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Future-Focused:

Educating in an Era of Continuous Change

Enhancing feedback literacy and engagement in project management education: A case study of feedback analytics

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This paper investigates how students in different performance groups engage with and perceive feedback within a large postgraduate information technology project management unit at an Australian university. Using data from 228 students who voluntarily participated in a feedback analytics tool, named *PolyFeed*, the study examines patterns of feedback annotation, reflective note-taking, and action plan creation. The findings reveal that while feedback quality is consistently rated highly across all groups, lower-performing students participate less and are less likely to act on feedback. In contrast, higher-performing students demonstrate greater sense-making and proactive use of feedback. The study highlights the importance of designing feedback systems that scaffold all aspects of feedback literacy, particularly for students at risk of disengagement, to promote equitable and meaningful learning outcomes.

Keywords: feedback literacy, project management, feedback analytics, student engagement

Introduction

Feedback literacy refers to the skills and attitudes that enable learners to interpret, seek, and act on feedback to enhance learning (Carless & Boud, 2018; Tsai, 2023). It is increasingly seen as a vital graduate attribute and professional competency. For information technology project management (ITPM) students, this is especially important due to the iterative and collaborative nature of agile practices, where feedback plays a central role in both individual and team growth. Feedback is embedded not only in formal assessments but also in practices like retrospectives and stand-ups, which provide continuous opportunities for reflection and adjustment (Project Management Institute, 2017).

Advances in feedback analytics—applying learning analytics to track and interpret feedback engagement—offer promising ways to enhance feedback processes (Jin et al., 2024). Yet, empirical research on how students interact with such systems remains limited. This study addresses that gap by analysing data from 228 postgraduate students in an ITPM course, focusing on how different performance groups engage with and perceive feedback. Findings suggest that feedback systems should scaffold action planning and reflection, particularly to support lower-performing students.

Literature Review

For ITPM students, developing feedback literacy involves actively engaging with feedback—seeking clarification, evaluating relevance, and integrating insights into individual and group work. These skills support reflective practice, adaptive problem-solving, and effective communication, all critical for managing complex projects and teams (Australian Curriculum, Assessment and Reporting Authority, 2024). Feedback-literate students are better able to close the feedback loop, turning insights from retrospectives and stand-ups into improvements and fostering continuous learning (Project Management Institute, 2021; Serrador & Pinto, 2015).

The concept of feedback has shifted from a one-way transmission to an iterative, dialogic process that values interaction and shared understanding (Carless & Boud, 2018). Feedback literacy now includes interpreting, acting on, and seeking clarification through dialogue (Carless & Boud, 2018; Tsai, 2023). Digital feedback platforms can support these skills, but their effectiveness depends on usability, motivation, and positive

emotional experiences (Jin et al., 2024; Maheshi et al., 2024). Developing feedback literacy requires exposure to high-quality, dialogic feedback and meaningful engagement opportunities. Traditional, one-way feedback often fails to support literacy, especially in large classes with limited interaction (Blatchford & Russell, 2020). Large class sizes and reliance on sessional staff further limit personalised support and feedback dialogue. Recent scholarship calls for feedback partnerships and co-creation, emphasising sustained, student-centred processes (Maheshi et al., 2024).

Despite the promise of digital tools, there is limited empirical evidence on how students with different academic profiles engage with feedback analytics in large, agile-oriented courses. Understanding these patterns is crucial for designing effective and equitable interventions.

This study addresses: **RQ1: How might students across different performance groups interact with feedback differently?** By exploring this, we aim to inform the design of feedback analytics systems and teaching practices that foster feedback literacy and engagement for all learners.

Methods

This study was conducted in a large postgraduate information technology project management unit at an Australian university, aimed at developing both technical and professional skills through workshops, applied classes, and collaborative project work that encouraged iterative improvement and peer interaction. A feedback analytics tool, named *PolyFeed*, was integrated into the unit to support students in analysing and acting upon their academic feedback. The tool allowed students to highlight feedback received on two assessed assignments and annotate each point with labels such as strength, weakness, suggestion, confusion, or other. After annotating, students could write reflective notes linked to specific feedback points, encouraging deeper sense-making and self-assessment. They were also able to create targeted action plans in response to feedback, categorising these actions as Ask Classmates, Contact Tutor, Explore Online, Further Practice, Refer Learning Resources, or Other.

The implementation began with a forum announcement in week 8 of the 12-week semester, explaining the tool's purpose to enhance feedback quality, accessibility, and actionability. This was followed by a reminder post in week 9, encouraging students to use the tool as a pre-class activity for their two assessed assignments in week 10. Engagement was further reinforced during an in-class applied session that included debates on feedback challenges and structured reflection activities, with participation monitored to encourage active engagement and support the development of feedback literacy.

Out of 590 students enrolled in the unit, 228 voluntarily opted in to use the tool, forming the active participant group for the research. Participation was strictly voluntary, with a small number of bonus points offered as incentives. All data were anonymised prior to analysis to ensure student privacy. The study drew on several datasets generated by the tool, including interaction data (counts of annotations, labels assigned to feedback, action plans, reflective notes, and ratings of feedback quality and experience) and academic performance data (assignment grades for all students). The study received ethics approval from Monash University (ID 38407). All procedures adhered to institutional ethical guidelines, with participation voluntary and all data de-identified to ensure confidentiality and research integrity.

Findings

To establish a baseline for interpreting students' engagement with feedback across different performance groups, we first examined their perceptions of feedback quality, as this can influence how students interact with and use feedback. Table 1 presents mean feedback quality perceptions by grade range. Across all grade bands, students rated the quality of feedback highly, with mean scores above 3.2 out of 4 for most measured dimensions. This indicates that, regardless of academic achievement, feedback was generally perceived as clear, relevant, and usable by students.

Table 1

PolyFeed Mean Feedback Quality Perceptions by Grade Range Table

Grade	Matches my belief of my own performance (Performance)	Is easy to understand (Clarity)	Helps me to critically evaluate my work (Evaluative Judgement)	Related to my work (Personalisation)	Makes me feel positive (Emotion)	Can be used in my current and future studies (Usability)
0-50% (N)	3.00	3.67	3.67	3.67	3.67	3.67
50-59% (P)	3.26	3.58	3.37	3.47	3.26	3.47
60-69% (C)	3.32	3.57	3.6	3.64	3.37	3.64
70-79% (D)	3.38	3.60	3.55	3.61	3.38	3.54
80-100% (HD)	3.44	3.65	3.6	3.63	3.37	3.53

Participation and Engagement by Performance Group

Table 2

PolyFeed Participation Statistics by Grade Range

Grade Range	No. of Students	*PolyFeed* Participants (%)	Feedback Annotations (% of participants)	Reflective Notes (% of participants)	Action Plan (% of participants)
0-50% N	28	1 (0.4%)			
50-59% P	61	14 (6.1%)	9 (64%)	9 (14%)	
60-69% C	234	80 (35.1%)	51 (64%)	51 (26%)	3 (4%)
70-79% D	202	99 (43.4%)	81 (82%)	81 (28%)	12 (12%)
80-100% HD	65	34 (14.9%)	31 (91%)	31 (41%)	3 (9%)
Total	590	228 (38.6%)			

Insights by Performance Group

- Pass (P, 50–59%) and Below (N, 0–50%): Students in these groups engaged less overall. s.Among all performance groups, the Pass (P, 50–59%) and Below (N, 0–50%) students had the lowest participation rates in feedback activities. Notably, none of the participants in this category created action plan
- Credit (C, 60–69%): C students showed substantial engagement, with 64% using feedback annotations and 26% adding reflective notes.
- Distinction (D, 70–79%): D students demonstrated consistently high engagement across all feedback activities, with 82% using feedback annotations and 28% adding reflective notes. This group also had the highest proportion of students creating action plans.
- High Distinction (HD, 80–100%): Although HD students represented a smaller portion of the cohort (14.9%), those who did engage with feedback showed the highest rates of feedback annotation (91%) and adding reflective notes (41%).

Annotation and Reflection Patterns

A closer examination of annotation behaviors revealed important differences in how students at each achievement level engaged with feedback:

Table 3

Count and Percentage of Highlight Annotation Categories by Grade Range

Grade Range	Strength	Weakness	Confused	Action Item	Other	Total
0-50% N	1 (14%)	6 (86%)				7
50-59% P	29 (38%)	22 (29%)	9 (12%)	17 (22%)		77
60-69% C	73 (44%)	35 (21%)	20 (12%)	31 (19%)	6 (4%)	165
70-79% D	162 (36%)	95 (21%)	65 (14%)	114 (25%)	13 (3%)	449
80-100% HD	111 (48%)	43 (19%)	18 (8%)	54 (23%)	6 (3%)	232
Total	376 (40%)	201 (22%)	112 (12%)	216 (23%)	25 (3%)	930

Insights by Performance Group

- N Band (0–50%): Students focused mainly on weaknesses, showing either limited engagement with other feedback aspects types or the absence of those aspects in the feedback.
- Pass (P, 50–59%), Credit (C, 60–69%), Distinction (D, 70–79%): These groups showed balanced engagement across strengths, weaknesses, suggestions, and confusions. C band students highlighted strengths more than D band, while D band had the highest focus on confusion.
- High Distinction (HD, 80–100%): HD students engaged selectively, emphasizing strengths and targeted action items.

Action Plan Strategies

The action plan data provides further insight into how students translate their feedback engagement and reflection into concrete strategies for improvement. Although the overall number of students who create action plans is relatively low, a notable trend emerges students in the Distinction (D) band are the most proactive, generating the highest number of action plans among all performance groups.

Table 4
PolyFeed Action Plan Table

Grade Range	Ask Classmates	Contact Tutor	Explore Online	Further Practice	Refer Learning Resources	Other	Total
50-59% P		5 (100%)					5
60-69% C				2 (67%)	1 (33%)		3
70-79% D	2 (10%)	1 (5%)	2 (10%)	9 (43%)	3 (14%)	4 (19%)	21
80-100% HD			4 (80%)	1 (20%)			5
Total	2 (6%)	6 (18%)	6 (18%)	12 (35%)	4 (12%)	4 (12%)	34

Analysis reveals several key trends: Students in the 50–59% (P) range relied solely on "Contact Tutor," showing limited strategy use and dependence on instructor support. The 60–69% (C) group began to diversify, choosing "Further Practice" and "Refer Learning Resources," indicating emerging autonomy. Distinction (D, 70–79%) students demonstrated the greatest diversity and proactivity, selecting all action plan categories, with "Further Practice" most common (43%), and frequently using peer support, online exploration, and personalized strategies. High Distinction (HD, 80–100%) students mainly chose "Explore Online" (80%) and "Further Practice" (20%), reflecting strategic independence and confidence. Overall, "Further Practice" was the most selected action plan (35%), while peer and resource-based strategies remained underutilized, especially among lower-performing students.

Discussion

Drawing on the feedback literacy (FL) framework proposed by Carless and Boud (2018), our findings can be interpreted through the following key aspects: appreciation of feedback, making evaluative judgements (sense-making), and acting on feedback.

The analysis reveals that students across all performance groups generally perceived the feedback as high quality, with mean ratings above 3.2 out of 4 for clarity, relevance, and usability. This consistent appreciation suggests that, regardless of academic achievement, students recognized the value of the feedback provided. However, participation rates were notably lower among Pass (P, 50–59%) and Below (N, 0–50%) groups, indicating that appreciation alone may not translate into active engagement for all students.

Differences emerged in how students in various performance groups engaged in sense-making with feedback. Higher-performing students were more likely to annotate feedback, assign labels (such as strengths, weaknesses, and suggestions), and write reflective notes. These activities demonstrate their efforts to interpret and critically evaluate the feedback, aligning with the sense-making component of feedback literacy. A key indicator of acting on feedback was the creation of action plans. Notably, none of the students in the Pass and Below groups created action plans, whereas higher-performing students were more proactive in this

regard. This pattern suggests that the ability and willingness to act on feedback is closely linked to performance level, with lower-performing students less likely to translate feedback into concrete actions.

Overall, the findings reveal clear differences in how students at different performance levels interact with feedback, particularly in terms of making sense of and acting on feedback. These observations highlight the importance of designing feedback systems and interventions that scaffold all aspects of feedback literacy, especially for students who may be less inclined to engage deeply with feedback processes.

Conclusion

This study demonstrates that while students across all performance levels generally appreciate high-quality feedback, significant differences exist in how they engage with and act on it. Higher-performing students not only make greater use of feedback tools—such as annotations, reflective notes, and diverse action plans—but also exhibit stronger sense-making and self-regulation, key elements of feedback literacy. In contrast, lower-performing students are less likely to participate actively or develop concrete strategies for improvement, highlighting a gap between appreciating feedback and using it effectively.

These findings underscore the need for feedback systems and teaching interventions that go beyond providing quality feedback, by actively scaffolding students' abilities to interpret and apply feedback, particularly for those at risk of disengagement. Looking ahead, embedding feedback literacy development into curricula can play a critical role in preparing students to navigate future academic, professional and societal changes. Supporting lower-performing students in developing these capabilities through structured opportunities for reflection, action planning and peer interaction may help close the engagement gap, foster more equitable outcomes and equip all learners with the resilience to adapt to evolving contexts.

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