor.

Table 27

Synthesis of codes: “What kind of feedback do students look for?”

	Code	*f*
Done well	Mark / Grade / Figure	8 %
	Positive feedback	16%
	Done well	41%
	Understanding	2%
	Positive emotions – Encouraged, confident	10%
	Praise	5%
	Total	80%
Where to improve	Error flagging / Where / What	50%
	Corrections / Corrective / Ticks / Crosses	11%
	Total	61%
How to improve	Elaborate ideas	6%
	How to improve	51%
	Suggestions / Examples / Tips	13%
	Explains errors	7%
	Constructive	9%
	Total	86%
What to do next time	To improve for next time	36%
	In order to develop critical thinking / Self-regulation	4%
	Total	40%

In presenting a model of feedback, Sadler (1989) proposed that students need to know what they are aiming for, where they are in relation to learning goals, and how they close the gap in working towards that goal. In their own synthesis of the literature, Hattie and Timperley (2007) proposed three questions in their model of feedback: “Where am I going?” “How am I going?” and “Where to next?” Finally,

Wiliam and Thompson (2008) discussed the need for students to know where they are going, where they are right now, and how to get to the next stage in learning.

In contrast to these previous models, the model of feedback in this study proposes four questions, developed from the gathered, grouped and synthesised data. These questions are: “Where have I done well?” “Where do I need to improve?” “How do I improve?” and “What do I do next time?” This model, developed from the insights of learners in this study, confirms prior research that argues students need to know how they are currently performing on task, and what they need to do to improve their level of performance (Hattie & Timperley, 2007; Sadler, 1989; Wiliam & Thompson, 2008).

The interesting distinction between this model and findings, and previous research is that participants in this study did not reference the need to know the learning goal or target for which they were aiming. Previous research into student perceptions of feedback indicates the need for feedback to be related to the learning goals (Dawson et al., 2019; Harris et al., 2014a; Hattie & Gan, 2011; Peterson & Irving, 2008). In presenting their own models of feedback, Sadler (1989), Hattie and Timperley (2007), and Wiliam and Thompson (2008) all proposed that the sharing of the learning goal is the first key element of feedback. Participants in this study rejected that notion. Instead, they focussed on specific information relating to current performance on the task, how they needed to improve and, significantly, what they should do next time when presented with a similar task or how they could develop the capacity to self-regulate.

Another distinction of this model is the need to consider managing the *affective* influence of feedback, as well as *effective* elements. This contrasts with previous models of feedback that focus on the quality and type of information to

provide effective feedback for learning gains (Hattie and Timperley,2007; Sadler, 1989; Wiliam & Thompson, 2008). This is evidenced in this study by the fact that approximately half of the participants recommended that teachers ensure their feedback messaging is received appropriately from the perspective of *affect.* This is reflected in comments such as, "I feel like I've done better when my work isn't corrected with red pen … it just screams errors to me" (Participant 1), and, as quoted earlier, "Try to soften blows with sprinkles of positivity" (Participant 37). As noted in the students' model of feedback, this does not involve simply delivering praise, but needs to reinforce and encourage desirable behaviours before communicating next steps. As one participant advised:

> Don't just circle mistakes as this leaves the student with no confidence for next time, always find and encourage the good bits and provide suggestions for next tie as often feedback can simply be 'good job' and this leaves no room for improvement. (Participant 6)

Chapter summary

This chapter has presented the findings of Study 1A, which explored student perceptions of teacher feedback using samples aligned with Hattie and Timperley's (2007) levels of task, process, self-regulation, and self. An online survey instrument, combining fixed-response and open-ended questions, was completed by 103 students from years 10 to 12. This gathered data on the meaning assigned to such feedback, its perceived usefulness, and how the student would respond to it, as well as broader questions relating to what constitutes effective feedback from a student's perspective.

A quantitative analysis of data collected from the fixed-response questions indicated that, regardless of the feedback type and specificity of information presented, participants would assign their own meaning to the feedback provided.

This meaning was related to levels of understanding that the student had demonstrated on the task, as well as factors and strategies that may lead to improvement.

In analysing the data collected from the open-ended survey questions, content analysis was undertaken to code and quantify participant responses. Results supported the contention that there is a strong emotional connection to feedback and the way it is delivered (Black & Wiliam, 1998; Brown at al., 2009; Harris et al., 2014b). Resonating with the literature in the field, results indicated that self-level feedback did not support student learning (Hattie & Timperley, 2007; Kluger & DeNisi, 1996), however, it did play a role in building motivation and confidence in the learner. In contrast to this, process and self-regulation feedback were found to support a student's capacity to improve and self-monitor in future tasks, but also elicited negative emotions in some participants.

Participants were also asked what characteristics they believed contribute to effective feedback practices. Their responses indicated that in order to maximise learning gains, feedback must identify where the student has done well, flag where they need to improve, explain how to improve, and provide information relating to what they need to do next time.

The following chapter presents the findings of Study1B, which explored these themes and concepts in more depth. Semi-structured interviews with a small sample of participants allowed the researcher to develop a deeper understanding of how students interpret and assign meaning to the feedback provided to them, and the interplay between *effective* and *affective* elements of feedback.

Chapter 5: Study 1B

Introduction

The second phase of the research (Study 1B) involved interviewing a small number of student participants who had already completed the survey in Study 1A. As previously discussed, the purpose of considering these individual case studies (Blatter & Haverland, 2012) was to use semi-structured interviews to deepen understanding of the themes emerging from the survey responses. Specifically, this involved exploring the emotional and motivational factors that influence student responses to feedback, the process in which students assign meaning feedback provided to them, and the lived experience of the learner more broadly relating to feedback practices. Presented in the form of vignettes, this would result in a rich narrative of the student feedback experience. These results would also complement the quantitative data gathered in the first phase of the study (Bryman, 2006) and allow the researcher to consider the wider implications of the research.

Results

Participants

The first phase of the study involved 103 student participants from years 10 to 12 at a large government secondary school in regional Victoria, Australia. Consistent with an integrated approach to sampling, the second phase of the study was conducted at the same setting (Yin, 2006). Participants in Study 1A were invited to participate in semi-structured interviews (Study 1B), with six participants (four females and two males) interviewed. Each of these participants was in year 11 at the time of interview. Participation in the study was within the participants' usual timetabled program, and ethical approval had been granted by the University of Melbourne Ethics Committee

and the Victorian Department of Education. For the purpose of reporting, all participant data was de-identified, with pseudonyms used in reporting of case studies.

Presentation of case studies

The findings from the semi-structured interviews are presented here as six individual student case studies (Table 28) in the form of vignettes. The purpose of each is to communicate the unique perspectives, attitudes, and behaviours of each of the students who were interviewed (Hughes & Huby, 2012). Each case study vignette synthesises themes from the interview transcripts and subsequent coding into the narrative, but any direct quotes are inserted verbatim. As noted, participants in case studies are referred to using pseudonyms to protect their anonymity.

Table 28

Case study participants

	Pseudonym	Gender	Year level	Age
Case study one	Amira	Female	Year 11	16
Case study two	Mohammed	Male	Year 11	16
Case study three	Sally	Female	Year 11	17
Case study four	Tom	Male	Year 11	16
Case study five	Li	Female	Year 11	17
Case study six	Mary	Female	Year 11	16

Case study one: "Amira"

Amira is 16 years old and completing year 11. She describes herself as aspirational and, based on this, pays a lot of attention to the feedback her teachers provide. In her own words: "The more serious the test, then the more I pay attention". Amira finds it distressing when she does not achieve the high expectations she has set herself. While other students sometimes do not pay as much attention to feedback when they "get a good grade", Amira is even more driven to focus on what she needs to do to improve further when she does not meet the high standards she sets herself.

When it comes to receiving self-level feedback in the form of praise, Amira labels this as: “lazy marking”. This type of feedback, she explains, is more typical of what she received in primary school. This is in contrast to the feedback she receives in the upper secondary years, which describes as more detailed. This type of feedback is still common in high school though, she explains, laughing: “Teachers like to put that on the end, to make you feel better”.

When talking about feedback generally, Amira explains that students often talk about the feedback they receive, with students cognisant of those teachers who provide better feedback than others. However, when receiving praise back on a piece of work, with no other information provided, Amira claims she would respond by not studying much more as a result, assuming everything is as it should be.

When receiving feedback directed at completion of the task, communicated through symbols such as ticks, crosses, and underlines, Amira explains that she generally interprets and assigns her own meaning. On seeing lots of symbols on her work, Amira assumes that she needs to work harder based on the presence of errors. She will then make process-based assumptions, such as the need to proofread, because she knows that this will help her avoid errors in future. She explains the impact of using corrective symbols on her as a learner, reflecting: “…maybe you should’ve taken more time to look at all these things, [be]cause it makes it look like the whole thing is a mistake, in a way [be]cause it makes it look like, ‘OK, well, this is wrong, that's wrong, that's wrong. Fix that, fix that’”.

Amira explains that many teachers communicate feedback through symbols, but this can be challenging. She elaborates: “Sometimes it's hard, [be]cause the symbols change, depending on who's marking it… sometimes not even between teachers but just, like, between SACs [School Assessed Coursework] or between

assessments, that they'll change". Amira suggests that teachers need to develop a standard for the use of symbols in feedback to make things easier for students. In order to deal with these challenges, Amira uses the opportunity to follow up with her teacher. She explains:

> So, it can also be a good thing, [be]cause it can sort of start a conversation with the teacher. [Be]cause if you've got, like, circling, you don't understand why they've circled it, then you would ... You know, you have to ask them, then it would sort of make a bit more of a conversation. I would follow up and I'd be like, 'OK, what do you mean by this? How can I improve this?' you know, 'What was actually good about it?'

When reflecting on task-based feedback in the form of written commentary, Amira explains that this form of feedback is not as common as some might think. She hypothesises that teachers are restricted by the time required to write it, and the space needed for the comment. She finds this form of feedback useful though, as it indicates the positives and negatives in the piece of work. When receiving comments indicating things done well, she will continue to apply such practices. When receiving comments indicating errors, she will flag these as areas to work on.

When discussing samples of feedback aligned with process-level feedback, Amira explains that this form of feedback is not focussed on merely highlighting mistakes, but rather providing suggestions to improve the work. She rarely receives such feedback and, due to her high expectations of performance, struggles to know what to do with it when she does. When asked to explain, she seems to grapple with the suggestive nature of the comments, and the need to apply a solution, as opposed to simply knowing what to change exactly.

Amira describes self-regulation feedback as “find your own error” and receives this feedback often. She elaborates:

> That comes up a lot. I think it’s sort of a common sort of thing, so it's meant to be learning from the mistakes, instead of just pointing out the mistakes. Not really questions. They don't really occur, but ... But asking them to, like, think about it more and stuff, but not really in a question type of way.

Despite the goal of the feedback to promote deeper learning, Amira finds this approach frustrating. She explains: “[Be]cause then you have to go back through, and you have to work through it all. I would prefer to know exactly where the mistakes are, and then just to know it for next time.” Despite this, Amira does concede that cues that will prompt her to self-regulate in future tasks would be applied, such as citing examples from a text to strengthen her written responses when being assessed.

In considering the most common form of feedback she receives, Amira indicates that it is a mixture of symbols and comments. Symbols, she explains, are more prominent, and with three or four comments per piece of work. She explains that, as a driven student, she often finds this frustrating, as she wants to know more in order to improve further. Amira views encouragement to be the crucial element to effective feedback, in being both supportive, and giving the next steps to improve. As she elaborates:

> … you want to know what you did well, so that you can, I don't know, have a base, have a platform to build off for next time. But also, so that if that was a practice exam, and then you were going in for the actual exam, at least you have some degree of confidence or, you know, knowledge in your own ability, rather than just having all these mistakes.

Amira cautions that these affirmations should not be vague and non-specific, but rather targeted at what has been done well, to reinforce particular skills and knowledge demonstrated in the work.

Case study two: "Mohammad"

Mohammad is a 16-year-old male student who is currently in year 11. He describes himself as a student who is generally quiet in class because he wants to get the work done. He is aspirational, and studies hard at home using his own strategies and study methods to improve his achievement levels.

When discussing the feedback sample targeted at the self level, Mohammad explains that this type of feedback is not useful to the learner. Elaborating, he states: "There wasn't much I could go on … due to the actual comment, there was no criticising of what they did wrong and so they wouldn't have known what they could have done differently". Reflecting on his own experiences as a student, Mohammad sees self-level feedback, which is usually communicated through praise, as: "… either cushioning for something if you got a bad mark or in order to encourage the person to continue doing it". However, despite this perception that self-level feedback is ineffective, he cautions against the use of feedback without praise, communicating that feedback delivered without it may be considered "cold" and not supportive of the learner.

While Mohammad considers feedback directed at self as a positive primer for the learner, he sees task-based feedback communicated through symbols as more neutral but leaning towards "criticism". Based on this, he explains that the learner is being told what they have done right and wrong, but without any further information that could help him improve. Mohammad sees these regularly in his classes, referring to this type of feedback as "quick marks".

Reflecting on how he responds to such feedback, Mohammad will review the symbols which flag both errors and correct responses, and assign his own meaning and understanding of his next steps based on his previous learning experiences. He explains that this involves reflecting on what improvement strategies teachers had previously provided him in similar situations. Knowing "what he needs to work on" and "how to work on it", it is simply a matter of putting it into practice. When asked how a student might fare without similar learning experiences to draw on, he believes they would have trouble making sense of feedback using corrective symbols, suggesting they will be "left in the dark if they don't know what they are doing wrong, and how they could do it (next time)", leaving them at a "standstill".

When it comes to written task-level feedback, Mohammad explains that the distinction here is that the teacher is not only flagging errors, but also providing the correction or answer to develop a deeper understanding in the learner. Mohammad receives this type of feedback often, and it is his preferred form of feedback. He sees this as specific and direct, indicating where errors have occurred but, most importantly, communicating what is wrong with it. Mohammad explains that in contrast to simply pointing out an error using a corrective symbol, "It is another thing to highlight the word and then write down what was wrong with it".

In contrast to task-based feedback, Mohammad describes process-based feedback as "Solution feedback". Comparing this to written task feedback he elaborates: "The previous one is writing down what they did wrong, whereas this one isn't writing down what they did wrong so much as writing down what they could do better." For Mohammad, the issue with this level of feedback delivered in isolation is that it puts too much emphasis on the "where to next", without clearly flagging errors.

He explains that he needs to know clearly what he did wrong in the first place, before being presented with a process-based solution.

If Mohammad receives this type of feedback from a teacher, he will usually follow up after class and ask explicitly where he went wrong. He elaborates: “You want them (students) to understand, but first they have to learn how to find them. It's one thing to have them … know where their mistakes are, but in the first place they have to know how to do it”. Whilst he does not think it is as useful to him as task written feedback, this type of feedback would be useful when completing similar tasks. Mohammad explains that he would “keep this in my head” and remember reading the process-based feedback when completing later tasks.

In discussing self-regulation feedback, in the form of reflective prompts and cues to guide critical thinking, Mohammad says this is: “…the most effective type of criticism”. With self-regulation feedback aimed at developing student capacity to self-monitor and self-regulate in future tasks, Mohammad presents evidence that this may be occurring. As he remarks:

> The criticisms do help in the short-term because … I will be focussing on those and then I will correct those and what's ahead in my head. I will be focussing more long-term with the comments, as in what they said, and so I will be thinking on that next time I do it.

Mohammad does caution though, that whilst he believes all teachers have students’ best interests in mind when delivering feedback, delivery of feedback without explicit praise may be challenging for some students. He interprets feedback without praise, and with lots of comments, as meaning the learner has made many mistakes and performed poorly. Mohammad suggests that the nature of the teacher-

student relationship is key, with some students perhaps viewing criticism of their work as due to their teacher not liking them.

Mohammad elaborates further on the absence of self-directed praise and positive affect in process and self-regulation type feedback. He reflects that: “It might have been seen as cold in a figure of speaking”, later elaborating that: “It would have been helpful (to me) because I would be able to go home and be able to work for that positive comment”. This latter statement is a clear indication of the need for teacher approval and for students to be given recognition for a job well done.

When considering what feedback Mohammad looks for as a student, he suggests a simple process of flagging errors, and providing advice. Explaining his perspective, he states:

> Because with me … I don't so much need to be told what I did right. Because when I'm doing stuff like this, if I did it right then I can just do it again because it just came out of my own thinking patterns … I would prefer to get more negative comments than positive because that would be the stuff I would have to change.

Of particular importance to Mohammad in the feedback process is the opportunity to follow up and have a conversation with the teacher. He elaborates:

> The (written) comments … give you the facts and the examples, whereas when you are talking to a person or the teacher, they tend to be more relative. They will explain it in a normal manner because some people prefer it as an easier way to interpret it because they will speak more casually. It will be like a conversation and people tend to remember conversations more than they do writing.

Case study three: "Sally"

Sally is a 17-year-old female in year 11. She is a confident learner and rates herself above her peers in achievement, but only considers her effort in class as moderate. At the moment she is just doing what she needs to do to get by, however next year she will apply herself in her final year of schooling. Sally states that her preferred method of learning is direct instruction, along with textbooks and notes on a board. When talking about feedback and the attention she commits to it, she states that she will first look for the grade, and then make a judgement on whether she needs to attend to the feedback or not. She explains:

> To be honest, the scores are usually pretty good, like, so I don't really need to pay attention so much, I would say. But if it is something I know I need to work on I will pay attention to the written help that's on there.

When discussing self-level feedback samples, Sally describes this information as "vague", without the information required for the student to improve. When receiving non-specific positive feedback on her own work, she will assume she has done well in demonstrating her understanding and not change her thinking or behaviour on similar tasks that follow. Sally sees self-level feedback such as praise as important, but she believes that much more information is required to help the learner if they need to improve.

According to Sally, she only occasionally receives self-level feedback, but she often receives task-based feedback. More often than not, this is communicated through a combination of symbols and comments. When presented with only symbols, Sally explains that she sees this as a way of drawing attention to errors. Based on this, she will then make her own assumptions as to what she might do next time around to improve.

Sally considers written task-level feedback to be much more effective than just corrective symbols delivered in isolation. She explains that it communicates elements about performance in the task. She also perceives the flagging of things done well as praise. Sally sees these affirmative statements as important, especially: “If they are struggling … to say what they are doing right”. Sally considers indicators of things done well and flagging areas to improve as equally important. In the absence of both these points of feedback for her as a learner, she explains further: “I would be less likely to get a good score in the long run because they are … not saying that I'm actually doing good, but are just pointing out the flaws … I'd probably change what I was writing and that might be a bad thing”.

Whilst Sally finds the task-level feedback samples useful as a learner, she finds process-level feedback less effective. She describes it as vague and prefers much more direct information on what to fix, rather than suggestions on the process of how to fix mistakes. She also finds self-regulation feedback to be not so useful. Whilst she acknowledges the comments prompting her to self–monitor to improve in future tasks as potentially helpful, she finds the thinking required to do this as tedious. As she explains:

> I guess I'm used to putting down the answers that I know the teacher will like, so I'd rather have information on what the teacher thinks rather than asking myself about changes. It's not really telling me what I need to do to get the right answers. It's just saying to think about it.

In reflecting on her preferred type of written feedback, Sally talks about previous experiences with teachers who communicate information on performance in a variety of ways. Considering this further, she breaks it down in detail:

> Any grammar or spelling mistakes circled, comments regarding a certain - like if there is a sentence that they don't like saying that they don't like that or like reword it. Like saying when they like a certain use of a term or a word.
>
> Maybe some ideas on the side of the page if something is not how they like.

She explains that this is preferable to long comments at the end of a paper, without any notations throughout the activity.

Case study four: "Tom"

Tom is 16 years old and in year 11. He considers himself a confident and motivated student, but admits he finds some things challenging. As Tom states:

> There's some things that I struggle to grasp concepts of. But I'm gonna try my hardest. Like, I'm gonna give 110%. And when I really knuckle down, the kind of scores and my understanding of things improve. But, yeah, to start out with, like, I'm not gonna absolutely tank it, but I'm not gonna be the greatest. And that's when I knuckle down.

Tom explains that self-level feedback such as praise is common, but he sees it as somewhat important to the student in the learning process. Despite this, he also concedes that this feedback alone will not help the learner improve. He likens the receiving of positive feedback on work as a sign of appreciation for effort, and a primer to drive learner confidence, explaining: "(It's) to kind of give you an ego boost… But, yeah, again, you can't just have all positive comments. You need to know where you can improve".

As a motivated learner who is driven to overcome his challenges, Tom talks about the fine balance between needing to know where to improve, whilst also feeling positive about the work he has created. He elaborates, stating:

> If I genuinely don't have a firm grasp of the task, knowing where I have gone wrong is really helpful … I mean, I (also) need to know what I've done right. So, you don't want to be like the opposite end of the spectrum whereas, like, you only pick out the wrong things. That's just gonna kind of drive you down. But if you've got what you've done right, and what you need to know to get to improve, that's when it's gonna be helpful.

If presented with solely non-specific self-level feedback such as praise, Tom explains that he will draw on his already developed subject knowledge to make sense of where he needs to go next to improve. Taking on the positive comments, he will then identify the areas he assumes he needs to improve, draw assumptions, and plan the next steps in his learning.

Tom also considers task feedback communicated through symbols as too limited if the student is using the comments to improve further. As he states:

> That's not gonna be helpful for me at all. Like, you've got a symbol for a tick ... But then again, like, if you had no idea what that meant, like, if someone was like, "Oh, where have I gone wrong?" like, you've just circled it, like, "What's happening there?

Based on this flagging of errors through symbols, Tom explains that he is often left to his own devices on how to respond to the limited feedback provided. Using the corrective symbols as cues as to what to consider next time around, he will then reflect on past learning experiences in his head and develop potential responses to improve his work further. The issue, he warns, is that without sufficient learning experiences to inform interpretation, many students will be unable to develop their own course of action to improve.

He elaborates further regarding his frustration with this type of feedback, recounting a learning experience:

> I can't remember what teacher, but that was her favourite thing … tick where you've done right, circle where you've done wrong, question marks if it didn't make sense. But that was like a whole year of me trying to learn, like, decipher what was actually being meant by those symbols.

Tom explains that following this experience he felt discouraged and found himself sitting there thinking about how he could improve, and as a result he received a bad grade on his report. As he states, "I thrive on that constructive criticism". Based on this, Tom took the steps to follow up with the teacher in question to develop a better understanding of the feedback:

> That (involved) physically going up ... Like, bringing the paper, saying, 'Tell me what I've done wrong. Tell me what I need to do.' I didn't get it ... Like, I still got pages like that, but I verbally pursued it. Like, I got verbal feedback when it was initiated by me … (if not for that) I would've been down, like, over.

Tom also discusses the role dialogue with peers around feedback received helps him make sense of feedback. Tom explains he has a trusted group of friends who discuss the feedback they receive on their work, and with an intentional focus on improvement. He reflects on a previous learning experience:

> We'd sit down and we'd read ours, give each other feedback, and we'd have feedback from the teacher. And we'd see if we agreed with her (the teacher), bring her over if we think there's something that she's missed out, or, like, get her to explain her feedback. But, yeah, we'd sit there and we'd go, "Can you

read the comments? Does that make sense to you?" Like, "Can you see where she's coming from?" kind of thing. So we had kind of four markers really.

In contrast to non-specific feedback such as praise (self), and the limited information provided through symbols (task), Tom finds written commentary directed to the task as much more useful. While praise and symbol-based feedback was more prominent in Tom's junior years of schooling, he sees this as more typical in the senior years of schooling. He states that this type of feedback: "really hits the nail on the head", elaborating on the balance of flagging what has been done well, whilst also explaining what needs work.

In contrast, Tom finds the feedback provided in process-level samples as somewhat "negative". Tom acknowledges the importance of feedback that develops a deeper understanding in students of the process-based steps they can take to improve but proposed that it is too much about what students need to do differently, as opposed to highlighting all the things done right. He explains: "So those comments would be good, they're constructive, but there's nothing that highlights the good … Like, if you're just getting negative comments, that's not gonna help your essay-writing really".

Tom views feedback at the self-regulation level in a similar light. Whilst he acknowledges that feedback that develops student capacity to self-monitor and self-correct is crucial, he also explores the complexity of this occurring in the assessment-heavy context of senior secondary education. When preparing for an assessment, he explains, he does not need these questions in his head. He believes he already has to remember enough content and understanding-based information in preparing for high stakes assessment, in addition to remembering such cues to guide his thinking. At times he finds such feedback as downright frustrating, explaining: "It'd be more

helpful to have exactly what you need, instead of, 'Here's a prompt. Try and kind of fish that information out of my question'".

When Tom reflects on how students respond to high-level feedback in a summative assessment environment, an uneasy tension emerges between feedback that builds learner capacity to improve in future trials, and the need to know what needs to be done to be successful in the immediate task. As Tom explains:

> I don't wanna think about how to fix. I want to know what I need to do straight out, so I can fix it and improve … At the end of the day, it's the score that you get (that matters). And if you're dancing around the right answer, that frustrates me. I see that as time-wasting. It's, like, I could be hitting the nail on the head. Instead, I'm wasting time on open-ended questions and trying to kind of nut out what I need to do.

Tom also explains that the presentation of a grade with constructive feedback influences his peers' engagement with feedback. He explains that students often talk about the feedback they receive on their work, but this is limited to the grade score, something he dislikes. As he explains: "A lot of them will go, 'Oh, what did you get?' And … I hate that. That's like ... I've passed or I've failed. Like, it's all they need to know".

Case study five: "Li"

Li is 17 years old and in year 11. When describing herself as a student, Li is "average" in academic success compared to her peers – ranking herself in neither the top nor low bracket in achievement. Despite this, Li tries hard at school, puts in a high level of effort and identifies as a confident learner.

Li describes self-level feedback as: "A written comment on my efforts" and receives this form of feedback regularly. Whilst she likes knowing the teacher

appreciates her work and is happy with her, she describes this level of feedback as "vague" and too limited to help her improve next time she performs a similar task. She identified such feedback as not useful, and when presented with such feedback she attempts to draw her own assumptions based on the limited information provided.

When asked if she receives task-level feedback in the form of symbols very often, Li simply sighs and responds: "Every English assessment … there's, like, lines all over your work, you, sort of, feel like, oh, you haven't done very well because there's just … crosses and underlines and stuff." Li does her best to decipher the coding provided in the feedback. Circles, she explains, usually indicate a spelling error, ticks something done well, and crosses are clearly an error of some sort. She clearly grapples with assigning such meaning to this level of feedback. When asked if she finds it useful, she replies:

> Not really because, I mean, I get it a lot because I'm not a very good speller, but then I, sort of, like, I know that I'm not very good … so I know that I need to work on it, so, I don't know, it just ... It, sort of, makes you feel like, not dumb but not, like, good." Effective feedback, she explains: "… is feedback on how to improve the writing rather than just … crosses.

Li much prefers feedback communicated through written comments and finds this task-based feedback much more useful. As she explains:

> I find this (feedback) a lot better because it says what you've done and how it is, like, good … and then what you need to improve on, like, you need to have examples to support the idea and stuff.

Li finds task-level feedback using comments the right balance of constructive feedback and affirmations for things done well. She describes process-level feedback as: "Really in-depth … sort of a bit unnecessary. It's… a bit too full on". As a learner,

Li finds this type of feedback too elaborate in its explanations, and perhaps too challenging to make sense of and action. This indicates a tension for less confident learners, in that high-level feedback whilst aimed at developing deeper levels of understanding, may be beyond the grasp of some students.

In contrast to this, Li does find self-regulation feedback samples with cues and reflective prompts useful. She explains that a comment suggesting how she can source examples to support her argument, or reflective cues to consider proofreading her work for errors would be beneficial for application in future tasks. She refers to an example from a recent English assessment: “My practice English exam. She'd put … think about how you can use more examples from Gattaca…”. Li then explains that when completing the final exam, this question guided her thinking. The issue, Li explains, is that if preparing for an assessment that will be on the same text, a specific example would be more useful and much easier to put into practice moving forward.

Li explains the key to good feedback is “balance”. She finds self-level feedback too vague, but it has its place. This contrasts to process-based feedback, which she finds too complex and lacking affirmation. As she explains:

> If you get a bit of positive stuff then it helps you get through it … Because then it's, like, it's not always a negative thing to write an essay. Because if you keep getting negative feedback, then you are going to really not like doing essays.

But equally important is that: “The teacher should also tell the student what they’ve done wrong and show them ways of fixing it for the next piece of work” if they are to help a student improve.

Case study six: "Mary"

Mary is 16 years old and completing year 11. She considers her effort in school as high, particularly in the subjects she enjoys, but ranks herself as average in terms of academic success compared to her peers. When asked to describe herself as a learner, Mary reflects: "Um, I don't know … I don't pick things up quick, but I go along at a steady pace". Despite this, Mary identifies herself as a confident learner and values the relationships she has with her teachers. As she explains, it is: "…about the interactions, like, the way that you connect with your teacher to make yourself better".

When talking about receiving self-level feedback in the form of non-specific praise, Mary reflects that, whilst it is used by teachers, it is rarely presented without further information about how to improve. If it is, she explains that such limited feedback provides no relevant information about what the student should do next. Mary does not consider the recognition of a "good effort" as important, but rather feedback providing suggestions on how to move forward in the next task as the most crucial element.

In contrast to self-level feedback delivered in isolation, Mary explains that she often receives task level feedback in the form of symbols. Elaborating, she states that these symbols would usually be accompanied by a summarising statement at the end of the piece, something like: "Make sure to check spelling", she explains. In considering how she responds to such symbols presented in teacher feedback, Mary breaks it down: "Obviously ticks mean that it's correct and the crosses means it's incorrect … where there's a question mark, I interpret that as 'What do you mean by that?' and underlines … are negative". With no further commentary to guide her, she explains that in order to avoid the errors that are flagged next time, she will make

process-based decisions on what to do next time around to avoid these mistakes. But, taking a deep breath as she reflects, Mary concedes: “But there's no comments ... So, I could be interpreting completely different to what the teacher is”. As if providing advice to a teacher, she suggests: “Like, where the tick is, what is good about that? And, how do I develop a better understanding if I’m not being clear?”

Task-level feedback communicated in comments is much more common, Mary explains, and a form of feedback that she finds much more useful. She indicates that it is even more prominent in literacy-based classes such as English. Like corrective symbols, even though the comment is also aimed at the completion of the task, Mary explains that it gives her more of an insight into the quality of the work. She notes: “It says things that need to be worked on … what’s good about it, and what’s not good about it. It gives an idea of what needs to change, so it’s not just ticks and crosses. So it’s not just me interpreting it”.

In contrast to this, when considering the emotional affect of feedback Mary flags process-level feedback as being problematic. Whilst process-based comments are solution-focussed, she describes them as coming across as overly negative, and only pointing out the mistakes. Elaborating, she states that all they do is indicate “…this is wrong, [but] it’s not really saying how to fix it”. Reflecting further on how she responds when receiving process-based feedback from a teacher, Mary explains: “I’d just chuck them away … they are no use to me because they are not really constructive”.

When prompted about the importance of constructive process-based feedback to give the student strategies to support improvement, Mary believes it does little to help this. Giving insights into the important balance of critical feedback aimed to support growth and student emotions, she explains: “I feel like if there's heaps of

negative comments, you can't really say that they did a good job … because you're only sitting there picking out the bad stuff". Further indicating the tension between high-level feedback and preservation of a student's sense of self, Mary explains that students can tell when self-based feedback is not genuine and only intended to prime them for taking on constructive feedback. As a result, she says, it is likely to be ignored. Of more importance to Mary is an indication of the things that have been done right, and clear feedback on what things need to be done to further improve.

Interestingly, whilst Mary views process-level feedback as overly negative, she considers self-regulation as a more effective mode of feedback. Explaining, she notes: "(it is) definitely more positive, more constructive. I would take this as good feedback … They've pointed out the things that you've done wrong, but they've also given ideas and tips how to change that." Mary believes that this type of feedback would help students self-monitor and self-regulate their thinking in moving forward. She explains:

> Like, if it says, 'Think about how to...' Like, if you read it and you think you can make it better, I think about those questions that have been given to me. So, it would be, like, where it says, 'How do I see these changes occur in the play?' I would think back and then work that in with the example that I've given.

This deeper level type of feedback suits Mary, as she does not like teachers getting caught up with tedious grammar and spelling issues and would rather focus on how to make her written response stronger.

When reflecting on the various feedback samples and her learning experiences, Mary indicates that she finds process-level feedback the most useful to her as a learner when the affective influence is correctly managed. When this occurs,

the feedback provided will “make it (her performance) better”. She explains that in order to further improve this type of feedback, the teacher should include information relating to what has been done correctly in conjunction with the process-based feedback, not simply indicate this by ticks. The importance of the positive element is key it seems.

When discussing how much attention she pays to the feedback provided to her by her teachers, Mary explains that her focus goes beyond her grade or score, and towards how she can improve next time around. “I do read over it”, she explains, “and I do look at it and think how I can make it better, but, like, if it’s just negative stuff I just don't really look at it or care about it”. When asked to elaborate further, Mary takes a moment, before pondering aloud:

> I don't know why that is. I just don't because I just ... I don't know. A lot of the stuff, like, I do try really hard on, but, like, if it's just negative stuff I just don't bother. If I feel like I've done well, but, like, obviously … if it's just negative stuff it doesn't really tell me what I’ve done right, so I can go from there. It’s, sort of, just basically saying the whole thing is bad.

Mary then goes on to explain that most teachers do get the balance right and suggests: “ask(ing) each student how they learn best from feedback would probably help”.

Discussion

As previously outlined, the purpose of phase two of this study was to select a small number of case studies from the first phase to conduct interviews. This was designed to develop a deeper understanding of how students engage with, receive, interpret, and action teacher feedback. It was clear in analysing the data from the 103 participants who completed the survey (Study 1A) that learner interaction with

feedback is complex and multi-faceted. As stated earlier, and reiterated here, the emerging themes from the survey data included:

- The high level of motivational and learner confidence self-level feedback can stimulate, and how important this type of feedback is to learners.
- The tendency for students to assign meaning to non-specific feedback such as praise and symbols.
- The deeper-level thinking that process and self-regulation feedback stimulates in participants.
- The negative emotional response student expressed when presented with high-level feedback.
- What students consider to be effective feedback practices.

In completing the semi-structured interviews with the six participants, these themes were explored, gathering insights about how and why these phenomena occur. Other themes also emerged from the case study interview data that explain how students engage with feedback based on the perspective of the learner. These included:

- Self-level feedback does not influence student growth.
- How self-level feedback influences learner confidence and motivation.
- The process in which students make sense of feedback.
- Why negative emotions may be associated with process and self-regulation feedback.
- The role of dialogue with peers and teachers when responding to feedback.
- How the assessment context influences the way the feedback is addressed.

Some of these themes support previous research conducted into feedback, adding insights from the perspective of the learner, whilst some contribute more

deeply to help us understand how students respond to teacher feedback. In this section, each of these themes is explored under five broader headings, integrating the voices of student participants and connecting this more widely to the feedback literature.

Self-level feedback does not influence student growth

It has been proposed that feedback directed at self does not stimulate academic growth in learners (Hattie, 2009; Hattie & Timperley, 2007). More often than not, self-level feedback is delivered in the form of non-specific praise (Hattie & Timperley, 2009). Within the literature, the influence of praise on student achievement is considered negligible (Hattie, 1999; Kluger & DeNisi, 1996; Wilkinson, 1981), with some meta-analyses establishing that the absence of praise is actually more impactful (Kluger & DeNisi, 1996).

Hattie and Timperley (2007) suggested that self-level feedback in the form of praise is ineffective because it does not provide information to the learner about how to improve. This premise was widely supported by student participants in interviews. As Mohammad remarked: “I don't think it would help me at all because it doesn't highlight where I - what I could improve. There wasn't much I could go on”. Or Li, who stated: “I find it a bit vague because I don't know what I can do better”.

Adding further insights to the existing literature are student perceptions of the usefulness of this feedback. It is clear students know what is useful for them in leading to improvement and, in the case of self-level praise, what is not useful. As Amira noted when discussing self-level praise: “I call it, like, ‘lazy marking’. People just write, you know, ‘Well done, good job’”. Some participants also saw it as non-genuine, such as Mohammad who explained its purpose as: “cushioning for something if you got a bad mark”. Mohammad saw a gap in non-specific praise: “You

need to be able to praise the person on what they did right so they can remember to do it again". This reiterates Hattie and Timperley's (2007) argument that this form of praise is more impactful as it is directed to the task.

The risk, it appears, is that providing only praise that is non-specific will result in reinforcing behaviours and understandings too widely. Sally, for example, stated that when receiving praise, she will assume she has done well in demonstrating her understanding, and not make changes to her work. The tension that did emerge as the interviews went on was that whilst participants did not find praise-based feedback useful in leading to improvement, when it was absent, the uptake of deeper level feedback was influenced. This tension between praise, and its influence on self-efficacy is recognised by several scholars (Hattie & Timperley, 2007), and is a thread that continued throughout the interviews in how students receive and respond to feedback.

The affective influence of self-level feedback

The connection between student emotions and feedback is well established, with students reporting a variety of both positive and negative emotional responses based on the assessment context (Harris et al., 2014b; Wiliam, 2012). The place of praise in feedback has also been explored. As discussed earlier, praise has little influence on student achievement (Hattie, 1999; Kluger & DeNisi, 1996; Wilkinson, 1981), yet students do like to be praised (Burnett, 2002; Elwell & Tiberio, 1994; Sharp, 1985).

Emerging in both the survey and interview data sets was the influence of self-level feedback on student emotion and, in turn, how students responded to the feedback provided. In this study, self-feedback was delivered in the form of praise. Participants conceded that non-specific praise was not useful in leading towards

improvement, with some elaborating that it would lead them to leave their work unchanged. But, when considering the larger scale survey data, the absence of praise when presented with deeper level feedback such as process or self-regulation (Hattie & Timperley, 2007) presented a range of issues. Specifically, many participants demonstrated a negative response to feedback delivered without praise, reporting that they would feel demotivated, lacking confidence, or less receptive to the feedback if presented with similar feedback.

In analysing the interview data in which participants explored these themes in more depth, and whilst self-based praise was not deemed as "useful" in terms of leading to improvement, interviewees explored the place of praise from the learners' perspective. The influence of praise on the learner in interviews echoed the sentiments of the larger survey group, with participants identifying that it left them feeling confident and encouraged to try again. In discussing this, Amira said: "Encouragement is really important; it gives a base of confidence in your ability to move forward". Recognition of effort is also important to students. Supporting previous research into praise for effort (Burnett, 2002; Elwell & Tiberio, 1994), students communicated a need for this to be noticed by the teacher. As Tom explained: "As a student you read that, and you go, 'Oh, yeah, this is good'. Like, 'There's appreciation of my effort'".

In contrast to this, the absence of praise can make the feedback come across as what Mohammad called "cold", with participants considering the absence of positive praise as "negative feedback". Li said: "Because if you keep getting negative feedback, then you are going to really not like doing essays. So, if you get a bit of positive stuff then it helps you get through it". The potential response to "cold" feedback is that the feedback will be ignored. Adding weight to the contention of

Wiliam (2012) that the individual ways in which learners interpret feedback will influence their response to it, some participants reported that they would attend to feedback deemed as "negative". If perceived in this light, said Mary: "I just won't look at it. I don't know why that is. I just don't because I just ... I don't know. A lot of the stuff, like, I do try really hard on, but, like, if it's just negative stuff I just don't bother".

Of particular importance is that participants also seemed to identify flagging of correct answers in task-level feedback as praise. This reiterates Hattie and Timperley's (2007) point that praise directed at performance can develop self-efficacy in students and can have a deeper impact on achievement and understanding. Despite discussing the need for praise, all participants communicated a need for more information if it was to be useful. Of importance is that feedback perceived as helpful, is more likely to be received positively by learners (Harris et al., 2014a). As participants indicated, praise and encouragement are crucial to the learner, but need to be directed to the task. As Amira stated: "So when it comes to encouragement, not just saying, 'Good job'… You're kind of looking for, you know, 'This sentence was particularly good', or, you know, 'This structure was good'".

The process in which students assign meaning to feedback

Data gathered in the large-scale survey indicated that student participants were assigning their own meaning to the feedback presented in the samples regardless of the specificity and type of information the teacher provided. This was the case when the feedback provided was non-specific and vague, such as self-level feedback in the form of praise, or when only symbols were used to highlight errors and indicate correct responses. This is illustrated in the case of non-specific task-level feedback using ticks and crosses, in which participants indicated a need for students to

proofread or develop an understanding of grammar. Based on this, a key focus of the interview study was to discuss with participants how they construct such meaning when the feedback itself is actually quite vague and general. What emerged in the interviews was the tendency for learners to construct their own meaning when presented with non-specific feedback. Themes emerging in the interviews indicated that participants make sense of feedback delivered to them based on the information provided to them by the teacher; by drawing on previous learning experiences with feedback; and by constructing meaning with peers.

The individual case studies presented explain this process in a variety of ways. Sally, for example, explained that she uses corrective symbol feedback to draw attention to her errors and, based on this, she will then make assumptions as to what she might do next. It was clear that the use of symbols is a prominent element of the student feedback experience, much to the chagrin of the interviewees. Regardless, with this experience students make sense of these various symbols. As Li explained: "Circles, usually indicate a spelling error; ticks something done well; and, crosses are clearly an error of some sort." Mary stated: "Obviously ticks means that it's correct and the crosses means it's incorrect … where there's a question mark, I interpret that as 'What do you mean by that', and underlines (are negative)".

In exploring further how they make sense of non-specific feedback, some participants considered more deeply how they would draw on previous experiences with such types of feedback. As Mohammad explained:

> We have already gone through so many years of the teachers explain to us how we could improve our work and what we could do for it. So what this work was helpful with is that it identified what I needed to work on. And since I already knew how to work on it, it was straightforward from there.

Further elaborating on the process of meaning making, Tom broke it down further:

Well, the errors … it's kind of my interpretation. Throughout my whole thing, I can tell you that... I was reading those and going through past experiences that I'd had… (but if) I didn't have that kind of learning experience; I wouldn't be able to interpret that.

Based on these points, it may be assumed that higher achieving students, who have a rich background of learning experiences to draw on, and with a degree of learner confidence in discussing areas needing clarity further with the teacher are much better placed to use symbol-based feedback. These learners may actually benefit from such feedback in developing their capacity to self-regulate and generate solutions to be applied in future tasks. In what may be termed "feedback capital", these students have a diverse array of feedback experiences in which to receive, perceive, and respond to teacher feedback. On the other hand, learners with low feedback capital are left to make sense of non-specific and vague feedback, without the skills or tools to assign meaning, or the confidence to discuss further with the teacher (Karabenick & Knapp, 1991; Newman & Schwager, 1993). For those students who are unable to relate the feedback to their performance on task, self-efficacy and subsequent performance may decline further (Hattie & Timperley, 2007).

Additionally, it appears that students will also construct knowledge collectively upon receiving feedback. The prominence of student voice in providing feedback to peers is well established (Nuthall, 2007), and it is asserted that students talking together is part of the feedback process (Wiliam & Thompson, 2008). However, the discussion regarding how they might dissect the feedback they receive provides a new insight. As Tom stated in his interview:

> We'd sit down and we'd read ours, give each other feedback, and we'd have feedback from the teachers. And we'd see if we agreed with (the teacher), bring her over if we think there's something that she's missed out, or, like, get her to explain her feedback ... So we had kind of four markers really.

Based on this one could propose that the notion of feedback capital extends beyond individual learners, and towards groups of students. That is, a student is more equipped to respond to feedback in an environment in which they have the support of their peers. Wiliam and Thompson (2008) also discussed the need for groups of students to act as resources to one another, with such these groups benefiting from a culture of collaboration in which they provide each other feedback and support each other in making sense of teacher feedback.

The reliance on symbols to deliver "quick marks" (noted by Mohammad) in feedback presents several problems in practice from the perspective of the learner. Firstly, whilst the ability for students to self-regulate and consider their own next steps in their learning is certainly desirable, leaving them to their own devices to make these decisions may not always result in the right decision being made. One could propose that if they knew of a more effective way of doing the task, they would have already used it. In the case of a spelling error, for example, one student may recognise the error and self-correct next time around, but another student may simply need more process-based information in order to apply the correct skills effectively. This was communicated in Mary's interview: "But there's no comments ... So, I could be interpreting completely different to what the teacher is … like where the tick is, what is good about that?" When probed about how a student without rich learning experiences might respond to symbol based feedback, Mohammad cautioned: "Some

students, they can do fine, but there are other students that will just be left in the dark if they don't know what they are doing wrong, and how they could do it (better)".

The second issue with feedback communicated in symbols is the variance of how teachers use them. As Amira stated: "Sometimes it's hard, [be]cause the symbols change, depending on who's marking it. So, sometimes it can be difficult to understand what they mean". These symbols could not only change from teacher to teacher, but sometimes from task to task by the same teacher. This shifting of the goal-posts from task to task makes non-specific feedback even harder for students to decipher. The level of cognitive load and anxiety this causes some students was evident. As Li said: "When there's, like, lines all over your work, you, sort of, feel like, oh, you haven't done very well because there's just ... crosses and underlines and stuff". For learners such as Amira, who are more self-directed, the way around this is to:

> …start a conversation with the teacher. [Be]cause if you've got, like, circling, you don't understand why they've circled it, then you would ... You know, you have to ask them, then it would sort of make a bit more of a conversation.

Thirdly, the concept of feedback capital may extend beyond individual learners to groups of students. With student feedback to peers a prominent and often inaccurate source of information to learners on their performance (Nuthall, 2007), it is crucial that teachers design learning sequences in which there are opportunities for peers to deliver feedback to one another. These feedback opportunities need to be carefully designed and scaffolded to develop a consistent understanding of what constitutes "good feedback", so that errors are minimised and feedback accuracy is high. Based on this, learners develop a level of feedback capital in which to draw on when they themselves are challenged, or in supporting their peers in learning.

The deeper level thinking, such as self-monitoring, that process and self-regulation feedback stimulates in learners

What students are demonstrating in assigning their own meaning to non-specific feedback may be considered a form of self-regulation (Hattie & Timperley, 2007). For deep-level learning to occur, and for knowledge to be transferable to a range of concepts, students must develop the capacity for error detection and self-correction. It is proposed that feedback in the form of process and self-regulation achieve these goals (Hattie & Timperley, 2007). The concept of error detection is key in working towards task mastery, as this allows the learner to detect an error as it occurs, consider possible solutions, and then alter their behaviour (Hattie & Timperley, 2007; Carver & Scheier, 1990). The benefit of these skills is that they develop a student's capacity to self-monitor their progress and to create cognitive strategies when faced with a challenge (Butler & Winne, 1995). A learner who can self-regulate does not need to wait for a corrective prompt from the teacher; they can self-appraise and self-manage (Paris & Winograd, 1990).

Results emerging from the survey data set indicated that feedback such as self-regulation was deemed "useful", and "most likely to lead to improvement". In open-ended survey responses, participants also indicated that this feedback would develop their capacity to self-regulate. These themes resonated throughout the interviews, as identified by Mohammad, who explained: "(it does help) because in the short-term I will be focussing on those and then I will correct those and what's ahead in my head … I will be thinking on that next time I do it". When discussing how the feedback would shape their thinking next time, they completed a task, other participants responded with such phrases as: "thinking back", "reminding myself", and "next time around I would …". This concept of reflecting back demonstrates the influence of

process and self-regulation feedback on developing student capacity to create cognitive routines (Butler & Winne, 1995) that support them in evaluating their understanding, before using strategies to self-correct (Paris & Winograd, 1990).

It is pleasing that these perspectives from the learner support much of what has been previously proposed by scholars. However, a number of new insights presented themselves in the interview data. This specifically relates to the assessment context in which the feedback is being presented and responded to. These participants were all in their final years of schooling, and at a time in which they are completing high stakes assessments that count towards their university entrance scores. Based on this, they found themselves grappling with deeper-level feedback that they perceived to be most useful. This helped develop their capacity to self-regulate and the economy of thinking required to maximise their gains in a context in which they needed to score highly.

As Amira said, she found this process of deeper learning in response to feedback: "annoying … because then you have to go back through and you have to work through it all. I would prefer to know exactly where the mistakes are, and then just to know it for next time". This feeling was shared by Tom:

> At the end of the day, it's the score that you get … and if you're dancing around the right answer, that frustrates me. I see that as time wasting. It's, like, I could be hitting the nail on the head. Instead, I'm wasting time on open-ended questions and trying to kind of nut out what I need to do.

These students, while grappling with multiple assessments to prepare for with only so many hours in the day, focussed on recalling what the teacher would assess as "right", rather than developing a deeper level of conceptual understanding.

Previous studies have argued that the use of grades generally influence the impact of feedback on achievement (Butler, 1988). The findings in this study support that argument. In this instance, the context of summative assessment encourages learners to take the easy road, rather than the one that will lead to deeper understanding. As Sally summarised eloquently:

> I'm used to putting down the answers that I know the teacher will like, so I'd rather have information on what the teacher thinks rather than asking myself about changes. It's not really telling me what I need to do to get the right answers. It's just saying to think about it.

The implications of these findings for schools and systems are that teachers, and school and system leaders need to consider the place of summative assessment, and the design of purposeful formative assessment in which self-regulatory learning can be developed.

Participants' negative emotional responses to feedback relating to process and self-regulatory behaviours

As discussed earlier in reference to praise, there is a clear relationship between student emotions and feedback, with students reporting a variety of both positive and negative emotional responses based on the assessment context (Harris et al., 2014b; Wiliam, 2012). Whilst motivation and encouragement have been discussed in relation to positive emotions, deeper level feedback created a negative emotional response, particularly in regard to the students' sense of self.

It is the negative emotional response to deeper-level feedback that offers the most significant insights in this study. Of particular interest is that, whilst many participants acknowledged the usefulness of process and self-regulation feedback, many still identified task-level feedback as their preference and rejected deeper forms

of feedback due to how it influenced their sense of self. As Mohammad stated: “I would interpret it as somewhat helpful. (But), it might have been I would have seen it as cold in figure of speaking”. It seems many learners view constructive feedback as negative in the absence of praise, and when receiving feedback will often assume it is due to the teacher-student relationship. Students seek appreciation of effort from their teachers (Burnett, 2002; Elwell & Tiberio; 1994). The absence of such appreciation challenges the creation of a culture of support. For example, Mohammad argued that when some students receive “criticism they just think it's because they [the teachers] don't like them”. This same participant then explained that he would not perceive the feedback in that way, but in response he would: “go home and be able to work for that positive comment”. This provides further evidence that some students need to receive the teacher’s approval for a job well done.

For some learners, it may be that they simply are not equipped to deal with deeper-level feedback. Sally described this type of feedback as: “Really in-depth … sort of a bit unnecessary. It's … a bit too full on.” As a learner, Li also found this type of feedback too elaborate in its explanations, and possibly too difficult to make sense of and action. This indicates a tension for less confident learners, in that high-level feedback, whilst aimed at developing deeper levels of understanding, may be beyond the grasp of some students. Li explained that she would not attend to this level of feedback, stating that: “I’d just chuck them away … like they are no use to me because they are not really constructive”. Mary added an alternate perspective in her interview: “I do read over it, and I do look at it and think how I can make it better, but, like, if it’s just negative stuff I just don't really look at it or care about it”.

These student responses to challenging feedback support much of the previous arguments in the literature. Black and Wiliam (1998) proposed that students with a

high fear of failure will minimise effort in response to feedback in order to preserve their sense of self. In considering the transaction costs associated with feedback, Hattie and Timperley (2007) explain that some learners will weigh up the effort and risk of error in responding to feedback. Whereby some students, such as a participant like Mohammad, will work hard in response to lack of affirmation, and strive for a more positive comment. Students like Li, however, may see the risk as too high. Just as teachers must consider the level of challenge appropriate for tasks that students complete, they must also consider the level of challenge in the feedback provided to learners. As argued by Harris et al. (2014b) feedback viewed by the student as useful will be received with positive emotions; feedback that is too complex or viewed as overly evaluative will result in negative emotions.

Chapter summary

This chapter has discussed the findings of Study 1B, which involved semi-structured interviews with six participants from Study 1A. These findings have been presented as case studies in the form of vignettes, exploring emerging themes related to how students assign meaning to the feedback provided to them, and the influence of feedback on learning and emotions.

The results of this study provide several insights into how students engage in the feedback process. Firstly, further evidence emerged relating to self-level feedback and its limited *effect* on student learning, while some case studies revealed that it had a positive *affect* on the learner. Secondly, and in contrast to this, were insights into the negative emotions elicited by process and self-regulation feedback in some learners. Importantly, this chapter also examined how students might respond to feedback when the *affect* on emotions is negative. Despite eliciting negative emotions, however, feedback in the form of process and self-regulation was deemed to be the

most effective in terms of developing a student's capacity to improve their skills and understanding in moving forward. Finally, results indicated that prior learning experiences and dialogue with peers and the teacher influence how students assign meaning to the feedback provided to them.

The following chapter integrates the results from Studies 1A and 1B and considers a model for the effective delivery of feedback to students. This is followed by a discussion on the implications of the findings for policy and practice, as well as considerations for future research in the area.

Chapter 6: Conclusions and implications

Within the education context, feedback can be defined as information provided to a learner on the quality of their performance or understanding. When such feedback is received and enacted it can significantly influence student understanding and achievement (Hattie, 2009; Hattie & Timperley, 2007; Sadler, 1998). Building on this, researchers viewing feedback through a constructivist lens describe it as a process in which learners make sense of various sources to enhance their work and subsequent levels of achievement (Boud & Molloy 2013; Carless 2015; Carless & Boud, 2018).

Research into the influence of feedback establishes it as an intervention capable of having a significant impact on learning (Kluger & DeNisi, 1996; Hattie, 2009; Hattie & Timperley, 2007; Shute, 2008). This research also highlights the substantial variability in the effectiveness of different forms of feedback, with not all feedback having a positive influence on learning. In addition to this, feedback also has the capacity to influence student motivation and emotions (Black & Wiliam, 1998; Brown et al., 2009; Harris et al., 2014b), with researchers acknowledging that more needs to be known about how students engage with feedback processes (Hattie et al., 2016; Nicol & Macfarlene-Dick, 2006; Shute, 2008).

This thesis sought to explore this interplay between student learning, emotions, relationships, and meaning making, to establish how students receive, interpret and respond to teacher feedback in the classroom. To achieve this, the researcher designed a study in which students responded to various feedback samples aligned with self, task (symbols), task (written), process, or self-regulation (Hattie & Timperley, 2007). In Study 1A, 103 student participants aged between 15 and 18 years (years 10 to 12) from a regional Victorian school completed an online survey

with fixed-response measures. Students were asked to look at individual feedback samples and indicate what they thought the teacher was telling the student about their performance on the task and what they needed to do to improve that performance. Additionally, through open-ended questions, students were asked how useful they thought the feedback was to the student, what they as students look for in feedback, and what teachers can do to improve their feedback. Follow-up interviews in Study 1B with a smaller sample of participants explored the emerging data in further detail in order to gain a deeper understanding of the student feedback experience.

Key themes emerging from this research

Mapping the findings of this study against Hattie and Timperley's (2007) model of feedback

This research is closely aligned with Hattie and Timperley's (2007) model of feedback, as presented in the paper: "The power of feedback". In this article, Hattie and Timperley provide an analysis of the impact of feedback on student achievement and discuss the many variables that lead to it being effective or ineffective. From this emanated their model of effective feedback to enhance learning. Given this model is a conceptual framework, and one that is referred to by educators and researchers widely, a primary aim of this study was to develop a deeper understanding of how students respond to the model's feedback characteristics in practice. Consequently, it is important to map this study's findings against Hattie and Timperley's feedback model (2007).

In considering the three questions effective feedback responds to, Hattie and Timperley (2007) proposition that:

- "Where I am going?" (Feed-up) identifies the immediate learning goals for the student.

- "How am I going?" (Feed-back) gives feedback on current performance on the task.
- "Where to next?" (Feed-forward) clearly identifies the next steps in learning leading towards task mastery.

Table 29 provides a synthesis of the model of feedback developed as a result of Study 1A against Hattie and Timperley's three feedback questions, allowing us to map any alignment. As Hattie and Timperley's feedback questions are closely aligned with the instructional cycle, insights from students in this study re-frame these questions relating to what they need to know to make progress towards their learning goals.

Table 29

Students' model of feedback mapped against Hattie and Timperley's (2007) three effective feedback questions

Students' model of feedback: Effective feedback answers…	Hattie & Timperley (2007) three feedback questions
Where have I done well? • Indicates where • Done well • Understanding • Praise for what was done well • Positive emotions: Encouraged, confident	Feed-back: How am I going?
Where do I need to improve? • Error flagging – what – where? • Corrections / Corrective	Feed-back: How am I going?
How can I improve? • Elaborate ideas • How to improve • Suggestions / examples / tips • Explains errors	Feed-up: Where am I going? Feed-forward: Where to next?
What do I do next time? • Next time… • Critical thinking • Ability to self-regulate	Feed-forward: Where to next?

As shown in Table 29, when asked: “Thinking about yourself as a learner, what feedback do you look for…?”, student responses align with Hattie and Timperley’s (2007) assertion that effective feedback answers their three questions. When teacher feedback indicated to students: “Where I have done well” and “Where I need to improve”, they are clearing answering the question “How am I going?” (Feed-back). This information clearly highlights where the student has done well, and what understandings were successfully demonstrated, whilst also flagging errors, and identifying where incorrect or inaccurate responses occurred. This closely aligns with Hattie and Timperley’s (2007) suggestion that this feedback is characterised by: “information relative to a task or performance goal, often in relation to some expected standard, to prior performance, and/or to success or failure on a specific part of the task” (p. 89). Based on this information, students are given a clear measure of what needs to be addressed moving forward.

With errors and misconceptions in performance and understanding now clearly flagged, the student now wants to know “How I can improve?” Typically, teachers are encouraged to articulate the “Where am I going?” (Feed-up) as the beginning of a learning sequence through explicit learning intentions and criteria that communicates what success looks like. In this case, however, through feedback suggesting how to “elaborate on ideas” and “how to improve”, the student is looking for a clear picture of what the next learning goal is through the provision of “suggestions, examples, and tips”. The teacher is communicating to students where they are going in the next task, on the journey to task mastery. The road map to achieving this learning goal is also communicated in “How to improve”, or Hattie and Timperley’s (2007) question “Where to next?” (Feed-forward).

In providing information that can feed-forward to the student's performance on the next task, the teacher is giving clear guidance on how to improve. Students clearly identifying the importance of information that would not only help them "next time" they complete a similar task in the future, but that would help them develop the ability to think critically and self-regulate moving forward. It is these transferable skills and understandings that students consider as important but, as identified in this study, challenge teachers in practice.

In addition to a clear alignment with Hattie and Timperley's (2007) three effective feedback questions, this study also gives a depth of insight from the perspective of the learner on the levels of feedback in the model. Their model does not include high-level claims about the role, the emotions, or the understanding of the receiver. The evidence from this research that supports and provides deeper insights into the four levels of feedback is summarised in Table 30. It was originally proposed that self-level feedback was the least effective form of feedback of the four levels, with the information too vague and non-specific to be useful for the learner (Hattie & Timperley, 2007). Findings from this research support these claims, with students communicating that feedback aimed at self is not useful, and that more information was required to lead to gains in understanding and achievement. Interestingly however, while Hattie and Timperley (2007) suggested that self-level feedback rarely leads to increased motivation or self-efficacy, data in this research indicates that this level of feedback is likely to stimulate positive emotions, motivating the learner and giving them a sense of confidence and self-efficacy in responding to the feedback provided.

Table 30

Four levels of feedback (Hattie & Timperley, 2007), with new insights from this research

Level of feedback	Hattie and Timperley's (2007) model of feedback	Supporting insights from this study	New insights from this study
Self	• Least effective • Rarely translates to increased motivation or self-efficacy • Too vague and non-specific	• Not useful in terms of learning gains • Students communicated that "more information was required"	• Effective in stimulating positive emotions, leading to motivation and self-efficacy • Students will construct their own meaning in the absence of meaningful feedback
Task	• Useful for strategy processing • Building surface knowledge • Corrective – flagging correct and incorrect • Most common • Specific to task at hand, not processing transferable to other tasks • More useful with comments • Loses power when mixed with self-level feedback	• Students perceive this type of feedback as corrective • When communicating through use of symbols and markings more information is required • Was considered most useful when communicated through comments • Communicates surface level information such as grammar errors	• When communicated with comments: • Is capable of stimulating positive emotions when validating correct answers, building motivation and self-efficacy • Is considered the most effective of all four feedback levels • When communicated through symbols: • Students will construct their own meaning in the absence of meaningful feedback
Process	• Focusses on the processes relating to mastery of tasks	• Students consider this feedback useful	• This feedback stimulates negative emotions, it

	• Gives students strategies and cues, to develop student capacity to transfer knowledge from one context to another • More effective at promoting deeper understanding	• Likely to lead to improvement • Provides deeper level feedback on content knowledge and understanding	discourages and is de-motivational
Self-regulation	• Focusses on developing student capacity to self-monitor and self-regulate their actions, leading toward task mastery • More effective at promoting deeper understanding • Comes with the risk of cost-benefit analysis in response to feedback • Student level of self-efficacy can influence their response to this level of feedback	• Students consider this feedback useful • Considered most likely to lead to improvement • Provides deeper level feedback on content knowledge and understanding • Develops student ability to self-regulate in later tasks	• This feedback stimulates negative emotions, it discourages and is de-motivational Further insights into: • How students with a low-level of self-efficacy will respond to high level feedback • These students will indeed engage in cost-benefit analysis, often choosing to ignore and / or disengage, rather than respond due to transaction costs

When considering feedback at task level, Hattie and Timperley (2007) characterised such feedback as: corrective, building surface-level knowledge and specific to the task at hand. Data from this study support these statements, with participants indicating that this feedback is corrective and communicates only surface level information such as grammatical errors. This study included a sample that communicated task-level information through the use of corrective symbols, and another communicating information with the addition of comments. In comparing

participant responses there is a clear distinction in the effectiveness of the two samples, with data supporting claims that task-level feedback is more useful with comments (Hattie & Timperley, 2007), and suggesting that more information is required to be considered useful. Additionally, when presented with task-level feedback communicated through symbols, due to vague nature of such feedback, students will construct their own meaning based on their prior learning and feedback experiences.

Based on the new insights from this study, the importance of task feedback is affirmed but only when it is clearly communicated and directed to the specific of the task. Task feedback communicated through symbols is likely to lead to confusion and not support student growth. However, this type of task-level commentary is preferred by students over other forms of feedback such as process and self-regulation. Participants indicated that task feedback was likely to lead to improvement and was also deemed as the most "useful". In contrast to Hattie and Timperley's (2007) reflections that task-level feedback loses power when mixed with feedback aimed at self, participants in this study also communicated that this delivery of feedback was useful because it stimulated positive emotions and primed the learner for follow-up tasks.

The data gathered from this study also provide insights into the deeper levels of feedback in process and self-regulation. Participant responses relating to process-level feedback supported many of Hattie and Timperley's (2007) original propositions that it is "useful", likely to "lead to improvement", and provides the learner with deeper-level information on content knowledge and understanding. A key insight from this study is an understanding of the emotional response that participants experience when receiving such feedback. Whilst some welcomed deeper-level

feedback, others communicated that this also stimulated negative emotions as it was seen as discouraging and de-motivational.

Similar insights are evident in relation to self-regulation feedback. Hattie and Timperley (2007) proposed that this level of feedback was the deepest form of feedback, and participants in this study expressed this in their responses. Data indicated that participants found this level of feedback "useful", and it was also considered the most likely to lead to improvement. Additionally, it provided deep-level feedback aimed at understanding. Of particular note was the capacity for self-regulation feedback to develop student capacity to self-monitor and transfer this information to similar tasks. As one participant noted in an interview: "I will be focussing on those (comments) and then I will correct those and what's ahead in my head". Another elaborated on this: "I think about those things. Like, if it says, 'Think about how to...' … I think about those questions that have been given to me".

Despite this, a tension also emerged between feedback designed to stimulate learner thinking to enhance future tasks, and the need to "just know" how to improve for the sake of a grade. This focus on grading and its impact on the reception of feedback resonates with Hattie and Timperley's (2007) caution that use of grades will detract from any constructive feedback that may be provided. As one participant stated:

> … if you're dancing around the right answer, that frustrates me. I see that as time-wasting. It's like, I could be hitting the nail on the head. Instead, I'm wasting time on open-ended questions and trying to kind of nut out what I need to do.

Insights from the interviews about negative emotional responses to self-regulation feedback also confirms prior research in that high level feedback comes

with the risk that students with low levels of self-efficacy will potentially reject such feedback (Hattie & Timperley, 2007). In doing so, these learners may engage in evaluating transaction costs relating to effort required, social risks, threat of failure, and capacity to respond, when deciding if to act on such feedback (Wiliam, 1998). As one participant stated: "I feel like it's negative … it's just saying that 'This is wrong', but it's not really saying how to fix it". She elaborated further on her response to such feedback: "I'd just … chuck it away … they are of no use to me because (the comments) … are not really constructive".

Student interpretations of feedback

For the purposes of undertaking this research, feedback samples aligned with Hattie and Timperley's (2007) levels were presented to student participants. What emerged in the data collected from student responses to these feedback samples is that despite the varying levels of information provided, students interpret a number of consistent messages in the feedback delivered to them regardless of what the teacher has, or has not, explicitly communicated. For example, despite being presented with a sample showing non-specific praise, participants consistently reported that the teacher was communicating information about such things as grammar.

Considering this in greater detail, in Study 1A, when presented with each feedback sample, participants were asked to respond to the question: "What does this information given by the teacher tell the student about their performance on the task?" In each sample, participants interpreted the feedback to communicate information relating to understanding and improvements. Understanding related feedback was information about the student's level of understanding demonstrated in the task, including: "Student understands the task", "Student understands the play", "The teacher is happy with the student", and "The student has done well". Of particular

interest is that no matter what level of information the feedback is targeted at, or how non-specific it might be, students interpret feedback as relating to understanding-based information.

In addition to this, analysis of responses also indicate that based on the information provided in all levels of feedback participants assign meaning as related to improvements. Specifically, this relates to “Student needs to proofread more”, “Student needs to work on spelling and grammar”, and “Student needs to elaborate on ideas more”. This is an interesting insight, in that even when students are asked what the teacher is communicating about the level of performance, they are synthesising this into information relating to strategies and areas for improvement.

In contrast to this, when students are asked: “Based on the information the teacher has given the student on the work, what should the student do next time around to improve their performance on the task?”, they again tended to assign meaning based on factors relating to improvement, but also relating to their level of understanding. This is evident in the fact that in all levels of feedback relating to how to improve, students receive information involving “Draft their work”, “Ask more questions”, “Use a spell checker”, “Proofread”, and “Not rush so much”. Additionally, students find information relating to understanding in “Develop a better understanding of the characters” and “Develop a better understanding of the plot”.

Rather than feedback being seen as the transfer of information using positive and negative messaging, as behaviourist theorists may have proposed (Skinner, 1963; Thorndike, 1933), this significant insight from this study supports constructivist and social-constructivist perspectives of feedback in the classroom. These findings echo the writings of Vygotsky (1978), who proposed that a child’s conceptual development occurred both at an individual level (intrapsychological) and at a social level

(interpsychological). Feedback through this perspective is intended to facilitate the construction of knowledge, with the learner's previous learning experience key to this process (Jonassen, 1991). This finding adds weight to a body of work that emphasises the central role of the learner in the feedback process, in making sense of the information presented to improve their level of understanding and performance (Boud & Molloy, 2013; Carless, 2015; Carless & Boud, 2018).

Why and how the participants assigned such meaning to the often vague and non-specific feedback presented in the samples used in Study 1A was a focus of the interviews in Study 1B. In these interviews, two key factors played a role in the construction of meaning when students responded to teacher feedback: drawing on prior learning experiences; and having a dialogue around feedback with the teacher and / or their peers. These two factors reinforce previous research that dictates that students' interpretations of feedback are co-constructed through dialogue with peers and / or the teacher (Price et al., 2011; Rust et al., 2005).

Elaborating on how students will draw on prior learning experiences to interpret teacher feedback, participants reported that their prior experiences in interpreting vague commentary and symbols was key to this process. Amira said that vague commentary and symbols leave students with no clear indication of how to improve. While Li stated that the type and number of symbols can be used as a measure how much needs to be improved. Mohammad explained that after years of experience of teachers telling him how to improve his work, it is simply a matter of deciphering key messages and drawing on previous strategies he may have used. The issue is that without these prior learning experiences, how can a student make sense of teacher feedback? Recalling a personal experience in his interview, Tom explained that after an experience making sense of a previous teacher's use of symbols, he was

equipped to respond accordingly. He conceded on reflection: “But… if I didn’t have that kind of learning experience, I wouldn’t be able to interpret that”.

These findings build on the concept of developing learners’ “feedback literacy” (Carless and Boud, 2018; O’Donovan et al., 2016; Sutton, 2012) in being able to make sense of, and respond to, their teacher’s feedback in order to enhance learning. Identified as “feedback capital”, these insights propose that students bring in a range of capacities in interpreting, responding to, and actioning teacher feedback based on their previous feedback experiences. Based on their level of feedback capital, a learner’s capacity to respond to feedback is either enhanced or diminished, in particular when the feedback is vague and non-specific.

In addition to prior learning experiences informing how participants interpreted feedback, the dialogue around the feedback provided with peers and the teacher was also deemed key. In interviews, participants conceded that the capacity to respond to a teacher’s feedback was not just an internal process, but one shared with their peers and the teacher. Interviewees each explained that they would reflect on the feedback and consider how they would respond to the issues presented. Following this, they would engage in dialogue with peers and / or their teacher. Tom explained that, in the past, this involved him sitting with trusted friends and discussing the feedback they had all been provided and coming up with a group consensus to its meaning and intention. If struggling, they would call over the teacher for support. Elaborating on this, Amira explained the importance of talking with the teacher following delivery of written feedback, while Mohammad noted that these discussions were as much about relationships as they were about the transfer of information.

This supports the position of many researchers that we need to acknowledge the dialogic and relational element of feedback (O’Donovan, 2016; Price, et al.,

2010), whilst also understanding how students perceive and respond to the feedback presented to them (Hattie et al., 2016). These findings further evidence of the process students will engage in when interpreting teacher feedback, in which they synthesis information from a range of sources and draw on previous learning experiences to respond accordingly (Boud & Molloy, 2013; Carless, 2015; Carless & Boud, 2018; O'Donovan, 2016).

Influence of feedback on students: The "affect-effect" model of feedback

Based on these new insights into the student feedback experience, it is clear that, critically, a learner's interaction with teacher feedback is dependent on a variety of internal, social and relational factors. This research supports previous evidence demonstrating that there are varying levels of effectiveness and usefulness in different types of feedback (Hattie, 2009; Hattie & Timperley, 2007; Kluger & DeNisi, 1996). Alongside this, this thesis also validates contributions of researchers giving insights into students' emotional responses to feedback and assessment (Black & Wiliam, 1998; Brown et al., 2009; Harris et al., 2014b). Contributing to this literature this study allows us to consider the interplay between the quality of information provided, relational and social factors in the classroom, individual characteristics of the learner, and emotional affect of the feedback. Based on these factors, the researcher offers the "affect-effect" model of feedback, which synthesises the variety of factors that have emerged in this research to explain how a student is likely to respond to the feedback presented to them.

The "affect-effect" model of feedback is presented in Figure 20 in which the two key variables in the data are positioned on the vertical and horizontal axes: affective and effective impact of feedback. The affective impact of feedback considers whether the feedback from the teacher has a positive or negative affect on

the participant. A positive affect is defined as one that leaves the student motivated or encouraged, whereby a negative influence may leave a learner deflated, or damage the relationship between teacher and student. It is important to note that this is a different notion of negative to those viewing feedback through a behaviourist lens (Skinner, 1963; Thorndike, 1933). Rather than relating to information about errors or mistakes, this refers to a negative emotional response to the feedback provided. The feedback may be constructive, pointing out next steps towards the learning goal with no unwanted information about the student's performance on the task, but it may still elicit a negative emotional response because of the characteristics and disposition of the learner.

Figure 20

The "affect-effect" model of feedback

<table>
<tr><td rowspan="3">Affective impact of feedback</td><td>Positive affect
Learner motivated and encouraged</td><td>Learner confident and motivated, but without information to improve.

Will ignore or construct meaning with peers or based on prior learning experiences</td><td>Learner confident and motivated, and equipped with high-level information moving forward.

Will respond to feedback, developing the ability to self-regulate</td></tr>
<tr><td>Negative affect
Learner deflated and lacking efficacy</td><td>No information provided to improve and lacking positive affect.

Likely to ignore</td><td>Learner equipped with high-level information to improve, but lack of positive affect may impact on confidence and motivation.

Students with low self-efficacy may ignore, with confident learners likely to respond to feedback</td></tr>
<tr><td></td><td>Low quality feedback
Vague and non-specific</td><td>High quality feedback
Targeted and identifies next steps</td></tr>
<tr><td colspan="2"></td><td colspan="2">Effective impact of feedback</td></tr>
</table>

Mapped against the affective impact of feedback variable, the effective impact of feedback information variable takes into account whether the feedback provided is of high or low quality. Feedback of low quality may consist of non-specific praise or be vague, while high quality feedback is targeted and clearly identifies what the student has done well and what they need to do to improve. The two variables emerged in the analyses of large-scale survey data (Study 1A) and from the semi-structured interviews (Study 1B) as the two key influences on if and how a participant would respond to a teacher's feedback. The "affect-effect" model incorporating these two variables is presented below.

Considering these variables, when low-level feedback is provided and with negative affect, the learner lacks the positive motivation to strive, as well as the appropriate information with which to move forward. The typical response to these factors will be to ignore the feedback provided. In contrast to this, if low quality feedback is provided with a positive affect on the learner, this provides them with the confidence and encouragement to progress, but without the level of information to inform their work moving forward. Based on this, the learner will either ignore the feedback, or construct meaning themselves. In data collected through semi-structured interviews (Study 1B) the choice to construct meaning or ignore the feedback is one based on the feedback capital the learner brings to the event, and / or the nature of the peers around them. If the learner lacks the ability to self-regulate, or has no support to move forward independently, they will likely come to a standstill, unable to progress due to the lack of information provided. However, if the learner has had conversations with teachers in the past about how to respond to such challenges, possesses a level of self-efficacy in which to self-regulate, or has peers to support them in discussing their next steps, they may construct their own meaning on how to improve.

Having considered the influence of the low-quality feedback variable and how it may interact with the high or low affect of feedback presented, the model also considers how high-level feedback may influence a learner's future behaviours. In contrast to how the level of emotional affect will have an influence on the student's likelihood and ability to respond to low-level feedback, this affect will also shape any response to high-level feedback that is presented. When presented with high-quality feedback that also elicits negative emotions, students are likely to respond in one of two ways. The characteristics of the learner, their prior feedback experiences, and level of self-efficacy will influence the student's likelihood to ignore the feedback or respond to the high-level of information provided to them.

As evidenced in this study, for some students, if their concept of self is not preserved or enhanced by the feedback provided to them, they are likely to ignore the feedback. As one participant commented in their interview: "this type of feedback is of no use to me … I would just throw it away". The additional challenge that emerged for teachers is that deeper-level feedback was often associated with negative emotions, as one survey respondent noted: "this feedback may be seen as cold, in a figure of speaking". However, this is not the case for all learners. If the learner possesses a level of self-efficacy and motivation that enables them to respond to such high-level feedback, and without the need for comments that enhance their perception of self, then they will engage with the feedback provided.

In considering the "affect-effect" model of how students respond to feedback, the optimum outcome is when students are presented with high-level feedback that also stimulates a positive level of affect. High-level feedback is characterised by information that clearly identifies to the student what they have done well, where they need to improve, and what processes and strategies may support them in improving

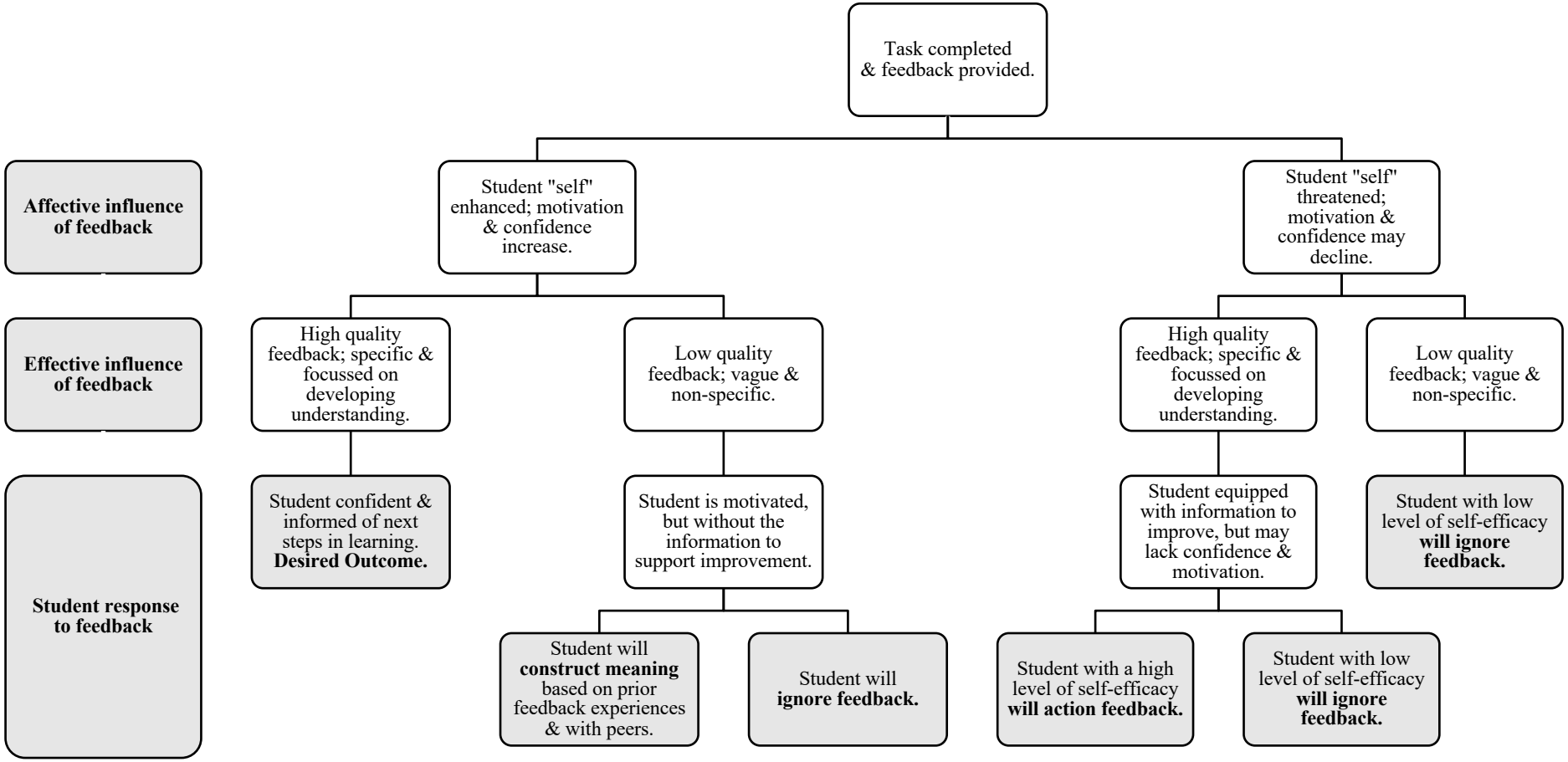
their outcomes. Additionally, it will also have a positive affect on the learner, motivating, encouraging, and providing feedback in a supportive manner. When feedback is presented with a high level of both information and affect, the learner is most likely to respond to the feedback and, in some cases, will develop the ability to self-regulate. As one participant noted in interviews: “Encouragement is really important, it gives a base of confidence in your ability to move forward in knowing you did somethings right”. Commenting on high-level feedback, another stated: ‘‘This would be stuff I would find useful, when I’m doing other stuff I would remember, and picture myself reading the (comments)”.

The process of how students will respond to feedback based on the level of information and emotional affect of the feedback is explored further, with the results presented in Figure 21. Considering the key variables of emotional affect and the level of feedback information, this flow chart maps the process of how a student might respond to feedback. Following the delivery of feedback, the level of affective influence in building self-efficacy, motivation, and confidence, is predictive of how students may respond to feedback. The importance of the level of information provided in the teacher’s feedback is also considered in how effective it will be in shaping student progress moving forward.

As in the “affect-effect” model, feedback is at its most effective when stimulating both student self in a positive manner and providing students with a high level of information on their performance on the task, and how to improve. In contrast to this, students are less likely to be able, or willing, to respond to feedback when a low level of information is provided, and with this feedback threatening the student’s sense of self.

Figure 21

Student response to teacher feedback flowchart



Whilst the “affect-effect” model and the flowchart of student responses to feedback are conceptual, based on the synthesis of data emerging from this study, the ideas and themes connect to much of the literature. Studies into students’ emotions relating to assessment and feedback highlight issues of stress, fear of failure, panic, and feelings of sickness (Harris et al., 2009). Whilst later work by Pekrun and Linnenbrink-Garcia (2012) found that students’ emotional responses to school and the tasks they are required to complete impact on their levels of engagement, motivation, and capacity to self-regulate.

In their meta-analysis into feedback interventions, Kluger and DeNisi (1996) establish clear links between the positive or negative affect of feedback and its influence on student performance, with feedback that does not discourage (0.33 effect) and does not threaten self-esteem (0.47) having significantly more impact than feedback that discourages (-0.14) and threatens self-esteem (0.08). Considering this, Wiliam (2007) proposed that the way in which a student responds affectively to feedback will dictate whether they choose to pay attention to it or ignore it, increase or decrease effort, or decide the learning goal is too hard.

In presenting their model of feedback, Hattie and Timperley (2007) acknowledge that a learner will weigh up the transaction costs, or the cost / benefit ratio, when choosing to interact with feedback. In doing so, they warn of students weighing feelings and their need for desirable feedback, against feedback that may provide information regarding how to improve performance. This is acknowledged in Bangert-Drowns et al.’s (1991) five stage model of learning, which implies that students must be mindful of their responses to feedback if they are to develop strategies and processes for growth. Considering this further, Sadler (2010) acknowledged the need for students to understand the purpose of feedback, and to be

supported in developing their capacity to respond to feedback and make subsequent changes to their behaviour and processes as a result.

There is a body of work in social psychology that explores the link between an individual's sense of self, the feedback they look for, and how they respond to feedback. Whilst it seems intuitive for individuals to seek feedback that challenges their current state, research in this space suggests that people seek feedback that confirms their concepts of self (Swann & Read, 1981). In addition to this, feedback that confirms an individual's view of themselves is considered more accurate and formative than feedback that defies such notions (Swann et al., 1987; Swann & Read, 1981). This research also suggests that an individual's search for feedback that is self-confirming and enhancing of the self will influence the process they use to engage with the feedback and what information they remember.

These points from the literature suggest that the affective-cognitive balance of feedback is even more critical for individuals with a negative concept of self. Work by Shrauger (1975), and McFarland and Blascovitch (1981) suggested that whilst individuals with negative self-views may view feedback presented to them as valuable, if it challenges their view of themselves, they will find it affectively "abhorrent". These studies suggest that lower confidence learners seek feedback that is self-enhancing, in that it enhances their views of themselves and improves their self-esteem. Drawing on the literature relating to self-determination theory, this would suggest a lack of consideration for the psychological needs of the learner relating to their wellbeing and learning confidence to move forward successfully (Deci & Ryan, 2000).

What do students look for in feedback? A model for delivery of feedback

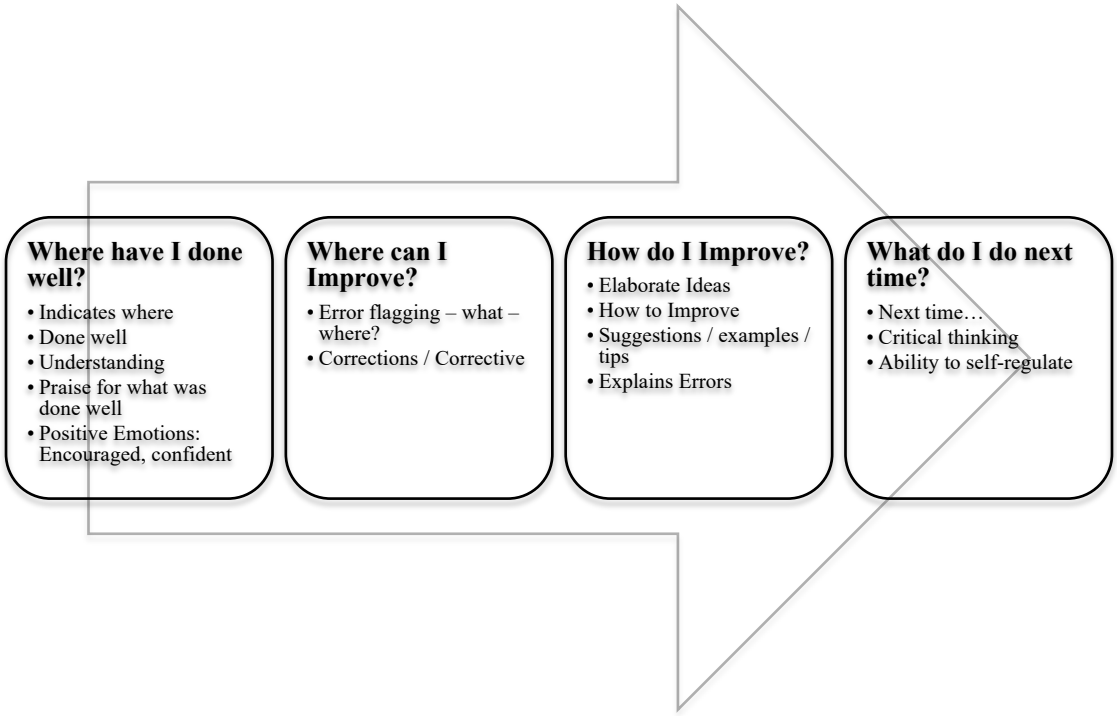
In addition to providing insights into how learners respond to, and make sense of, feedback, another contribution this thesis makes to the literature is an understanding of what secondary students believe constitutes "effective feedback". In Study 1A, students were asked the following open-ended question: "Thinking about yourself as a student, what feedback do you look for when you receive a piece of work back from a teacher? Please explain why?"

The qualitative content analysis of responses to this question, and subsequent reliability testing, presented a clear and consistent picture of what students feel they need in order to improve from task to task. These themes were explored further in Study 1B, with participants elaborating on how and why different forms of feedback are useful.

Using this thematically grouped data from Study 1A and emerging themes in Study 1B, a conceptual model was developed to inform teachers, school leaders and researchers in what students were looking for in the effective delivery of feedback. The students' model of feedback is presented in Figure 22 with four key questions / areas aligned to emerging themes: "Where I have done well", "Where I need to improve", "How I can improve", and "Feed-forward". Framed to support a feedback narrative with the learner, the model prompts the reader to understand feedback from the learner's perspective, stating: "As a student I want to know … Where have I done well? Where do I need to improve? How can I improve? and What do I do next time?"

Figure 22

The students' model of feedback – As a student I want to know …



Included in the model under each heading are the various comments and themes that emerged in coding from the survey data (Study 1A). The purpose of including this information is to support teachers using this model to understand what students actually want and which strategies will support them in answering these key questions for their learners. Then considering how they might answer the question Where I have done well? they may direct feedback towards giving praise for things done well, indicating where through corrective prompts, and providing information relating to understanding. It is important to note that student participants in this study conceptualised praise as positive information about something they had done well, and not the generic "good job" type comment commonly referred to in the literature. Moving on from this, when providing feedback relating to the question Where can I improve? students noted that this involved flagging errors and indicating where improvement needs to occur through errors and corrections.

Importantly, students were also focussed on understanding How I can improve? with this achieved through suggestions on how to improve, supported by exemplars and suggestions, and with explanation of errors provided. In providing this level of feedback, students were able to feed-forward. This information would then allow them to get better next time, as well as develop critical thinking and the ability to self-regulate in future tasks (Hattie & Timperley, 2007). Essentially, students want teachers to tell them what they have done well and not so well, with clear information on how to improve in order to get better in the future.

This conceptual model contrasts nicely with the literature around student perceptions of feedback and what constitutes effective feedback for students. As discussed earlier in this chapter, participants in this study communicated that feedback consisting of non-specific praise or vague comments was of little use to them, echoing the findings of prior research in this field (Harris, et al., 2014a; Hattie & Timperley, 2007; Kluger & DeNisi, 1996; Pajares & Graham, 1998; Peterson & Irving, 2008). Like the student participants in Peterson and Irving's (2008) study, in semi-structured interviews (Study 1B) participants communicated that they often received unjustified praise from teachers, referring to this as "cushioning" and coming across as inauthentic.

Interestingly, in this study, participants recommended that teachers still engage in the provision of praise but, in order for it to be perceived as genuine, to direct it towards things they have done well. Those looking at feedback through a behaviourist lens might argue that this form of praise would act as a reinforcer for desirable behaviours (Skinner, 1963; Thorndike, 1933), but participants in this study saw this as a strategy to preserve student sense of self. One participant noted: "then the student can walk away feeling as though, even though they need to work on some

things, they've still done a good job". This further consolidates the emotional affect of feedback, and how it may impact on student motivation, engagement, and the likelihood of them responding to the feedback provided (Harris et al., 2009; Kluger & DeNisi, 1996; Pekrun & Linnenbrink-Garcia, 2012; Wiliam, 2007).

Regardless of the method, participants in this study first wanted to know what they had done well, where to improve, and what strategies would help them improve. These findings are similar to those of other research conducted into student perceptions of effective teacher feedback. In Peterson and Irving's (2008) study, students indicated that they received more feedback about what they needed to improve, in contrast to the how, with these participants highlighting the need for provision of strategies and tips. Beaumont et al. (2011) also found that students value feedback that is improvement-focussed; whilst Gamlem and Smith (2013) argued that positive feedback acknowledged performance and provided the next steps for improvement. One interesting point of difference and one that emerges in the literature is the need for effective feedback to be aligned with the standards of performance or "success criteria" (Brookhart, 2012; Brown et al., 2009). Participants in this study did not mention the need for assessment-related feedback to be helpful. However, they did mention that explicit examples and exemplars would support their next steps in delivering effective feedback on how to improve, with this strategy aligned to clearly communicated criteria for success in answering the feedback question "Where am I going?" (Brookhart, 2012; Hattie & Timperley, 2007; Wiliam & Thompson, 2008).

In addition to answering the feedback questions discussed in this study, there are a range of other points in the literature that can be integrated for feedback to be used for optimal effect. Firstly, if students are to interact with and use feedback, it

must be understandable and actionable (Gibbs & Simpson, 2004; O'Donovan et al., 2016; Price et al., 2010). Secondly, whilst some teachers might provide large quantities of feedback (Price et al., 2010), we also know students will consider transaction costs relating to effort and performance upon receiving feedback (Hattie & Timperley, 2007). Based on this, it is recommended that these feedback questions be answered clearly and succinctly, with feedback directed at the assessment criteria (Brookhart, 2012; Brown et al., 2009), and with the teacher only identifying the students very next few steps in improvement (O'Donovan et al., 2016). It is also key that students be given opportunities to apply this feedback in subsequent learning tasks (Beaumont et al., 2011; Gamlem & Smith, 2013), and that this point of feedback be part of an ongoing feedback dialogue between student, peers and the teacher in order to develop feedback literacy (Carless and Boud, 2018; O'Donovan, 2016; Price, et al., 2010; Sutton, 2012).

Bringing it all together: A model to improve student reception, interpretation, and actions from teacher feedback

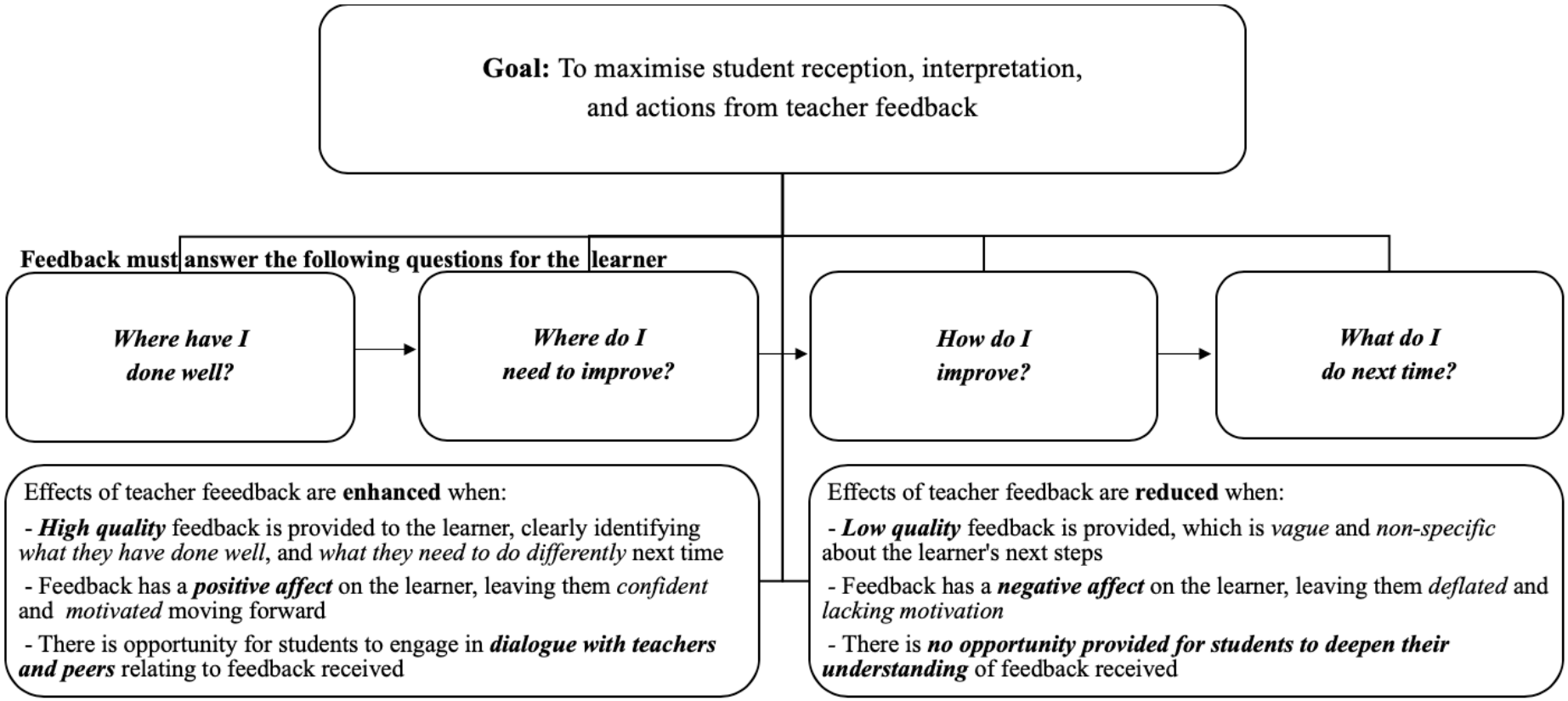
The potential impact of feedback on student achievement is well established in the literature, but so too has the recognition that feedback can vary in effectiveness, depending on the type adopted (Kluger & DeNisi, 1996; Hattie, 2009; Hattie & Timperley, 2007; Shute, 2008). The purpose of this thesis was to use Hattie and Timperley's (2007) model to add to the literature by exploring the student feedback experience specifically. With the emotional and motivational connection response to feedback also established (Black & Wiliam, 1998; Brown et al., 2009; Harris et al., 2014b), these findings will deepen our understanding of how students perceive, make sense of feedback, and action feedback (Hattie et al., 2016; Nicol & Macfarlene-Dick, 2006; Shute, 2008), in order to further enhance feedback practices in the classroom.

This thesis explored these themes with a sample of year 10 to 12 students at a regional Victorian school. In Study 1A, this involved presenting 103 participants with a range of feedback samples aligned with self, task, process, and self-regulation (Hattie & Timperley, 2007) in an online survey. Study 1B explored the emerging themes in more depth through semi-structured interviews with six of these participants. Emerging from these data sets were two key models to inform teachers, school leaders, and researchers on how students receive, make sense of, and respond to teacher feedback. Firstly, the "affect-effect" model (Figure 20) considered how the variables of quality of feedback and affective influence of feedback would influence students' interaction (or lack of) with feedback. Secondly, the students' model of feedback (Figure 22) explored what students look for in teacher feedback in order to improve academic performance.

The model shown in Figure 23 represents a synthesis of the findings from this study, creating a holistic conceptual model of how to maximise the impact of feedback on learning. This model presents the four feedback questions that students deem essential to support their growth: Where have I done well? Where do I need to improve? How do I improve? and What do I do next time? Following this, the variables impacting on whether feedback interventions are enhanced or reduced are explored. These variables take into consideration: the quality of feedback provided to the learner; the positive or negative affect of the feedback provided; and, the conditions that the learning environment provide for the learner to deepen their understanding of the feedback provided with the teacher or peers. With these conditions present, learners are equipped with the feedback required for them to move forward on the task at hand, as well as establishing a learning environment that supports the development of "feedback capital" for use in future learning tasks.

Figure 23

A model to maximise student reception, interpretation, and actions from teacher feedback



Suggestions for future research

The findings presented in this thesis contribute to the existing literature around the impact of feedback on student learning. More significantly, this study provides significant insights into the student perspective of teacher feedback, highlighting how learners receive, make sense of, and respond to the feedback presented to them. Despite this, further research is required to deepen our understanding of the complexities of how students interact with teacher feedback. A review conducted by Van der Kleij and Lipnevich (2020) found that the majority of studies into student perceptions of feedback employed the use of survey or interviews for the gathering of data, and identified issues using this methodology relating to sample size and validation of the survey instrument.

Considering this, given that this research focussed on case studies of upper secondary students in one regional state school in Victoria, it would be beneficial to replicate it with learners in different streams of schooling (early-childhood, primary, lower-secondary, and higher education) and sectors (state, independent, Catholic), as well as different cultures and socio-economic groups. Additionally, participants in this study were predominantly female based on the sample available to the researcher. A more even split in sample demographics may bring further insights. Furthermore, more rigorous testing of the survey instrument may yield more valid results (Van der Kleij & Lipnevich, 2020).

For purposes of controlling of extraneous variables relating to varying levels of feedback quality between individual work samples and between teachers these participants responded to mock feedback samples to ensure consistency and types of feedback provided to them. Considering Van der Kleij and Lipnevich's (2020) critique of interviews as a method of exploring student perceptions of feedback, future

research may consider exploring learner responses to actual feedback provided to them by a teacher on a piece of their own work to explore these concepts further. Additionally, some of the measures relating to participant motivation, achievement, and learner confidence were self-report which can imply levels of social-desirability bias. Whilst participant perception of their levels of efficacy and motivations are relevant in this study, further research might consider more subjective measures of these factors.

Furthermore, the models presented in this thesis are based on the findings, data and themes that have emerged in this study. As such, these models are conceptual in nature and further research to test their validity is required. This includes developing teacher capacity to respond to learner feedback needs and establishing the impact on learning when all of the variables presented in these concepts are adequately addressed. Some of the key factors relating to optimal uptake and response to feedback presented in these models include variables relating to the importance of dialogue and the role of the teacher and peers supporting the learner's response to feedback. This thesis broadly discussed traditional social-cultural influences on learning (Vygotsky, 1978), but these findings indicate that further consideration and research into how socio-cultural factors such as peer feedback can influence learner interpretation and response to teacher feedback.

Furthermore, considerations research into feedback perspectives that are more student-centered and less teacher centric is of utmost importance. Based on these findings the role of student agency, learner openness to receiving feedback, and development of learner self-regulation are key elements identified as factors for future research. As discussed in this thesis, these factors all contribute to the development of feedback capital in learners, thus optimising the response and effective actioning of

feedback. Further research into the development of feedback capital in learners and its subsequent impact on student achievement would also be of benefit.

Implications for practice and policy

Given the continued focus on feedback as a high impact intervention in the current education landscape (DET, 2019), and the importance of teachers considering this in their classrooms, the findings of this research have a range of implications for policy and practice. With much policy and professional learning relating to what the research deems as "effective feedback" from teacher to learner, there needs to be an additional focus to understanding the role of the learner as an active participant in this process. Specifically, are teachers aware of what students are looking for when receiving feedback? Do they understand how learners receive and make sense of feedback? Following reception of feedback, what factors influence likelihood to action this information? And, what do teachers do in their design of teaching and learning and in their classrooms to enhance the impact of feedback? Considering that this research took place in Victoria, Australia, practice and policy implications are based on this context.

The key findings of this thesis are presented in "A model to maximise student reception, interpretation, and actions from teacher feedback" (Figure 23). This model provides a framework to consider implications for practice. Considering this, the first element of the model relates to which questions learners believe are essential in the delivery of effective. Implications for practice imply developing in teachers an understanding of what constitutes effective feedback from the perspective of the learner. Traditionally teachers are well versed in flagging which elements of the task are correct or incorrect, either through use of comments or using symbols such as ticks and crosses. However, the gap in teacher practice is likely to relate to providing

feedback identifying how the learner can improve, and in being explicit as to what this means for the learner next time they complete a similar task.

Considering this more deeply relating to the feedback question of "How do I improve?", teachers need to know that simply flagging an error is not enough to optimise student growth. In many cases the learner does not know what to do to effectively correct that error in future iterations of the task. Participants in this study identified that this question is most effectively answered by providing explanations of errors, as well as providing strategies and tips on how to rectify the performance gap. Such detailed explanations could become arduous in both summative and formative assessment phases of learning. This indicates a shift in practice in which effective feedback is not delivered alone, but paired with resources, follow up mini-lessons, student conferences, or whole group instruction in order to effectively address this question.

This connects deeply to the question of "next time", in that teacher needs to not only identify strategies to support improvement but what the student needs to differently next time to be more successful at the task. Many teachers address Hattie and Timperley's (2007) feedback question of "Where am I going?" at the start of learning through use of learning intentions and success criteria. However, the question of "What do I do next time?" implies that in practice students need learning goals to be continually re-evaluated and reiterated based on what the student is capable of doing, and what they need to do next to improve throughout the learning process.

The next element of the model presented in this thesis (Figure 23) relates to factors that *enhance* or *reduce* the effect of teacher feedback. Assuming that feedback is of high quality, and thus answering the four feedback questions of: Where have I done well? Where do I improve? How do I improve? And, what do I do next time?,

the *affective* i*nfluence* of feedback and providing opportunity for *dialogue with teachers and peers* is crucial in maximising the influence of feedback.

"The affect-effect model of feedback" (Figure 20) illustrates the findings of this thesis relating to the interconnectedness of student motivations and emotions, and qualities of effective feedback provided to stimulate student learning. This model proposes that feedback that affirms the things the student has done well and empowers the learner by answering the key feedback questions will lead to optimal growth.

Based on this teacher professional learning needs to focus on teachers developing and understanding of these connections. Not only do we need do teachers need to understand the importance of advocacy and support of their learners as young people for the purpose of school connectedness and wellbeing, but the interplay between trust and learning, and student willingness to embrace challenge as a vulnerable learner.

The other key implication for practice based on this model is the need for teachers to provide opportunities for dialogue relating to the feedback they have received. There is a need not only to develop student capacity to respond to feedback, but for the learner and their peers to be active in having conversations about the feedback they receive from their teachers and deconstructing this collectively. In this thesis, this capacity was defined as "feedback literacy". Participants in this study who were able to respond most effectively and manage potential negative emotions elicited by teacher feedback, explained that they were able to do so by drawing on previous learning experiences in which dialogue with the teacher and their peers had supported this process.

Based on these findings there are a number of significant implications for policy within the Australian education context. Developing teacher capacity in the assessment and delivery of effective feedback is embedded throughout State and Federal policy relating to teaching standards and high-level instructional practice. The "High Impact Teaching Strategies" (DET, 2019) released to all Government schools in Victoria identifies feedback as one of ten high-level learning interventions that teachers and schools should focus on developing. Additionally, the Australian institute for teaching and school leadership (AITSL) identifies assessment and feedback as one of the seven professional standards relating to teaching and leadership in schools (AITSL, 2011).

However, these policy documents take a relatively traditional view of feedback and learning. Like much of the feedback research discussed in this thesis, both are relatively teacher centric, and ignore the role of the learner as an active participant who may choose not to attend. These professional frameworks need to establish a clearer link between the quality of feedback delivered, and the *affective* influence of feedback to enhance *effect*. Additionally, sociocultural factors in the classroom need to not only be recognised, but harnessed in designing opportunities for the delivery and uptake of high level feedback.

In the "High Impact Teaching Strategies" guidance (2019) teachers are advised to "provide specific guidance on how to improve, and not just tell students they are wrong" (p. 24). Additionally, a continuum of practice is presented in which expert teachers in feedback will provide regular feedback to students and parents and use this data to reflect on their practice. What is also needed is an acknowledgement of the preconditions that support student capacity to engage and action feedback, and the role of student voice as an active part of learning.

The Australian professional standards for teachers (AITSL, 2011) recognizes the importance of student wellbeing relating to professional practice, as well as the capacity for teachers to deliver high level feedback. However, links between student safety, trust, and learning are not established relating to assessment and feedback practices. Based on the findings of this study, the professional standards which guide teacher professional learning and performance review, and shape pre-service teacher training need to be more reflective of the lived social experience of the learners reflected in this study.

Concluding comments

Within the body of literature relating to feedback, most research is focussed on the delivery of feedback and its influence on student achievement, as opposed to student perceptions of feedback and how it is received. The purpose of this research was to develop a deeper understanding of how students receive, interpret, and respond to teacher feedback. To achieve this, the research gathered data from a sample of senior secondary school students, using an online survey tool and semi-structured interviews, about how they engage with, and make sense of, the feedback provided to them. Findings from this research give insights into the processes in which students interact with feedback systems, and both the cognitive *effect* and emotional *affect* that feedback may elicit in learners.

Findings from this study support previous research conclusions that different forms of feedback will provide different levels of support in terms of what the learner has achieved, and what they need to do to improve. New insights from this research suggest that in the absence of specific feedback relating to understanding and improvement factors, students will assign their own meaning to the feedback provided to them. This is influenced by their expectations or what they are looking for in the feedback, their prior learning experiences, and social-constructivist processes relating to their peers and teachers.

In considering what constitutes effective feedback practices from the perspective of students, participants in this study suggest the need not only to provide high-level information on the learner's next steps, but also to manage the affective impact of the feedback provided. The balance of feedback effect and affect was a key theme in these findings, with student emotions being flagged as a barrier to feedback being received and actioned. Results from this study informed the development of a

students' model of effective feedback, which identifies four key feedback questions: "Where have I done well?" "Where can I improve?" "How can I improve?" and What do I do next time?"

The findings presented in this thesis suggest that policy-makers and practitioners need to focus not only on the delivery of effective feedback, but also on how to effectively manage the affective influence of this information on student emotions, motivations, and efficacy. Teachers also need to build an environment that provides students with opportunities to engage with teachers and peers, allowing them to discuss the feedback provided. As practitioners, we should build student feedback capital in order to shape future learning experiences and inspire self-regulated learners.

References

Adams, G. L., & Engelmann, S. (1996). *Research on direct instruction: 25 years beyond DISTAR*. Educational Achievement Systems.

Airasian, P. W. (1997). *Classroom assessment* (3rd ed.). McGraw-Hill.

Alton-Lee, A., & Nuthall, G. (1990). Research on teaching and learning: Thirty years of change. *Elementary School Journal, 90*(5), 547-570. https://doi.org/10.1086/461632

Askew, S., & Lodge, C. (2004). Gifts, ping-pong and loops–linking feedback and learning. In S. Askew (Ed.), *Feedback for learning,* (pp. 13-30). Routledge. https://doi.org/10.4324/9780203017678

Australian Curriculum, Assessment and Reporting Authority (ACARA) (2012). My School website. https://www.myschool.edu.au/

Australian Institute for Teaching and School Leadership (AITSL) (2011). *Australian Professional Standards for Teachers*, AITSL. https://www.aitsl.edu.au/docs/default-source/national-policy-framework/australian-professional-standards-for-teachers.pdf

Bangert-Drowns, R. L., Kulik, C. L. C., Kulik, J. A., & Morgan, M. (1991). The instructional effect of feedback in test-like events. *Review of Educational Research*, *61*(2), 213-238. https://doi.org/10.3102/00346543061002213

Beaumont, C., O'Doherty, M., & Shannon, L. (2011). Reconceptualising assessment feedback: A key to improving student learning? *Studies in Higher Education*, *36*(6), 671-687. https://doi.org/10.1080/03075071003731135

Black, P., & McCormick, R. (2010). Reflections and new directions. *Assessment & Evaluation in Higher Education*, *35*(5), 493-499. https://doi.org/10.1080/02602938.2010.493696

Black, P., & Wiliam, D. (1998). Assessment and classroom learning. *Assessment in Education: Principles, Policy & Practice*, *5*(1), 7-74. https://doi.org/10.1080/0969595980050102

Blair, A., Curtis, S., Goodwin, M., & Shields, S. (2013). What feedback do students want? *Politics*, *33*(1), 66-79. https://doi.org/10.1111/j.1467-9256.2012.01446.x

Blatter, J., & Haverland, M. (2012). *Designing case studies: Explanatory approaches in small-N research*. Palgrave Macmillan. https://doi.org/10.1057/9781137016669

Boud, D. (1995). Assessment and learning: Contradictory or complementary. In P. Knight (Ed.), *Assessment for learning in higher education,* (pp. 35-48). Kogan Page.

Brannen, J. (Ed.). (2017). *Mixing methods: Qualitative and quantitative research*. Routledge. https://doi.org/10.4324/9781315248813

Brewer, J., & Hunter, A. (1989). *Multimethod research: A synthesis of styles*. Sage Publications, Inc.

Brookhart, S. M. (2012). Preventing feedback fizzle. *Educational Leadership*, *70*(1), 24-29.

Brooks, C., Carroll, A., Gillies, R. M., & Hattie, J. (2019). A matrix of feedback for learning. *Australian Journal of Teacher Education*, *44*(4), 2. https://doi.org/10.14221/ajte.2018v44n4.2

Brooks, C., Huang, Y., Hattie, J., Carroll, A., & Burton, R. (2019). What is my next step? School students' perceptions of feedback. *Frontiers in Education*, *4*(96). https://doi.org/10.3389/feduc.2019.00096

Brown, G. T. (1984). Metacognition: New insights into old problems? *British Journal of Educational Studies*, *32*(3), 213-219. https://doi.org/10.1080/00071005.1984.9973688

Brown, G. T. L. (2008). *Conceptions of assessment: Understanding what assessment means to teachers and students*. Nova Science Publishers. https://doi.org/10.1037/t01348-000

Brown, G. T. L., Irving, S. E., & Peterson, E. R. (2009, August). *The more I enjoy it the less I achieve: The negative impact of socio-emotional purposes of assessment and feedback on academic performance*. [Conference presentation]. EARLI 2009 biennial conference, Amsterdam, NL.

Bryman, A. (Ed.). (2006). *Mixed methods*. SAGE Publications Limited. https://doi.org/10.4135/9781446262566

Bryman, A. (2012). Sampling in qualitative research. *Social Research Methods*, *4*, 415-429.

Burnett, P. C. (2002). Teacher praise and feedback and students' perceptions of the classroom environment. *Educational Psychology*, *22*(1), 5-16. https://doi.org/10.1080/01443410120101215

Butler, R. (1987). Task-involving and ego-involving properties of evaluation: Effects of different feedback conditions on motivational perceptions, interest, and performance. *Journal of Educational Psychology*, *79*(4), 474. https://doi.org/10.1037/0022-0663.79.4.474

Butler, D. L., & Winne, P. H. (1995). Feedback and self-regulated learning: A theoretical synthesis. *Review of Educational Research*, *65*(3), 245-281. https://doi.org/10.3102/00346543065003245

Carless, D. (2015). *Excellence in university assessment: Learning from award-winning practice*. Routledge. https://doi.org/10.4324/9781315740621

Carless, D., & Boud, D. (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

Carver, C. S., & Scheier, M. (1990). *Principles of self-regulation: Action and emotion*. The Guilford Press.

Chappuis, J. (2012). "How Am I Doing?" *Educational Leadership*, *70*(1), 1–6.

Clarke, S. (2001). *Unlocking formative assessment.* Hodder and Stoughton

Cohen, V. B. (1985). A reexamination of feedback in computer-based instruction: Implications for instructional design. *Educational Technology*, *25*(1), 33-37.

Crooks, T. J. (1988). The impact of classroom evaluation practices on students. *Review of Educational Research, 58*, 438-481. https://doi.org/10.3102/00346543058004438

Dann, R. (2016). Developing understanding of pupil feedback using Habermas' notion of communicative action. *Assessment in Education: Principles, Policy & Practice*, *23*(3), 396-414. https://doi.org/10.1080/0969594X.2015.1056083

Dawson, P., Henderson, M., Mahoney, P., Phillips, M., Ryan, T., Boud, D., & Molloy, E. (2019). What makes for effective feedback: Staff and student perspectives. Assessment & Evaluation in Higher Education, 44(1), 25-36. https://doi.org/10.1080/02602938.2018.1467877

Dawson, P., Henderson, M., Ryan, T., Mahoney, P., Boud, D., Phillips, M., & Molloy, E. (2018). Technology and feedback design. In M. J. Spector, B. B. Lockee, & M. D. Childress (Eds.), *Learning, design, and technology,* (pp. 1-

45). Springer International Publishing. https://doi.org/10.1007/978-3-319-17727-4_124-1

Deci, E. L., Koestner, R., & Ryan, R. M. (1999). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological bulletin*, *125*(6), 627. https://doi.org/10.1037/0033-2909.125.6.627

Denzin, N.K., & Lincoln, Y.S. (Eds.). (2005). *The Sage handbook of qualitative research*. Sage.

Department of Education and Training. (2018). *Practice principles for excellence in teaching and learning* (ISBN: 978-0-7594-0827-2). https://www.education.vic.gov.au/Documents/school/teachers/support/practiceprinciples.pdf

Department of Education and Training. (2019). *High Impact Teaching Strategies: Excellence in learning and teaching* (ISBN: 978-0-7594-0820-3). https://www.education.vic.gov.au/Documents/school/teachers/support/high-impact-teaching-strategies.pdf

Dweck, C. S. (2007). The secret to raising smart kids. *Scientific American Mind, 18*(6), 36-43. https://doi.org/10.1038/scientificamericanmind1207-36

Earley, P.C., Northcraft, G.B., Lee, C., & Lituchy, T.R. (1990). Impact of process and outcome feedback on the relation of goal setting to task performance. *Academy of Management Journal, 33(1),* 87-105. https://doi.org/10.2307/256353

Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, *14*(4), 532-550. https://doi.org/10.5465/amr.1989.4308385

Elwell, W. C., & Tiberio, J. (1994). Teacher praise: What students want. *Journal of Instructional Psychology*, *21*(4), 322.

Gamlem, S. M., & Smith, K. (2013). Student perceptions of classroom feedback. *Assessment in Education: Principles, Policy & Practice, 20*(2), 150-169. https://doi.org/10.1080/0969594X.2012.749212

Gibbs, G., & Simpson, C. (2004). Does your assessment support your students' learning? *Journal of Teaching and Learning in Higher Education*, *1*(1), 1-30.

Hargreaves, E. (2013). Inquiring into children's experiences of teacher feedback: Reconceptualising assessment for learning. *Oxford Review of Education*, *39*(2), 229-246. https://doi.org/10.1080/03054985.2013.787922

Harris, L. R., & Brown, G. T. (2013). Opportunities and obstacles to consider when using peer-and self-assessment to improve student learning: Case studies into teachers' implementation. *Teaching and Teacher Education, 36*, 101-111. https://doi.org/10.1016/j.tate.2013.07.008

Harris, L. R., Brown, G. T., & Harnett, J. A. (2014a). *Classifying feedback using Hattie & Timperley's feedback typology examining the content of New Zealand students' written peer-and self-assessment comments*. Unpublished review.

Harris, L. R., Brown, G. T., & Harnett, J. A. (2014b). Understanding classroom feedback practices: A study of New Zealand student experiences, perceptions, and emotional responses. *Educational Assessment, Evaluation and Accountability, 26*(2), 107-133. https://doi.org/10.1007/s11092-013-9187-5

Harris, L. R., Harnett, J. A., & Brown, G. T. L. (2009). Drawing out student conceptions: Using pupils' pictures to examine their conceptions of assessment. In D. M. McInerney, G. T. L. Brown, & G. A. D. Liem (Eds.),

Student perspectives on assessment: What students can tell us about assessment for learning, (pp. 53-83). Information Age Publishing.

Hattie, J. (1992). Measuring the effects of schooling. *Australian Journal of Education*, *36*(1), 5-13. https://doi.org/10.1177/000494419203600102

Hattie, J. (2009). *Visible learning: A synthesis of 800+ meta-analyses on achievement*. Routledge. https://doi.org/10.4324/9780203887332

Hattie, J. (2012). Know thy impact. *Educational Leadership*, *70*(1), 1–4.

Hattie, J. A. C., & Donoghue, G. M. (2016). Learning strategies: A synthesis and conceptual model. *npj Science of Learning*, *1*(1), 1-13. https://doi.org/10.1038/npjscilearn.2016.13

Hattie, J., & Gan, M. (2011). Instruction based on feedback. In R. Mayer & P. Alexander (Eds.), *Handbook of research on learning and instruction* (pp. 249-271). Routledge.

Hattie, J., Gan, M., & Brooks. C. (2016). Instruction based on feedback. In R. Mayer & P. Alexander (Eds.), *Handbook of research on learning and instruction* (pp. 306-340). Routledge.

Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research, 77*(1), 81-112. https://doi.org/10.3102/003465430298487

Hornby, W. (2003). Assessing using grade-related criteria: A single currency for universities? *Assessment and Evaluation in Higher Education, 28*, 435-454. https://doi.org/10.1080/0260293032000066254

Hughes, R., & Huby, M. (2012). The construction and interpretation of vignettes in social research. *Social Work and Social Sciences Review*, *11*(1), 36-51. https://doi.org/10.1921/17466105.11.1.36

Jick, T. D. (1979). Mixing qualitative and quantitative methods: Triangulation in action. *Administrative Science Quarterly*, *24*(4), 602-611. https://doi.org/10.2307/2392366

Jonassen, D. (1991). Objectivism vs. constructivism: Do we need a new philosophical paradigm? *Educational Technology, Research and Development, 39(3*), 5-13. https://doi.org/10.1007/BF02296434

Johnson, B., & Turner, L. A. (2003). Data collection strategies in mixed methods research. In A. M. Tashakkori, & C. B. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research*, (pp. 297-319). SAGE Publications.

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research, 1*(2), 112-133. https://doi.org/10.1177/1558689806298224

Jonsson, A. (2013). Facilitating productive use of feedback in higher education. *Active Learning in Higher Education, 14*(1), 63–76. https://doi.org/10.1177/1469787412467125

Jonsson, A., & Panadero, E. (2018). Facilitating students' active engagement with feedback. In A. A. Lipnevich & J. K. Smith (Eds.), *The Cambridge handbook* of instructional feedback. Cambridge University Press https://doi.org/10.1017/9781316832134

Karabenick, S. A., & Knapp, J. R. (1991). Relationship of academic help seeking to the use of learning strategies and other instrumental achievement behavior in college students. *Journal of Educational Psychology*, *83*(2), 221. https://doi.org/10.1037/0022-0663.83.2.221

Kluger, A. N., & DeNisi, A. (1996). The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychological Bulletin, 119*(2), 254-284. https://doi.org/10.1037/0033-2909.119.2.254

Knight, N. (2003) Teacher feedback to students in numeracy lessons: Are students getting good value? *Set, 3*, 40-45.

Li, J., & De Luca, R. (2014). Review of assessment feedback. *Studies in Higher Education*, *39*(2), 378-393. https://doi.org/10.1080/03075079.2012.709494

Lipnevich, A. A., Berg, D. A. G., & Smith, J. K. (2016). Toward a model of student response to feedback. In G. T. L. Brown & L. R. Harris (Eds.), *Human factors and social conditions of assessment* (pp. 169–185). Routledge.

Locke, E. A., & Latham, G. P. (1984). Goal setting: A motivational technique that works! *Organizational Dynamics, 8*(2), 68-80. https://doi.org/10.1016/0090-2616(79)90032-9

Lofland, J., & Lofland, L. (1995). *Analyzing social settings: A guide to quantitative observation and analysis* (3rd ed.). Wadsworth.

Lysakowski, R. S., & Walberg, H. J. (1982). Instructional effects of cues, participation, and corrective feedback: A quantitative synthesis. *American Educational Research Journal*, *19*(4), 559-572. https://doi.org/10.3102/00028312019004559

Mayring, P. (2000). Qualitative content analysis. *Qualitative Social Research, 1*(2).

McFarlin, D. B., and Blascovich, J. (198 I). Effects of self-esteem and performance on future affective preferences and cognitive expectations. *Journal of Personality and Social Psychology*, *40*, 521-531. https://doi.org/10.1037/0022-3514.40.3.521

Murtagh, L. (2014). The motivational paradox of feedback: Teacher and student perceptions. *The curriculum journal*, *25*(4), 516-541. https://doi.org/10.1080/09585176.2014.944197

Newman, R. S., & Schwager, M. T. (1993). Students' perceptions of the teacher and classmates in relation to reported help seeking in math class. *The Elementary School Journal*, *94*(1), 3-17. https://doi.org/10.1086/461747

Nicol, D. J., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in Higher Education, 31*(2), 199-218. https://doi.org/10.1080/03075070600572090

Nuthall, G.A. (2007). *The hidden lives of learners*. Wellington, New Zealand: New Zealand Council for Educational Research.

O'Donovan, B., C. Rust, & M. Price. (2016). A scholarly approach to solving the feedback dilemma in practice. *Assessment & Evaluation in Higher Education 41*(6): 938–949. https://doi.org/10.1080/02602938.2015.1052774

Onwuegbuzie, A. J., & Johnson, R. B. (2006). The validity issue in mixed research. *Research in the Schools*, *13*(1), 48-63.

Pajares, F., & Graham, L. (1998). Formalist thinking and language arts instruction: Teachers' and students' beliefs about truth and caring in the teaching conversation. *Teaching and Teacher Education, 14*, 855-870. https://doi.org/10.1016/S0742-051X(98)80001-2

Paris, S. G., & Winograd, P. (1990). Promoting metacognition and motivation of exceptional children. *Remedial and Special Education*, *11*(6), 7-15. https://doi.org/10.1177/074193259001100604

Poulos, A., & Mahoney, M. (2008). Effectiveness of feedback: The students' perspective. *Assessment & Evaluation in Higher Education, 33*(2)143-154. https://doi.org/10.1080/02602930601127869

Pekrun, R. (2006). The control-value theory of achievement emotions: Assumptions, corollaries, and implications for educational research and practice. *Educational Psychology Review*, *18*(4), 315-341. https://doi.org/10.1007/s10648-006-9029-9

Pekrun, R., & Linnenbrink-Garcia, L. (2012). Academic emotions and student engagement. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 259-282). Springer, Science. https://doi.org/10.1007/978-1-4614-2018-7_12

Peterson, R. & Irving, I. (2008). Secondary school students' conceptions of assessment and feedback. *Learning and Instruction, 18(3*), 238-250. https://doi.org/10.1016/j.learninstruc.2007.05.001

Price, M., Handley, K., & Millar, J. (2011). Feedback: Focusing attention on engagement. *Studies in higher education*, *36*(8), 879-896. https://doi.org/10.1080/03075079.2010.483513

Price, M., Handley, K., Millar, J., & O'Donovan, B. (2010). Feedback: all that effort, but what is the effect? *Assessment & Evaluation in Higher Education*, *35*(3), 277-289. https://doi.org/10.1080/02602930903541007

Price, M., Handley, K., & O'Donovan, B. (2008, August 8). *Feedback: All that effort but what is the effect?* [Conference presentation]. The 4th EARLI/Northumbria Assessment Conference: Challenging Assessment, Berlin, Germany.

Ramaprasad, A. (1983). On the definition of feedback. *Behavioral science*, *28*(1), 4-13. https://doi.org/10.1002/bs.3830280103

Rattan, A., Good, C., & Dweck, C. S. (2012). "It's ok—Not everyone can be good at math": Instructors with an entity theory comfort (and demotivate) students. *Journal of Experimental Social Psychology*, *48*(3), 731-737. https://doi.org/10.1016/j.jesp.2011.12.012

Robinson, V., Lloyd, C., & Rowe, K. (2008). The Impact of Leadership on Student Outcomes: An Analysis of the Differential Effects of Leadership Types. *Educational Administration Quarterly*, 44(5), 635-674. https://doi.org/10.1177/0013161X08321509

Rossman, G. B., & Wilson, B. L. (1985). Numbers and words: Combining quantitative and qualitative methods in a single large-scale evaluation study. *Evaluation review*, *9*(5), 627-643. https://doi.org/10.1177/0193841X8500900505

Rust, C., O'Donovan, B., & Price, M. (2005). A social constructivist assessment process model: How the research literature shows us this could be best practice. *Assessment & Evaluation in Higher Education, 30*(3), 231-240. https://doi.org/10.1080/02602930500063819

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*(1), 68. https://doi.org/10.1037/0003-066X.55.1.68

Sadler, R. (1989) Formative assessment and the design of instructional systems, *Instructional Science*, 18, 119-44 https://doi.org/10.1007/BF00117714

Sadler, D. R. (1998). Formative assessment: Revisiting the territory. Assessment in education: principles, policy & practice, 5(1), 77-84. https://doi.org/10.1080/0969595980050104

Sadler, D. R. (2007). Perils in the meticulous specification of goals and assessment criteria. Assessment in Education, 14(3), 387-392. https://doi.org/10.1080/09695940701592097

Sadler, D. R. (2010). Beyond feedback: Developing student capability in complex appraisal. Assessment & Evaluation in Higher Education, 35(5), 535-550. https://doi.org/10.1080/02602930903541015

Sharp, P. (1985). Behaviour modification in the secondary school: A survey of students' attitudes to rewards and praise. *Behavioral Approaches with Children*, *9*, 109-112.

Shrauger, J. S. (1975). Responses to evaluation as a function of initial self-perceptions. *Psychological Bulletin, 82*, 581-596. https://doi.org/10.1037/h0076791

Shute, V. J. (2008). Focus on formative feedback. *Review of Educational Research*, *78*(1), 153- 189. https://doi.org/10.3102/0034654307313795

Skinner, B. F. (1963). Operant behavior. *American Psychologist, 18*(8), 503-515. doi: 10.1037/h0045185. https://doi.org/10.1037/h0045185

Smith, R., Gibson, R., Wienand, V., & Andrews, R. (Eds.). (2014). Romeo and Juliet. Cambridge University Press.

Smith, J. K., & Lipnevich, A. A. (2009). Formative assessment in higher education: Frequency and consequence. In D. M. McInerney, G. T. L. Brown, & G. A. D. Liem (Eds.), *Student Perspectives on Assessment–What students can tell us about assessment for Learning*, (pp. 279-296). Information Age Publishing.

Sutton, P. (2012). Conceptualizing feedback literacy: Knowing, being, and acting. *Innovations in Education and Teaching International*, *49*(1), 31-40. https://doi.org/10.1080/14703297.2012.647781

Swann Jr., W. B. (1983). Self-verification: Bringing social reality into harmony with the self. In J. Suls, & A. G. Greenwald (Eds.), *Social psychological perspectives on the self* (Vol. 2, pp. 33-66). Erlbaum.

Swann Jr, W. B., & Read, S. J. (1981). Self-verification processes: How we sustain our self-conceptions. *Journal of Experimental Social Psychology*, *17*(4), 351-372. https://doi.org/10.1016/0022-1031(81)90043-3

Swann, W. B., Griffin, J. J., Predmore, S. C., & Gaines, B. (1987). The cognitive–affective crossfire: When self-consistency confronts self-enhancement. *Journal of Personality and Social Psychology*, *52*(5), 881.

Teddlie, C., & Tashakkori, A. (Eds.). (2003). *Handbook of mixed methods in social and behavioral research*. Sage.

Tenenbaum, G., & Goldring, E. (1989). A meta-analysis of the effect of enhanced instruction: Cues, participation, reinforcement and feedback and correctives on motor skill learning. *Journal of Research & Development in Education, 22*(3), 53-64.

Thorndike, E. L. (1933). An experimental study of rewards. *Teachers College Contributions to Education*, *580,* 72.

Thurlings, M., Vermeulen, M., Bastiaens, T., & Stijnen, S. (2013). Understanding feedback: A learning theory perspective. *Educational Research Review*, *9*, 1-15. https://doi.org/10.1016/j.edurev.2012.11.004

To, J. (2016). “This is not what I need”: Conflicting assessment feedback beliefs in a post-secondary institution in Hong Kong. *Research in Post-Compulsory Education, 21*(4), 447–467. https://doi.org/10.1080/13596748.2016.1226588

Torrance, H., & Pryor, J. (1998). *Investigating formative assessment: Teaching, learning and assessment in the classroom*. McGraw-Hill Education (UK).

Van der Kleij, F. M., & Lipnevich, A. A. (2020). Student perceptions of assessment feedback: a critical scoping review and call for research. *Educational Assessment, Evaluation and Accountability*, 1-29. https://doi.org/10.1007/s11092-020-09331-x

Värlander, S. (2008). The role of students’ emotions in formal feedback situations. *Teaching in Higher Education*, *13*(2), 145-156. https://doi.org/10.1080/13562510801923195

Vygotsky, L. (1978). *Mind in Society*. Harvard University Press.

Wiggins, G. (2012). Seven keys to effective feedback. *Educational Leadership*, *70*(1).

Wiliam, D. (2011). *Embedded formative assessment*. Solution Tree Press.

Wiliam, D., & Thompson, M. (2008). *Integrating assessment with learning: What will it take to make it work?* Routledge.

Williams, J. A. (2010). ‘You know what you've done right and what you've done wrong and what you need to improve on’: New Zealand students' perspectives on feedback. *Assessment in Education: Principles, Policy & Practice*, *17*(3), 301-314. https://doi.org/10.1080/0969594X.2010.496249

Wilkinson, S. S. (1981). The relationship of teacher praise and student achievement: A meta-analysis of selected research. *Dissertation Abstracts International*, *41*(9–A), 3998.

Winstone, N. E., Nash, R. A., Parker, M., & Rowntree, J. (2017). Supporting learners' agentic engagement with feedback: A systematic review and a taxonomy of recipience processes. *Educational Psychologist*, *52*(1), 17-37. https://doi.org/10.1080/00461520.2016.1207538

Wisniewski, B., Zierer, K., & Hattie, J. (2020). The power of feedback revisited: A meta-analysis of educational feedback research. *Frontiers in Psychology*, *10*, 3087. https://doi.org/10.3389/fpsyg.2019.03087

Yin, R. K. (2006). Mixed methods research: Are the methods genuinely integrated or merely parallel. *Research in the Schools*, *13*(1), 41-47.

Appendix A: Study 1A - Online survey instrument

Investigating students' cognitive and emotional responses to teacher feedback

Introduction

Research project: 'Investigating students' cognitive and emotional responses to teacher feedback'.

Introduction:
Effective feedback from teacher to student on task has been proven to have a significant influence on improving students' academic performance, however there has been very little research completed as to what effective feedback looks like to students and what feedback is important to the student. This project seeks to develop an understanding of what students understand when presented with feedback, and how this information shapes their development and future performance on task.

You have been invited to participate in the above research project investigating this area, which is being conducted by Mr Luke Mandouit (Doctoral student) under the supervision of Professor John Hattie (Supervising Researcher) of the Melbourne Graduate School of Education at The University of Melbourne. This project will form part of Mr Mandouit's Doctoral thesis, and has been approved by the Human Research Ethics Committee and the Department of Education Ethics Board.

In this survey you will be presented with a sample of a student's work - complete with mistakes and grammatical errors. On this work sample you will see the feedback left for the student by the teacher and asked a serious of questions about the information provided by the teacher. You will be presented with 5 different feedback samples in total.

1

Investigating students' cognitive and emotional responses to teacher feedback

Copy of page: Introduction

In accordance with research ethics, you will NOT be identified in any way in the analysis or reporting of data gathered in this research study. However, you are also entitled to withdraw from the study at anytime during or after the study if you wish. Based on this, we would like you to give your name so researchers can access and remove your data if you choose to exercise withdrawal rights at any time.

*** 1. Participant name:**

2

Investigating students' cognitive and emotional responses to teacher feedback

Student information

All information provided will remain confidential and you will not be be identified in any way, however we would like the following basic information for data analysis purpose. For example: do male and female students look for different teacher feedback? Or, is there a difference in the type of feedback required for different age groups?

2. What is your gender?

- ◯ Female
- ◯ Male

3. What is your age?

- ◯ 14
- ◯ 15
- ◯ 16
- ◯ 17
- ◯ 18

4. What is your year level?

- ◯ Year 10
- ◯ Year 11
- ◯ Year 12

5. How do you compare to other students in your year level in your success at school?

- ◯ Above average
- ◯ Average
- ◯ Below Average

6. On a scale of 1 - 5, with 1 being very low and 5 being very high, how would you rate your level of effort at school?

Very Low	Low	Average	High	Very High
◯	◯	◯	◯	◯

3

7. On a scale of 1 - 5, with 1 being not confident and 5 being very confident, how would you rate your how confident you are as a learner?

Not confident	Lacking Confidence	Average	Confident	Very Confident
◯	◯	◯	◯	◯

Investigating students' cognitive and emotional responses to teacher feedback

Student Work Sample Number 1 of 5

Please look at the student work sample below along with the feedback provided to the student by the teacher. In this example the student has just received feedback on their introduction to an essay discussing how the character of 'Romeo' changes and evolves throughout the play: 'Romeo and Juliet'. Consider how you as a student would respond to the feedback provided when you answer the questions below.

Please remember that the student work sample you see does have mistakes and errors, as students' work sometimes does, and to which the teacher will address in their feedback. You will be asked to respond to 5 different feedback samples in total in this survey.

One of the major charactors in Shakespeares Romeo and Juliet is Romeo, who along with Juliet, represent a story of youth, love and tragedy. Romeo is the only son of Lord Montague of Varona, who's family is fihgting with Juliet's family the capulets. But Romeo doesn't care for this feud, and his only concern is his love for a girl called Rosaline. This love is not returned and this makes Romeo become gloomy and with drawn, however seeing Juliet at the Capulet dance, Rosaline is quickly forgotten. Through his romance with Juliet Romeo changes from an immature teenager to a young man who is bold passionate and brave.

This is a great first effort, and I can see you have tried hard.
I look forward to seeing your next piece of work. Well done!

5

8. What does the information given by the teacher tell the student about their performance on the task?

- [ ] Student has done well
- [ ] Student has done poorly
- [ ] Student needs to try harder next time
- [ ] Student needs to proof read more
- [ ] Student needs to work on spelling and grammar
- [ ] Teacher doesn't like this student
- [ ] Student doesn't understand the play
- [ ] Student doesn't understand the task
- [ ] Student has improved
- [ ] Student understands the task
- [ ] Student understands the play
- [ ] Student needs to elaborate on ideas more
- [ ] Teacher is happy with the student

Other (please specify)

6

9. Based on the information the teacher has given the student on the work, what should the student do differently next time around to improve their performance on the task?

- [ ] No relevent information provided
- [ ] Try harder
- [ ] Proof read
- [ ] Use a spell checker
- [ ] Ask more questions
- [ ] Go into more detail
- [ ] Develop a better understanding of grammar rules
- [ ] Develop a better understanding of the plot
- [ ] Develop a better understanding of the characters
- [ ] Not rush so much
- [ ] Have confidence in their ability
- [ ] Draft their work
- [ ] Use examples

Other (please specify)

10. How often would you receive this type of feedback from your teachers?

- ○ Never
- ○ Sometimes
- ○ Often
- ○ All the time

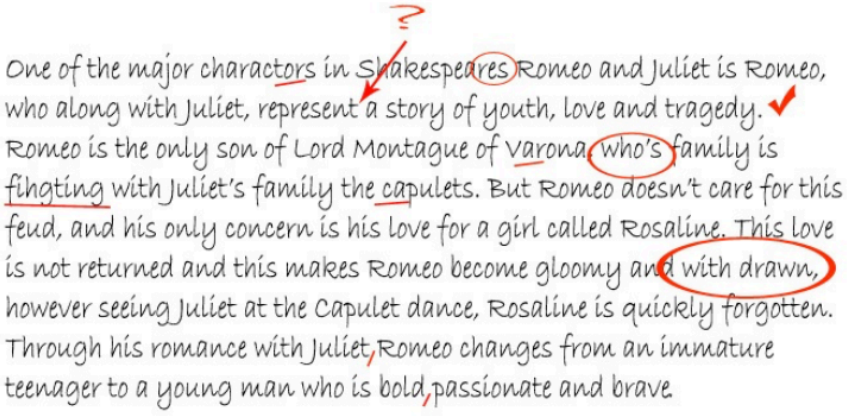
11. Do you think this teacher's feedback will be useful to the student the next time they complete a similar task? Please explain why / why not.

8

Investigating students' cognitive and emotional responses to teacher feedback

Student Work Sample Number 2 of 5

Please look at the student work sample below along with the feedback provided to the student by the teacher. In this example the student has just received feedback on their introduction to an essay discussing how the character of 'Romeo' changes and evolves throughout the play: 'Romeo and Juliet'. Consider how you as a student would respond to the feedback provided when you answer the questions below.



One of the major charactors in Shakespeares Romeo and Juliet is Romeo, who along with Juliet, represent a story of youth, love and tragedy. Romeo is the only son of Lord Montague of Varona, who's family is fihgting with Juliet's family the capulets. But Romeo doesn't care for this feud, and his only concern is his love for a girl called Rosaline. This love is not returned and this makes Romeo become gloomy and with drawn, however seeing Juliet at the Capulet dance, Rosaline is quickly forgotten. Through his romance with Juliet, Romeo changes from an immature teenager to a young man who is bold, passionate and brave.

9

12. What does the information given by the teacher tell the student about their performance on the task?

- [ ] Student has done well
- [ ] Student has done poorly
- [ ] Student needs to try harder next time
- [ ] Student needs to proof read more
- [ ] Student needs to work on spelling and grammar
- [ ] Teacher doesn't like this student
- [ ] Student doesn't understand the play
- [ ] Student doesn't understand the task
- [ ] Student has improved
- [ ] Student understands the task
- [ ] Student understands the play
- [ ] Student needs to elaborate on ideas more
- [ ] Teacher is happy with the student

Other (please specify)

10

13. Based on the information the teacher has given the student on the work, what should the student do differently next time around to improve their performance on the task?

- [ ] No relevent information provided
- [ ] Try harder
- [ ] Proof read
- [ ] Use a spell checker
- [ ] Ask more questions
- [ ] Go into more detail
- [ ] Develop a better understanding of grammar rules
- [ ] Develop a better understanding of the plot
- [ ] Develop a better understanding of the characters
- [ ] Not rush so much
- [ ] Have confidence in their ability
- [ ] Draft their work
- [ ] Use examples

Other (please specify)

14. How often would you receive this type of feedback from your teachers?

- ○ Never
- ○ Sometimes
- ○ Often
- ○ All the time

11

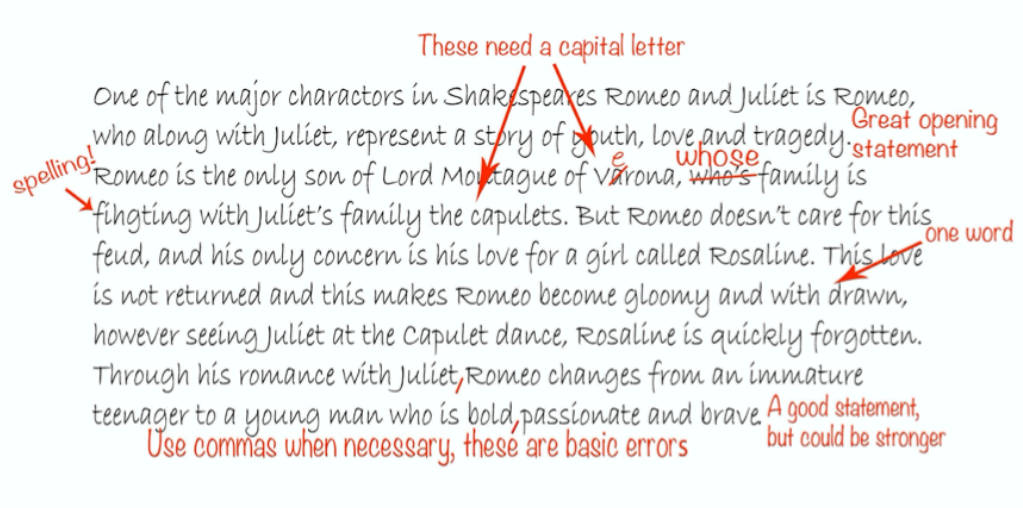
15. Do you think this teacher's feedback will be useful to the student the next time they complete a similar task? Please explain why / why not.

12

Investigating students' cognitive and emotional responses to teacher feedback

Student Work Sample Number 3 of 5

Please look at the student work sample below along with the feedback provided to the student by the teacher. In this example the student has just received feedback on their introduction to an essay discussing how the character of 'Romeo' changes and evolves throughout the play: 'Romeo and Juliet'. Consider how you as a student would respond to the feedback provided when you answer the questions below.



One of the major charactors in Shakespeares Romeo and Juliet is Romeo, who along with Juliet, represent a story of youth, love and tragedy. Romeo is the only son of Lord Montague of Varona, ~~who's~~ family is fihgting with Juliet's family the capulets. But Romeo doesn't care for this feud, and his only concern is his love for a girl called Rosaline. This love is not returned and this makes Romeo become gloomy and with drawn, however seeing Juliet at the Capulet dance, Rosaline is quickly forgotten. Through his romance with Juliet, Romeo changes from an immature teenager to a young man who is bold, passionate and brave.

13

16. What does the information given by the teacher tell the student about their performance on the task?

- [ ] Student has done well
- [ ] Student has done poorly
- [ ] Student needs to try harder next time
- [ ] Student needs to proof read more
- [ ] Student needs to work on spelling and grammar
- [ ] Teacher doesn't like this student
- [ ] Student doesn't understand the play
- [ ] Student doesn't understand the task
- [ ] Student has improved
- [ ] Student understands the task
- [ ] Student understands the play
- [ ] Student needs to elaborate on ideas more
- [ ] Teacher is happy with the student

Other (please specify)

14

17. Based on the information the teacher has given the student on the work, what should the student do differently next time around to improve their performance on the task?

- [ ] No relevent information provided
- [ ] Try harder
- [ ] Proof read
- [ ] Use a spell checker
- [ ] Ask more questions
- [ ] Go into more detail
- [ ] Develop a better understanding of grammar rules
- [ ] Develop a better understanding of the plot
- [ ] Develop a better understanding of the characters
- [ ] Not rush so much
- [ ] Have confidence in their ability
- [ ] Draft their work
- [ ] Use examples

Other (please specify)

18. How often would you receive this type of feedback from your teachers?

- ○ Never
- ○ Sometimes
- ○ Often
- ○ All the time

15

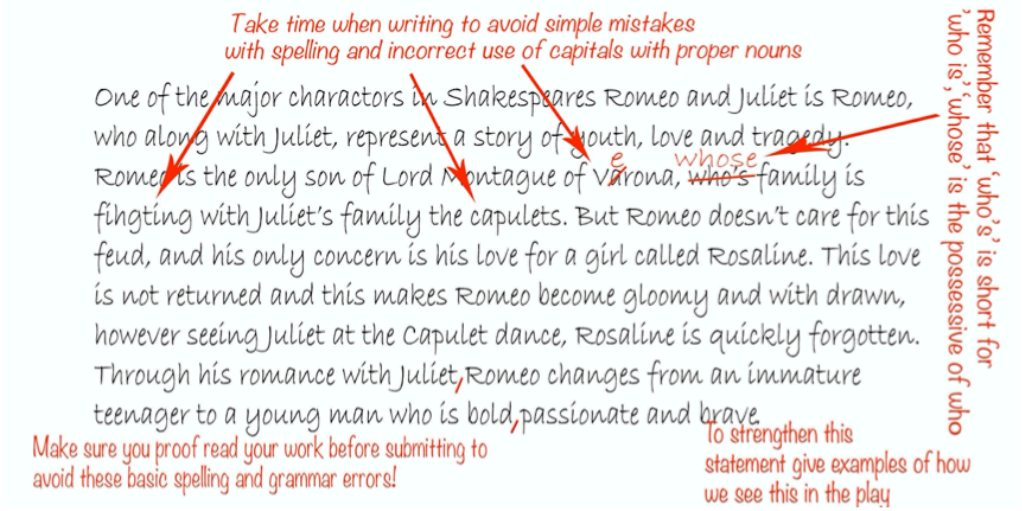
19. Do you think this teacher's feedback will be useful to the student the next time they complete a similar task? Please explain why / why not.

16

Investigating students' cognitive and emotional responses to teacher feedback

Student Work Sample Number 4 of 5

Please look at the student work sample below along with the feedback provided to the student by the teacher. In this example the student has just received feedback on their introduction to an essay discussing how the character of 'Romeo' changes and evolves throughout the play: 'Romeo and Juliet'. Consider how you as a student would respond to the feedback provided when you answer the questions below.



17

20. What does the information given by the teacher tell the student about their performance on the task?

- [ ] Student has done well
- [ ] Student has done poorly
- [ ] Student needs to try harder next time
- [ ] Student needs to proof read more
- [ ] Student needs to work on spelling and grammar
- [ ] Teacher doesn't like this student
- [ ] Student doesn't understand the play
- [ ] Student doesn't understand the task
- [ ] Student has improved
- [ ] Student understands the task
- [ ] Student understands the play
- [ ] Student needs to elaborate on ideas more
- [ ] Teacher is happy with the student

Other (please specify)

18

21. Based on the information the teacher has given the student on the work, what should the student do differently next time around to improve their performance on the task?

- [ ] No relevent information provided
- [ ] Try harder
- [ ] Proof read
- [ ] Use a spell checker
- [ ] Ask more questions
- [ ] Go into more detail
- [ ] Develop a better understanding of grammar rules
- [ ] Develop a better understanding of the plot
- [ ] Develop a better understanding of the characters
- [ ] Not rush so much
- [ ] Have confidence in their ability
- [ ] Draft their work
- [ ] Use examples

Other (please specify)

22. How often would you receive this type of feedback from your teachers?

- ○ Never
- ○ Sometimes
- ○ Often
- ○ All the time

19

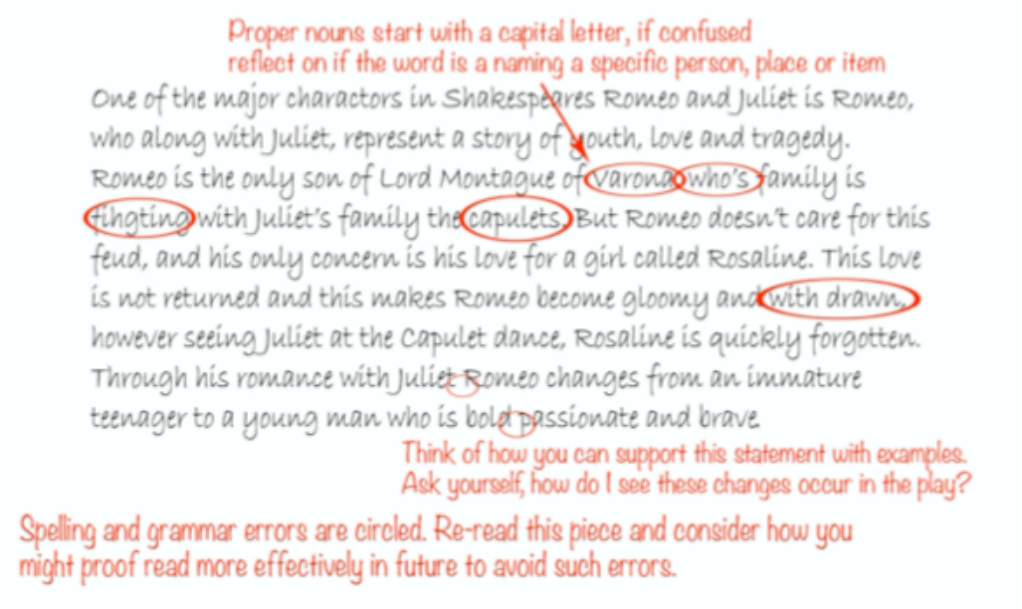
23. Do you think this teacher's feedback will be useful to the student the next time they complete a similar task? Please explain why / why not.

20

Investigating students' cognitive and emotional responses to teacher feedback

Student Work Sample Number 5 of 5

Please look at the student work sample below along with the feedback provided to the student by the teacher. In this example the student has just received feedback on their introduction to an essay discussing how the character of 'Romeo' changes and evolves throughout the play: 'Romeo and Juliet'. Consider how you as a student would respond to the feedback provided when you answer the questions below.



24. What does the information given by the teacher tell the student about their performance on the task?

- [ ] Student has done well
- [ ] Student has done poorly
- [ ] Student needs to try harder next time
- [ ] Student needs to proof read more
- [ ] Student needs to work on spelling and grammar
- [ ] Teacher doesn't like this student
- [ ] Student doesn't understand the play
- [ ] Student doesn't understand the task
- [ ] Student has improved
- [ ] Student understands the task
- [ ] Student understands the play
- [ ] Student needs to elaborate on ideas more
- [ ] Teacher is happy with the student

Other (please specify)

22

25. Based on the information the teacher has given the student on the work, what should the student do differently next time around to improve their performance on the task?

- [ ] No relevent information provided
- [ ] Try harder
- [ ] Proof read
- [ ] Use a spell checker
- [ ] Ask more questions
- [ ] Go into more detail
- [ ] Develop a better understanding of grammar rules
- [ ] Develop a better understanding of the plot
- [ ] Develop a better understanding of the characters
- [ ] Not rush so much
- [ ] Have confidence in their ability
- [ ] Draft their work
- [ ] Use examples

Other (please specify)

26. How often would you receive this type of feedback from your teachers?

- ○ Never
- ○ Sometimes
- ○ Often
- ○ All the time

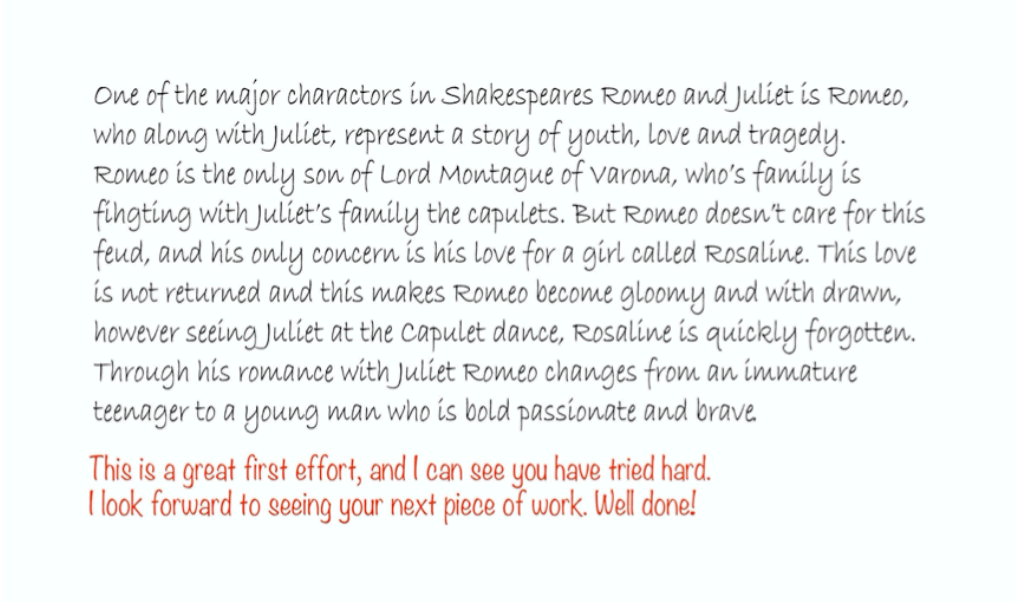
23

27. Do you think this teacher's feedback will be useful to the student the next time they complete a similar task? Please explain why / why not.

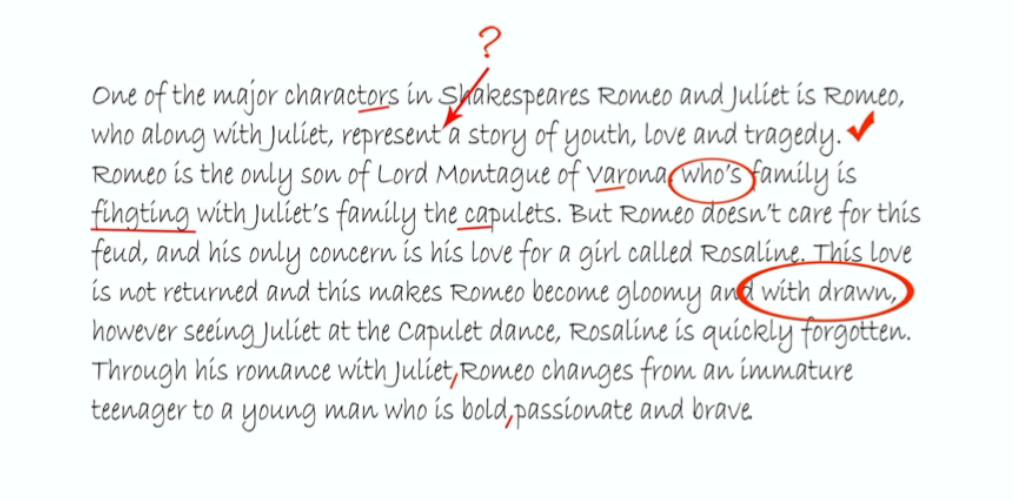
24

For one last time, please look over the 5 samples of teacher feedback you viewed in this survey and consider the following question: Which of these samples of feedback would you find most useful in helping you improve as a student on this task? There will be a space for you to answer at the bottom of this page.

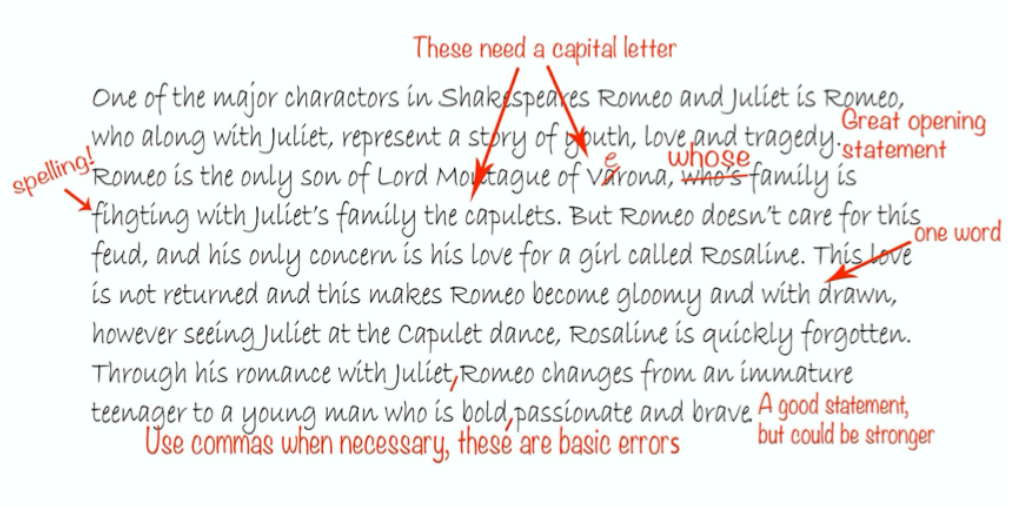
Feedback Sample One:



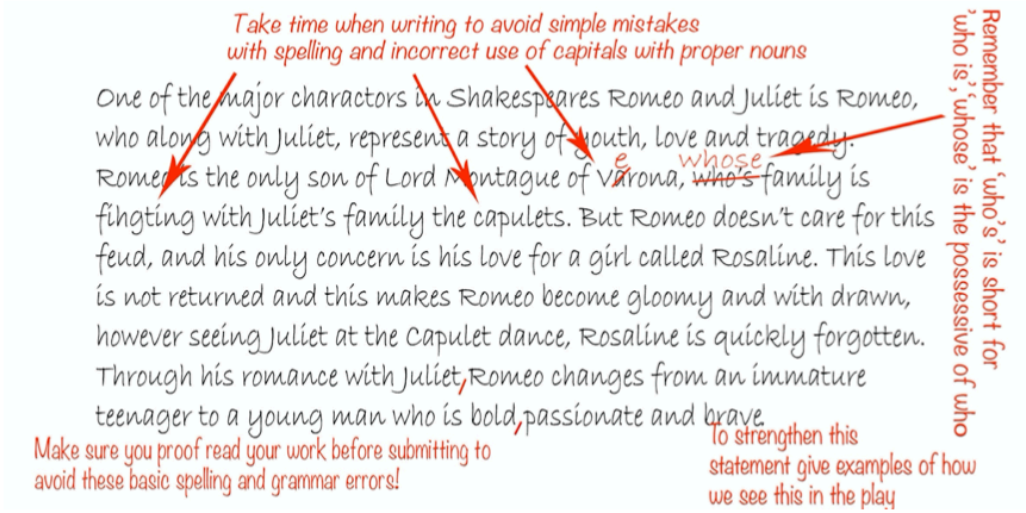
Feedback Sample Two:



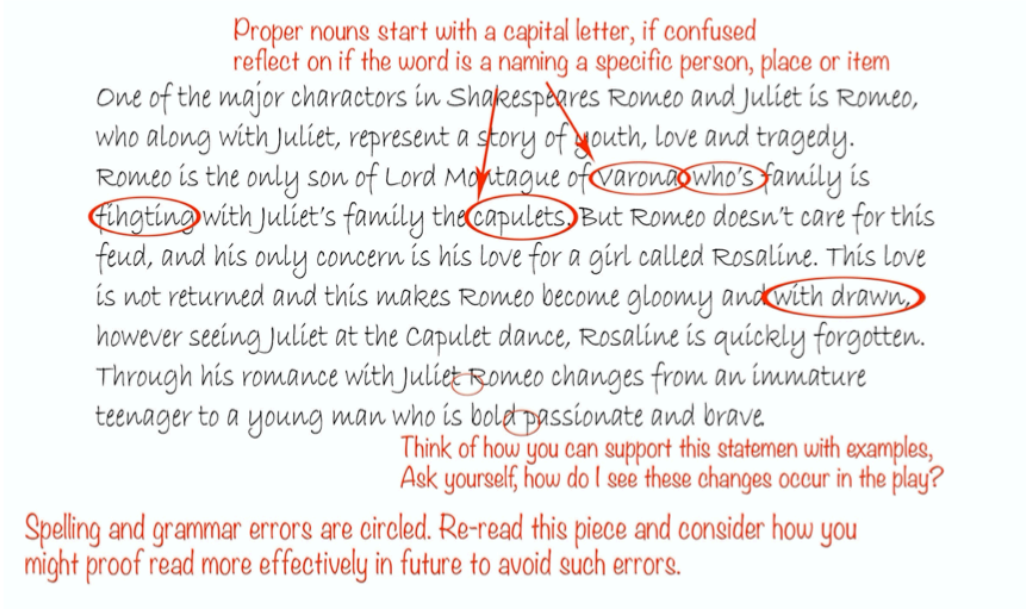
Feedback Sample Three:



Feedback Sample Four:



Feedback Sample Five:



27

28. Which of these samples of teacher feedback would you find most useful in helping you improve as a student on this task? Please explain why.

28

29. Thinking about yourself as a student, what feedback do you look for when you receive a piece of work back from a teacher? Please explain why.

30. What advice would you give to teachers who want to improve the effectiveness of the feedback that they give to their students?

Investigating students' cognitive and emotional responses to teacher feedback

Thank you for your time!

Thank you for taking the time to contribute to this study. The insights you have provided into how students perceive teacher feedback will be very valuable in developing further knowledge in this area. If you have experienced any distress by participating in this research study, please notify Mr. Mandouit immediately. If at any time you wish to withdraw from this study, please also contact Mr. Mandouit and your data will be removed from the study.

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Appendix B: Study 1B - Semi-structured interview guide

Interview protocols: Semi-structured interview – Script and sample questions

Expected duration: 40 minutes

Interviewer opening statement:

Thank you for giving up your time and completing the interview on your responses to teacher feedback. During this interview we will be reviewing your responses, and you will be given an opportunity to elaborate a little further on how teacher feedback influences your motivations, thought processes, and work behaviours. The interview will go for around 40 minutes. As discussed earlier in the Plain Language Statement and Consent Form, your participation in this interview is completely voluntary and you are free to withdraw at any time. If at any time you are feeling any distress, please let me know. The audio from this interview will be recorded and then later transcribed. Do you have any questions before we begin?

Following the opening statement, the interviewer will discuss with the participant the nature of their responses to the 'students on teacher feedback' survey. Rather than following a script, the interviewer will be guided by a variety of themes as outlined below along with possible sample questions.

Theme one: "Self-level feedback"

Interviewer: In the 'students on teacher feedback' survey you previously completed you were presented with a range of feedback samples and asked what information you would take from such feedback and how it would shape your own future performance if you received this feedback. In this first sample the student was provided with praise and encouragement, as opposed to any specific information on

how to improve. In responding to this feedback sample and survey questions you said that … Can you tell me more about how this would make you feel this way?

Example of possible question: Participant 21

In your response you write:

> The teacher's feedback would not be useful to the student since it is just encouraging them. The student needs to know their mistakes and how to work on them. The student should have a mix of kindness and tough love on the student.

Can you talk further about the importance of this balance of kindness and tough love that you mentioned?

Theme two: "Task-level feedback (symbols)"

Interviewer: In the second feedback sample, we see that the teacher has provided information to the student using a variety of symbols such as ticks, crosses, underlines, and circles. In responding to this sample you said … Can you elaborate further on these ideas?

Example of possible question: Participant 36

In your response you write about the feedback:

> It is somewhat helpful for the student as they get an understanding that their spelling needs to improve. However, it is not encouraging towards the student. Results and comments like this may discourage the student and they may become distressed.

Can you talk about the importance of encouragement when providing feedback?

Theme three: "Task-level feedback (written)"

Interviewer: In feedback sample three we see that the teacher has provided written comments on the student's performance, with these comments being mainly corrective in nature. In your response you said that … Can you explain why this would influence your performance in this task next time around?

Example of possible question: Participant 27

In responding to work sample three you said that you found the teacher's feedback: "useful, but confusing at the same time". Can you elaborate further on this reflection?

Theme four: "Process-level feedback"

Interviewer: In the fourth feedback sample you responded to, you saw the teachers written feedback becoming more complex with less corrections being made, and the teacher's advice being more around how the student had completed the task. In your response you said that … Can you explain why this is important to you as a student?

Example of possible question: Participant 35

You, along with other respondents, continue to emphasise the importance of the nature of teacher's delivery of effective feedback. You write about this sample:

> This method of feedback is good and useful, but if constructive criticism was used a bit more and highlighting the parts the student has done well in, it would be great and extremely useful.

Can you tell me a little more about the importance of this balance of criticism and encouragement, and how this could be used more effectively by teachers?

Theme five: "Self-regulation feedback"

Interviewer: In the final work sample, we see that the teachers feedback became much more complex with the advice provided about altering the student's ability to problem solve and find solutions when presented with a similar task in the future. In your response you replied that … Can you discuss these points further?

Example of possible question: Participant 7

In responding to this sample, you write that this feedback:

> …allows the student to learn himself instead of the teacher doing it all for him and telling him what he did wrong he has to find these problems out himself which is the best way to learn.

Can you talk a little bit about how this type of feedback would help you improve more than feedback that might be considered just 'corrective'?

Theme six: "What effective feedback looks like to you"

Interviewer: The final question of the survey involved you giving advice to teachers on how to deliver effective feedback. In your response you write that ... Can you elaborate why these things are important to you?

Example of possible question:

What advice would you give to teachers who want to improve the effectiveness of the feedback that they give to their students? You, like many other students, stressed the importance of praise and positive comments. Given that praise doesn't tell you how to get better, can you explain why this is important to you in improving your performance next time around?

Closing statement:

Thank you for your time; that concludes our first interview. I will speak to you again on *(insert date and time)* and we will spend 20 minutes following up on our discussion points today. As mentioned at the start of the interview, you are free to withdraw from the study at any time so if you wish to do so please just let me know. In addition to this, if you want to review or change any of the information you communicated in today's interview you are also free to do so. In the course of this interview you have not been deceived in any way, and if you have or experience any distress following this interview please let me know.