University of Glasgow

Adam Smith Business School

MAKE EXPLICIT DO COMPARE

Active Feedback

ACTIVE FEEDBACK Toolkit 1

Turning active learning into active feedback

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While there is consensus in education that students should take a more active role in feedback processes, this is nearly always framed in terms of their making better use of lecturer or peer comments [1, 2]. This framing ignores that students already exercise agency and are generating inner feedback all the time, even when there are no comments from, or dialogue with others [3, 4].

This Guide presents an alternative conception of feedback and a new methodology that lecturers can use to:

- **Improve students' learning by building on their natural inner feedback capability.**
- **Develop students' ability to self-regulate their learning.**
- **Scale up feedback for all students without any increase in lecturer commenting.**
- **Extend the feedback process to specifically develop students' critical and creative thinking.**
- **Make learning more enjoyable by varying the information students use to generate feedback.**
- **Position feedback as a developmental and emotionally positive learning process**

Implementation is simple: turn active learning methods currently in use into active feedback methods by building on the implicit feedback opportunities in the former. For a small investment of lecturer time in making the changes proposed in this guide the learning benefits are substantial and, once devised, these new active feedback methods are reusable with new students without any workload increase.

Feedback as an Internal Process

It is natural to think of feedback as the comments that lecturers and others, usually peers, provide on students' work or performance. Yet comments do not constitute feedback until students process them, compare their interpretation of them against their work or performance, and generate new knowledge and understanding out of that comparison. In this view, comments comprise information that students use to generate inner feedback. However, students are generating inner feedback even when others do not provide comments or engage in dialogue with them (Figure 1). They do this by comparing their thinking, actions, and work against external information in different kinds of resources, in guidance documents, journal articles, assessment rubrics, textbooks, videos, diagrams, and derived from observations of activities and others' behaviour [4, 5].

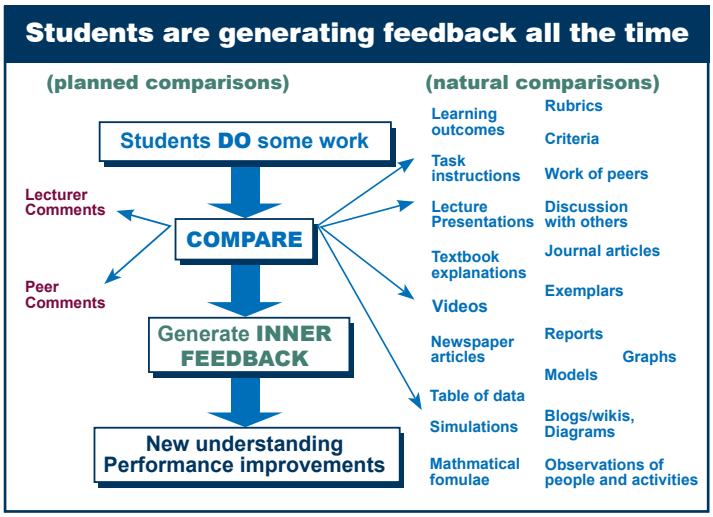

Figure 1: Planned versus natural feedback processes

Making comparisons against external information and generating inner feedback out of those comparisons is how we all learn and is the mechanism by which we regulate our own performance and learning.

The following is a definition of the inner feedback process:

> *Inner feedback is the new knowledge that students generate when they compare their current knowledge against some external reference information, guided by their goals [4]*

Figure 1 gives examples of the sources and types of external information that higher education students use for comparison and for inner feedback generation. It also shows that the only comparators we plan for, albeit implicitly, are comments from lecturers and peers. The feedback students generate from resources is largely ignored by lecturers, even though this arguably has more effect on what students learn than the intermittent comments they receive after their work is completed. The result is that comments drive feedback processes, leading to high lecturer workload and students are deprived the opportunity to develop their own natural feedback agency.

Unlocking the potential of inner feedback

All students can improve their capacity to generate inner feedback. To turn active learning into active feedback students must make mindful comparisons of their own work against external information and make the outputs of those comparisons explicit (Figure 2). This is the most important principle underpinning this new feedback thinking [4]. The sequence for students is:

> **DO** some work - deliberately **COMPARE** that work or performance against information in one or more resources – and **MAKE EXPLICIT** the outputs of those comparisons, for example, in writing, visually, through discussion with others or in action for example by updating their work (see Figure 2) This is different from telling students to go and look at an article or an online resource, something that lecturers already do.

Research shows that when students make comparisons of this kind that they can generate significant feedback on their own. This feedback not only augments lecturer comments but is also more varied and detailed than those comments, and under the right circumstances (e.g., where there are multiple comparisons) it can replace lecturer comments [7, 8, 9, 10]. Studies have demonstrated improved learning outcomes [6, 8] and students also report being less reliant on lecturers for feedback [8, 9].

How to implement active feedback: examples from Adam Smith Business School

Active learning occurs when students engage deeply with course resources and with peers and construct new knowledge and understanding out of this engagement. It ranges from the simple (e.g., pausing a lecture to allow students to reframe what they have heard in their own words) to the more complex (e.g., evaluating a case study in relation to a theoretical model). Table 1 shows the steps involved in turning such active learning methods into active feedback and gives examples of implementations.

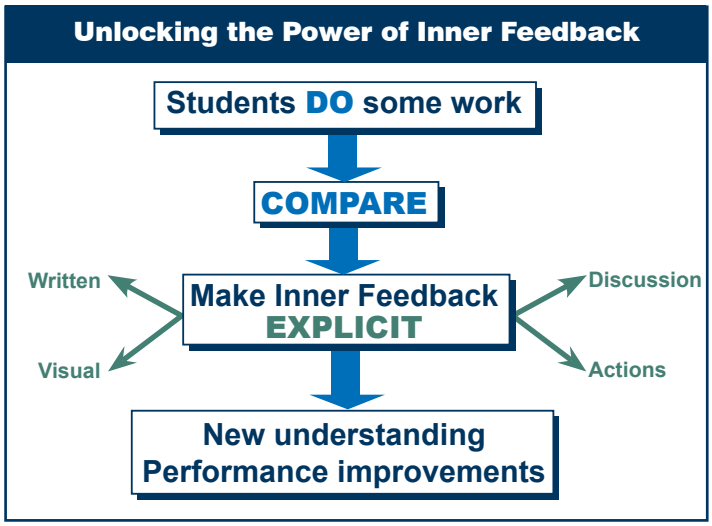

Figure 2: Making internal feedback explicit

Specifically, lecturers must:

1. **Decide what students will do, i.e., devise the learning task that will serve as the focus for feedback comparisons (Table 1: column 1)**
2. **Select or create appropriate comparators (column 2)**
3. **Formulate instructions to give a focus for the comparison and to make the outputs explicit (column 3)**
4. **Decide on next step: how to amplify the feedback students generate from resources (column 4).**

By front-loading resource comparisons, amplifying and combining them with peer feedback and by end-loading lecturer comments, student feedback agency is increased, and lecturer commenting workload is reduced. All examples in Table 1 have been tested with some published in journals and in conference proceedings [i.e., examples v, vi, vii, ix, x].

Table 1: Implementations of active feedback in the Adam Smith Business School, University of Glasgow

DO [Students…]	COMPARE [against]	INSTRUCTIONS [to make feedback generation explicit]	AMPLIFYING resource generated feedback
(i) Write concept definition, draw flow-chart of process, or propose example of application of a concept. This 5-10 min activity might occur in-class or before class as homework.	Lecture input (5-10 mins) e.g., that elaborates on concept definition, gives more insight into process, or that highlights some issues related to concept application	Write notes on what you learned from comparing what you wrote with the lecture input. Update your concept definition, your flow chart diagram, your application proposal. Identify and write down what questions the comparison raised for you.	Students share their activity and comparison outputs with peers and discuss and answer questions raised, identifying any unresolved or new questions for the lecturer.
(ii) Write 200-word argument on topic in or before class	Two published arguments on same topic OR 1 published counter argument.	Identify how these arguments have used evidence to support them and identify how to improve the use of evidence in your own argument. Identify how you can strengthen your own argument by addressing this counter-argument.	Discuss your argument and improvement ideas with peers. Select best example [to present in tutorial] OR Link your and peer's argument to form a better argument.
(iii) Solve bad debt accountancy problem before or in class. [Accounting & Finance] ** Suzanne McCallum	Video of expert (e.g., lecturer) talking through her solution to the problem. OR Flow-chart of the problem-solving process.	How did your thinking differ from the expert? What did you learn from that? What questions remain outstanding? Use flow-chart diagram to self-correct your work. Identify any bad debt situations where this flow chart might not apply.	Discuss comparison output with peers and identify any outstanding question worth asking the lecturer. Students poll/vote on questions teacher should answer

DO [Students…]	COMPARE [against]	INSTRUCTIONS [to make feedback generation explicit]	AMPLIFYING resource generated feedback
(iv) Groups present findings of their draft project report to class.	Presentations of other groups' findings on same report topic.	Individual students answer the following: How did your group findings differ from this group's? What recommendations were common across all groups, and which differed? Based on this write down any improvements for own report.	Individuals share outputs of comparisons with group members and together they update their group report.
(v) Write draft report on management or economics topic.	A rubric for the report and exemplars of reports on different topic.	Compare each of these resources against your draft report. Update your report and submit to lecturer including analysis output from comparison task.	Lecturer grades final report aided by comparison reflections (analyses).
(vi) Write 500-word essay ** Suzanne McCallum [Accounting & Finance]	Two peer essays and one essay of high-quality on same topic constructed by lecturer or selected from prior cohort.	How did your essay differ from this essay? What did you learn from that difference? How would you improve your own essay? Based on these three comparisons update your own essay.	Lecturer samples essays and provides some whole class feedback which students compare against own essay.
(vii) Write application or produce case study of economics model	Published account of theoretical model relevant to application or case. OR Published account of different model	How well does your application adhere to this published model? How could it be improved? What do you think are the limitations in the model? What have you learned from comparing your application against this alternative model? Improve your application based on this.	Discuss with peers then improve and submit your application or case study – alongside reflections on the outputs of the comparison task.
(viii) Individually write 300-word evaluation of international poverty index ** Geetha Selvaretnam [Economics]	Students do the same work again but in groups of three. Hence comparators are group discussion and unfolding and final group output.	Write an account of what you learned by comparing your individual output against the group discussion and group output? Write an account of what you would do to improve your own evaluation of the poverty index? Give reasons for your answer	Lecturer grades the individual and group work and the answers to the comparison questions.
(ix) Create a plan (schedule and question sequence) for first meeting (contracting phase) with client of business enterprise where students carry out a consultancy project. ** Nick Quinn and Alison Gibb [Management]	Published article from management journal on how to establish credibility. Video of a doctor interviewing a patient presenting with chest pains.	Use this theoretical article to identify improvements you could make to your meeting plan. [theory-practice comparison] Watch this video and note how the doctor engages with the patient, reassuring him while at the same time soliciting important information. Based on this, consider how you might foster empathy in your first client meeting: and update your plan.	Students discuss the findings from their comparisons with peers and further update their meeting plan. Any questions are identified and posed to the class and then to the lecturer.
(x) Write a draft literature review for their final year economics dissertation. ** Lovleen Kushwah [Economics]	Two published literature reviews on different topics drawn from high-quality economics journals, and different from student's own topic.	Identify three reasons why the two published reviews are of high quality. Give a rationale for each reason [focus on structure, argument, use of prior research in literature reviews]. Compare your own review with the published reviews and your rationale. Propose improvements to your literature review. Identify any further feedback you would like from your supervisor.	Students submit own review and answers to comparison questions to supervisor. Supervisor comments as necessary, building on students' own feedback productions. Students update own literature review.

Classification of comparisons

Table 1 includes two broad categories of comparisons: similar item and dissimilar item comparisons. Each has its own merits. In the first, students compare what they produce against similar items (e.g., an essay against other essays) whereas in the second they compare against something different (e.g., written explanation against a video presentation). Lecturers should strive for a mix as switching the comparison lens not only keeps students engaged but also promotes perspective shifting and knowledge elaboration.

- **Similar item comparisons** (often called exemplars) enable students to generate feedback to improve the standard of their work, especially when the comparators are of high quality [see non-shaded examples ii, iv, vi, viii and x in Table 1]. However, exemplars don't need to be on the same topic. When the topic is different. students will look beyond the content and generate feedback on the deep structure (e.g., when they compare their economics essay against other essays on a different subject, they will identify ways of improving its structure and argument). Different topic comparisons also help mitigate lecturer concerns about plagiarism. The topic can also be in same domain but not identical: then the feedback students generate will move them forward, resulting in knowledge elaboration (e.g., students produce a report on the economics of one country, then compare it against another report on the effects of inflation on a country's economy).

- **Dissimilar item comparisons** help students view the work they have produced through different lenses (e.g., written explanation of a process against a flow-chart diagram of the same process, a theory against an application). These comparisons help students connect the abstract to the concrete (e.g., theory-practice), to see their work from different vantage points (e.g., flow charts bring to light a timeline; diagrams highlight inter-relationship, text is best for academic argumentation), and to integrate across these different vantage points thereby building more elaborate knowledge and understanding [see, shaded examples i, iii, v, vii, ix in Table 1].

Instructions for comparison

Instructions also guide students to generate different kinds of feedback, for example, feedback to address areas of weakness, improve the standard of their work, move their thinking forward, to develop critical and creative thinking. For example:

- Instead of asking students to compare their argument against similar arguments, ask them to compare how evidence is used to support the argument in the comparators versus their own [Table, example ii]
- Instead of asking students to compare their economics application against a theoretical model to improve their application, ask them to identify limitations in the theoretical model. [Table 1, example vi]

Instructions are often formulated as questions, and these are critical to the design of active feedback methods. They might be open-ended (e.g., "What did you learn from this comparison?"). However, to promote feedback on critical thinking, most will be specific (e.g., "How does the analytical framing in this published article change your thinking relative to the framing you used to create your own report?"). Also, while written answers to the questions are prevalent in Table 1 there is merit in having students create other outputs including, models, diagrams, tables, flow charts, videos etc.

Some final considerations

As a formative assessment activity, comparisons can be used to make any active learning method more effective; and if active learning is already happening this will not increase the lecturer's long-term workload because the feedback designs, once created, can be re-used with subsequent cohorts. Indeed, feedback opportunities can be scaled across a whole course without any long-term workload consequences [10].

Feedback comparisons can also be used as formative preparation for summative assessment, where a grade is awarded for the final submission. This would create an incentive for students to engage in the comparison activities. It is important in both these scenarios that lecturers do not comment on all the comparisons students make as this will unnecessarily increase their workload and undermine student agency. Instead, have students pose specific questions for the lecturer after a number of resource and peer comparisons (see, i, iii, ix in Table 1) or selectively monitor some critical comparison outputs then stage another comparison.

Another possibility is to assess some explicit outputs from resource comparisons themselves, either during a task or on its completion and to award grades for that [8, 5]. Many benefits accrue from this such as developing students' metacognitive knowledge (i.e., knowledge of their own feedback generation capability) and giving lecturers more information about student learning so they can adapt their own teaching and feedback accordingly. Research suggests that this reduces the need for lecturer comments and results in those provided being more effectively targeted to areas where students can't self-generate feedback by other means [7, 8].

Using resource comparisons engages students in making judgements about their own thinking, performance, and work. It contrasts with receiving judgements from others, which is what students experience when the comparison information is lecturer or even peer comments. Hence, resource comparisons do not elicit in students the same negative emotional reactions that receiving comments often does. Indeed, positioning resource comparisons first turns the feedback process into a positive and developmental emotional experience [9]. This method therefore helps address the many concerns about the affective dimensions of feedback. However, the proposal in this guide is not to abandon, or lessen the human dimension of feedback, receiving comments and engaging in dialogue. Rather, it is to balance human and dialogical feedback with resource-based feedback in mutually productive ways.

Moving away from lecturer comments as the predominant source of information for feedback generation gives more power to students [3]. It is also consistent with the long-term purpose of feedback in higher education, which is to help students develop the capacity to regulate their own learning, unaided by lecturers.

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Short Video Introductions

2-minute video https://bit.ly/3qkkAg5
15-minute video https://www.youtube.com/watch?v=rh-MNcnIe7E

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