

Appendix A.

Table 4. Feedback interaction dataset description

Column Name	Description
Feedback ID	Unique identifier for each feedback interaction
Participant ID	Anonymized identifier for each participant
Unit code	Course code associated with the feedback
Assessment name	Name of the assessment related to the feedback
Expectation alignment	Performance expectation alignment
Feedback usefulness	Usefulness of the feedback perceived by the student
Chatgpt Usage	Binary indicator of whether the student sought clarification from ChatGPT for this feedback
Feedback ratings	
Clarity	Rating scale for the clarity of feedback (scale 1–5)
Relevance	Rating scale for evaluative judgement (scale 1–5)
Critical evaluation	Rating scale for how feedback aids students in critically evaluating their work (scale 1–5)
Usability	Rating scale for the usability of the feedback (scale 1–5)
Positivity	Rating scale for how positive feedback made the student feel (scale 1–5)
Highlight frequencies	
Highlight action item frequency	Number of times the participant highlighted feedback categorised as an action item
Highlight confused frequency	Number of times the participant highlighted feedback as confusing
Highlight strength frequency	Number of times the participant highlighted feedback as a strength
Highlight weakness frequency	Number of times the participant highlighted feedback as a weakness
Highlight other frequency	Number of times the participant highlighted feedback as other
Notes frequency	Number of notes the participant created during the feedback highlighting process
Todo list frequency	Number of to-do items the participant created during the

	feedback highlighting process
Confidence level	Confidence level reported prior to receiving feedback (scale 0–10)

Table 5. Sample of event logs

participantId	feedbackId	activityType	timeStamp
PFPT01	910	Start Highlight	5/4/2024 10:38:10 AM
PFPT01	910	Highlight Strength	5/4/2024 10:38:21 AM
PFPT01	910	Highlight Strength	5/4/2024 10:38:45 AM
PFPT01	910	Highlight Weakness	5/4/2024 10:39:10 AM
PFPT01	910	Save Notes	5/4/2024 10:41:03 AM
PFPT02	911	Start Highlight	5/4/2024 12:26:10 AM
PFPT02	911	Highlight Weakness	5/4/2024 12:27:07 AM
PFPT02	911	Highlight Weakness	5/4/2024 12:27:28 AM
PFPT02	911	Highlight Action Item	5/4/2024 12:28:21 AM
PFPT02	911	Save To-dos	5/4/2024 12:29:01 AM

Table 6. Moderation effect of feedback positivity rating on the relationship between confidence levels and feedback interactions

Feedback Interaction Type	Coefficient Term	Estimate	SE	95% CI	Sig
Highlight action item	Confidence (β_1)	0.19	0.24	(-0.35, 0.61)	
	Positivity Rating (β_2)	0.34	0.28	(-0.33, 1.92)	
	Confidence x Positivity Rating (β_3)	0.02	0.09	(-0.14, 0.22)	
Highlight confused	Confidence (β_1)	0.34	0.28	(-0.30, 0.87)	
	Positivity Rating (β_2)	0.14	0.62	(-1.05, 1.36)	
	Confidence x Positivity Rating (β_3)	-0.06	0.12	(-0.28, 0.20)	
Highlight other	Confidence (β_1)	0.03	0.32	(-0.70, 0.58)	
	Positivity Rating (β_2)	0.27	0.71	(-1.00, 1.75)	
	Confidence x Positivity	0.07	0.11	(-0.15, 0.31)	

	Rating (β_3)				
Highlight strength	Confidence (β_1)	0.17	0.21	(-0.36, 0.50)	
	Positivity Rating (β_2)	0.34	0.51	(-0.39, 1.57)	
	Confidence x Positivity Rating (β_3)	0.01	0.08	(-0.12, 0.20)	
Highlight weakness	Confidence (β_1)	0.34	0.17	(-0.09, 0.67)	
	Positivity Rating (β_2)	0.78	0.69	(-0.38, 2.36)	
	Confidence x Positivity Rating (β_3)	-0.09	0.08	(-0.23, 0.11)	
Notes	Confidence (β_1)	0.34	0.14	(-0.07, 0.58)	
	Positivity Rating (β_2)	0.88	0.42	(0.01, 1.75)	*
	Confidence x Positivity Rating (β_3)	-0.08	0.05	(-0.17, 0.09)	
Todo list	Confidence (β_1)	0.20	0.32	(-0.57, 0.70)	
	Positivity Rating (β_2)	0.34	0.68	(-0.85, 1.83)	
	Confidence x Positivity Rating (β_3)	-0.00	0.13	(-0.21, 0.30)	

Table 7. Moderation effect of feedback positivity rating on feedback interactions across expectation alignment groups

Feedback Interaction Type	Coefficient Term	Estimate	SE	95% CI	Sig
Highlight action item	Expectation Alignment _{better-than-thought} (β_1)	-6.48	11.31	(-31.68, 13.95)	
	Expectation Alignment _{worse-than-thought} (β_2)	-1.64	3.63	(-9.63, 3.54)	
	Positivity Rating (β_3)	0.50	0.68	(-0.53, 2.15)	
	Expectation Alignment _{better-than-thought} X Positivity Rating (β_4)	1.96	3.80	(-4.92, 10.47)	
	Expectation Alignment _{worse-than-thought} X Positivity Rating (β_5)	0.17	1.27	(-1.68, 2.95)	
Highlight confused	Expectation Alignment _{better-than-thought} (β_1)	-22.21	19.23	(-65.88, 0.52)	

	Expectation Alignment _{worse-than-thought} (β_2)	-0.71	2.36	(-6.15, 3.00)	
	Positivity Rating (β_3)	-0.76	0.89	(-2.81, 0.72)	
	Expectation Alignment _{better-than-thought} X Positivity Rating (β_4)	7.78	6.47	(-0.06, 22.56)	
	Expectation Alignment _{worse-than-thought} X Positivity Rating (β_5)	0.11	1.00	(-1.64, 2.33)	
Highlight other	Expectation Alignment _{better-than-thought} (β_1)	-8.16	90.12	(-116.82, 125.06)	
	Expectation Alignment _{worse-than-thought} (β_2)	8.09	47.87	(-9.56, 73.21)	
	Positivity Rating (β_3)	1.51	4.55	(-1.07, 11.11)	
	Expectation Alignment _{better-than-thought} X Positivity Rating (β_4)	2.22	30.05	(-42.37, 38.89)	
	Expectation Alignment _{worse-than-thought} X Positivity Rating (β_5)	-2.65	15.99	(-24.51, 3.40)	
Highlight strength	Expectation Alignment _{better-than-thought} (β_1)	2.50	8.69	(-3.18, 19.15)	
	Expectation Alignment _{worse-than-thought} (β_2)	-7.54	8.19	(-25.75, -0.82)	
	Positivity Rating (β_3)	-0.04	0.67	(-1.23, 0.93)	
	Expectation Alignment _{better-than-thought} X Positivity Rating (β_4)	-0.95	2.92	(-6.60, 1.05)	
	Expectation Alignment _{worse-than-thought} X Positivity Rating (β_5)	2.28	2.75	(-0.06, 8.38)	
Highlight weakness	Expectation Alignment _{better-than-thought} (β_1)	-1.99	4.31	(-12.66, 2.36)	
	Expectation Alignment _{worse-than-thought} (β_2)	-5.84	5.42	(-19.74, -0.80)	
	Positivity Rating (β_3)	-0.69	0.55	(-2.07, -0.19)	
	Expectation Alignment _{better-than-thought} X Positivity Rating (β_4)	0.77	1.48	(-0.86, 4.35)	

	Expectation Alignment _{worse-than-thought} X Positivity Rating (β_5)	2.03	1.82	(0.29, 6.73)	*
Notes	Expectation Alignment _{better-than-thought} (β_1)	-0.58	3.34	(-7.83, 5.28)	
	Expectation Alignment _{worse-than-thought} (β_2)	-1.42	1.24	(-4.24, 0.69)	
	Positivity Rating (β_3)	-0.01	0.35	(-0.61, 0.82)	
	Expectation Alignment _{better-than-thought} X Positivity Rating (β_4)	0.17	1.14	(-1.83, 2.63)	
	Expectation Alignment _{worse-than-thought} X Positivity Rating (β_5)	0.35	0.46	(-0.45, 1.36)	
Todo list	Expectation Alignment _{better-than-thought} (β_1)	-0.63	7.28	(-19.76, 8.96)	
	Expectation Alignment _{worse-than-thought} (β_2)	-2.09	4.65	(-13.39, 5.58)	
	Positivity Rating (β_3)	0.22	0.89	(-1.17, 2.31)	
	Expectation Alignment _{better-than-thought} X Positivity Rating (β_4)	0.73	2.51	(-3.19, 6.78)	
	Expectation Alignment _{worse-than-thought} X Positivity Rating (β_5)	0.07	1.70	(-2.53, 4.38)	