

EXERPTS FROM “What Works Best” with elaboration from recognised experts

But what should explicit teaching and effective feedback look like? How will you know if you’ve observed it? There is no one answer, and no one way of looking at this. Teaching is complex: what works in one setting may not work in another; what is effective with one student may not be effective for all students. As Dylan Wiliam says, “Everything works somewhere, and nothing works everywhere”.

Good teachers have “adaptive expertise”. They are educators who: are responsive to the needs of students; actively seek new knowledge and understanding; think evaluatively and check impact; welcome different perspectives: and act transformatively. (Le Fevre, Timperley).

So let’s take one of the key concepts from “explicit teaching” (formative assessment) and the concept of feedback and see what other recognised experts say.

The teacher decides the learning intentions and success criteria, makes them transparent to students, demonstrates them by modelling. Evaluates if they understand what they’ve been told checking for understanding, and retelling them what they’ve been told by tying it all together with closure.” Hattie

DYLAN WILIAM: CLASSROOM ASSESSMENT: MINUTE BY MINUTE & DAY BY DAY

Engineer Effective Classroom Discussions

Many teachers spend a considerable proportion of their instructional time in whole-class discussion or question-and-answer sessions, but these sessions tend to rehearse existing knowledge rather than create new knowledge for students. Moreover, teachers generally listen for the "correct" answer instead of listening for what they can learn about the students' thinking; as Davis (1997) says, they listen evaluatively rather than interpretively. The teachers -with whom we have worked have tried to address this issue by asking students questions that either prompt students to think or provide teachers with information that they can use to adjust instruction to meet learning needs.

As a result of this focus, teachers have become aware of the need to carefully plan the questions that they use in class. Many of our teachers now spend more time planning instruction than grading student work, a practice that emphasizes the shift from quality control to quality assurance. By thinking more carefully about the questions they ask in class, teachers can check on students' understanding while the students are still in the class rather than after they have left, as is the case with grading.

Some questions are designed as "range-finding" questions to reveal what students know at the beginning of an instructional sequence. For example, a high school biology teacher might ask the class how much water taken up by the roots of a corn plant is lost through transpiration. Many students believe that transpiration is "bad" and that plants try to minimize the amount of water lost in this process, whereas, in fact, the "lost" water plays an important role in transporting nutrients around the plant.

A middle school mathematics teacher might ask students to indicate how many fractions they can find between $\frac{1}{6}$ and $\frac{1}{7}$. Some students will think there aren't any; others may suggest an answer that, although in some way understandable, is an incorrect use of mathematical notation, such as 6 and $\frac{1}{2}$. The important feature of such range-finding items is that they can help a teacher judge where to begin instruction.

Of course, teachers can use the same item in a number of ways, depending on the context. They could use the question about fractions at the end of a sequence of instruction on equivalent fractions to see whether students have grasped the main idea. A middle school science a laboratory experiment, "What was the dependent variable in today's lab?" A social studies teacher, at the end of a project on World War II, might ask students to state their views about which year the war began and give reasons supporting their choice.

Teachers can also use questions to check on student understanding before continuing the lesson. We call this a "hinge point" in the lesson because the lesson can go in different directions, depending on student responses. By explicitly integrating these hinge points into instruction, teachers can make their teaching more responsive to their students' needs in real time.

However, no matter how good the hinge-point question, the traditional model of classroom questioning presents two additional problems. The first is lack of engagement. If the classroom rule dictates that students raise their hands to answer questions, then students can disengage from the classroom by keeping their hands down. For this reason, many of our teachers have instituted the idea of "no hands up, except to ask a question." The teacher can either decide whom to call on to answer a question or use some randomizing device, such as a beaker of Popsicle sticks with the students' names written on them. This way, all students know that they need to stay engaged because the teacher could call on any one of them. One teacher we worked with reported that her students love the fairness of this approach and that her shy students are showing greater confidence as a result of being invited to participate in this way.

Other teachers have said that some students think it's unfair that they don't get a chance to show off when they know the answer. The second problem with traditional questioning is that the teacher gets to hear only one student's thinking. To gauge the understanding of the whole class, the teacher needs to get responses from all the students in real time.

One way to do this is to have all students write their answers on individual dry-erase boards, which they hold up at the teacher's request. The teacher can then scan responses for novel solutions as well as misconceptions. This technique would be particularly helpful the fraction question we cited. Another approach is to give each student a set of four cards labeled A, B, C, and D, and ask the question in multiple-choice format. If the question is well designed, the teacher can quickly judge the different levels of understanding in the class. If all students answer correctly, the teacher can move on. If no one answers correctly, the teacher might choose to reteach the concept. If some students answer correctly and some answer incorrectly, the teacher can use that knowledge to engineer a whole-class discussion on the concept or match up the students for peer teaching.

Hinge-point questions provide a window into students' thinking and, at the same time, give the teacher some ideas about how to take the students' learning forward.

Feedback that Moves Learners Forward

After the lesson, of course, comes grading. The problem with giving a student a grade and a supportive comment is that these practices don't cause further learning. Before they began thinking about assessment for learning, none of the teachers with whom we worked believed that their students spent as long considering teacher feedback as it had taken the teachers to provide that feedback. Indeed, the research shows that when students receive a grade and a comment, they ignore the comment (see Butler, 1988). The first thing they look at is the grade, and the second thing they look at is their neighbour's grade.

To be effective, feedback needs to cause thinking. Grades don't do that. Scores don't do that. And comments like "Good job" don't do that either. What *does* cause thinking is a comment that addresses what the student needs to do to improve, linked to rubrics where appropriate. Of course, it's difficult to give insightful comments when the assignment asked for 20 calculations or 20 historical dates, but even in these cases, feedback can cause thinking. For example, one approach that many of our teachers have found productive is to say to a student, "Five of these 20 answers are incorrect. Find them and fix them!"

Some of our teachers worried about the extra time needed to provide useful feedback. But once students engaged in self-assessment and peer assessment, the teachers were able to be more selective about which elements of student work they looked at, and they could focus on giving feedback that peers were unable to provide.

Feedback – What Works Best

WHY IT MATTERS

Feedback is a core component of teaching practice, intersecting with learning, assessment and reporting. It is central to the assessment and reporting requirements of NSW syllabuses and support documents (NESA 2019), and a key aspect of Standard 5 of the Australian Professional Standards for Teachers. Feedback is used to communicate a teacher's assessment of students' performances and understanding (Hattie & Timperley 2007); to stimulate students' reflections on their learning (references omitted); and to inform future learning (Black & Wiliam 2018).

Teacher feedback involves two core functions: communicating assessment information and providing advice for how a student might improve

Feedback is also an important way in which teachers can communicate their expectations to their students and engage students in their learning. Feedback classroom should focus on students' performance on specific tasks, clearly identifying for students where and why mistakes have been made and emphasising opportunities to learn and improve. This type of feedback supports all students with the development of positive feelings of self-efficacy, providing motivation for continued effort and engagement.

WHAT THE EVIDENCE SAYS

Research shows that feedback is an important classroom factor that impacts students' academic outcomes. Meta-analyses over the years have consistently highlighted the importance of feedback to student outcomes. One meta-analysis, for example, found that the average effect size of feedback was 0.79, an effect size comparable to that of students' prior cognitive ability (0.71). Hattie & Timperley (2007) state that feedback is one of the most powerful influences on student learning and achievement. Australian data from PISA 2018 shows that receiving feedback improves student performance. Students who report in reading that they receive frequent feedback from their teacher (that is, in every or almost every lesson), perform better than students who report that they do not receive regular feedback (that is, never or almost never).

Implications for schools and teachers

Using research on feedback to inform approaches and practices in schools involves:

- reflecting and communicating about the task with students
- providing students with detailed and specific feedback about what they need to do to achieve growth as a learner
- encouraging students to self-assess, reflect and monitor their work
- ensuring that students act on feedback that they receive.

Forms of feedback that appear to be particularly effective include:

- feedback about a student's process or effort: 'I can see you tried hard to improve X. The result is much better than last time because you did Y'
- feedback that encourages students' self-regulation: 'You already know the key features of the opening of an argument. Check to see whether you have incorporated them in your first paragraph'.

Forms of feedback that appear to be less effective include:

- praise about a student's innate intelligence or talents: 'You are a great student'
- extrinsic rewards for work, such as stickers.

To complement the chapter on Feedback, here is an article by Susan Brookhart. Whilst the focus of the article is feedback, Susan Brookhart makes the point that the learning target (learning intentions) and the performance of understanding (the task) and the feedback are interrelated. If anyone aspect isn't clear to the students, the feedback will "fizzle".

PREVENTING FEEDBACK FIZZLE: SUSAN M. BROOKHART

There's more to feedback than just crafting thoughtful comments. Feedback is certainly about saying or writing helpful, learning-focused comments. But that's only part of it. What happens beforehand? What happens afterward?

Feedback that's helpful and learning-focused fits into a context. Before a teacher gives feedback, students need to know the learning target so they have a purpose for using the feedback they receive. Say you're trying to teach students how to identify the main idea in expository text. If a student isn't trying to learn how to do this with the text he or she is working on, your feedback about emphasizing a certain point (such as, "Tell us more about the Articles of Confederation") will seem like something you want the student to do to comply with your wishes, instead of something the student needs to learn (such as why the Articles of Confederation are so important to the main idea of the text).

But there's another essential component to effective feedback. After receiving feedback, students need the opportunity to digest, understand, and use it.

It Starts with a Target

Before feedback occurs, students need to know what they're trying to learn. Learning targets are student-friendly descriptions—through words, pictures, actions, or some combination of these—of what you intend students to learn or accomplish in a lesson. They're connected to a performance of understanding—something the student actually does to pursue the target—as well as to accompanying criteria for good work that students use to gauge their progress toward the goal (success criteria).

Learning targets are not curriculum outcomes, which teachers use for instructional planning and which can span one or more lessons. For example, suppose a teacher's goal is, "Students will recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces" (part of Common Core Mathematics Standard). Students will work on this goal for a whole unit. There will be lessons (and objectives in teacher language) about identifying angles, faces, and other attributes of various figures; lessons about congruence; lessons about solving problems; and so on.

One day, students are learning that congruent figures have exactly the same attributes. Here's how the teacher might state the learning target: "I can draw a figure that's exactly the same size and shape as an example." The teacher shows students their learning target using correct and incorrect examples of congruent figures. Then she engages students in a performance of understanding. Using grid paper, students are to exactly reproduce two irregular polygons and receive feedback from a partner about whether their figures are the same as the examples. Then each student must create an original irregular polygon on grid paper for his or her partner to replicate. Students turn in their final work with explanations for why their figures are exactly the same as the examples provided.

Notice that the teacher told the students what the learning target was (using the I-can statement) and showed the students what the learning target was (using the correct and incorrect examples). Then the students had the opportunity to show themselves what the learning target was and how they were doing (the performance of understanding, the grid paper exercise). The criterion, in this case, was built in (Are the two figures exactly the same?).

If students do an assignment simply because you asked them to, that's compliance. Compliance is reactive, not proactive. Of course, students should do what you ask, but they won't learn much unless they understand why you're asking. When you say, "You can show how well you understand what a food chain is by drawing one and then solving some what-if problems related to it. Here's an example," students aren't just complying, but also learning about food chains and producing evidence of what they're learning.

Feedback can't work if students aren't trying to reach a learning target—or don't know what the target is, or don't care. In that instance, information is an answer to a question students aren't asking. Feedback without a learning target is just somebody telling you what to do.

When Feedback Fizzles

When the learning target and the performance of understanding don't match exactly and the criteria aren't clear, students often experience feedback as evaluation or grading rather than information for improvement, as in the following example.

A middle school mathematics teacher was teaching his pre-algebra students how to solve one-step equations with one variable. The concept he wanted them to learn was that using inverse operations will isolate a variable on one side of the equation and lead to an efficient solution. The class did several examples together, and then the teacher had the students do a problem set individually. The directions on the problem set read, "Solve. Show all steps." There was no mention of inverse operations except as implied in the term steps. In an effort to keep calculations easy, many of the problems could be solved with mental arithmetic.

One of the problems read $m + 8 = 15$. Quickly calculating this in her head, one student wrote $m = 7$. The teacher marked the problem wrong. The student's first reaction to this feedback was, "That's not wrong!"

The fact is, they were looking for different things. The teacher was looking for evidence of the use of inverse operations; he wanted the student to understand how subtracting 8 from both sides of the equation would solve the problem—and he wanted the student to show this work. The student was looking for an efficient solution to the problem, which she achieved. The teacher's feedback wasn't descriptive; it was an evaluation.

It's not that the teacher's objective was wrong. My point is that the teacher didn't communicate the objective as a learning target the student should aim for, and the result was ineffective feedback. The student got angry instead of looking to learn more.

It Finishes with Use

Feedback can't be left hanging; it can't work if students don't have an immediate opportunity to use it. In my experience, teachers are better at giving immediate feedback than at setting up opportunities for students to use it.

One exception to this is teachers who use the writing process. These teachers already know the "immediate opportunity to use" principle. Students regularly incorporate first-draft feedback into revisions for their final copies.

This approach works in a wide variety of situations, however, not just in writing class. Whether students are writing reports or doing projects, the teacher should give them feedback on drafts and partial products so they can incorporate the feedback into their final products, revise them, and then reflect on how the changes improved their work.

When Feedback Fizzles

When students get feedback on a performance that's not followed by an opportunity to demonstrate the same knowledge or skills, feedback will fail. Feedback "so they know better next time" is a waste of energy. This isn't the students' fault, and it doesn't mean they didn't take your feedback seriously. It's just a characteristic of how people learn.

For example, a middle school reading and language arts teacher wanted her students to learn how to summarize nonfiction text (her instructional objective). She told her students that "summarizing nonfiction text" was their learning target, and she gave them a worksheet that divided a chapter in their social studies text into five sections (for example, "Summary of pages 321–324," "Summary of pages 325–337," and so on), with blank spaces under each for students to write their summary. She reminded the students that a summary restates the big ideas of the text, eliminating details. She told them they would know they had succeeded when they could write their own summaries of chapter sections, using those criteria (big ideas, no details), and get a minimum grade of 75 percent.

This example is a double fizzle: To begin with, the teacher never provided a clear, shared learning target and criteria. Then, to compound things, the feedback came as a grade at the end of the learning episode. Because summarizing textbook information is a basic skill, the teacher reasoned, the students would use the feedback they received in some as-yet-unspecified future textbook reading.

First, consider the learning target. "Summarizing nonfiction text" isn't a daily learning target; it's a major skill that develops over the course of a student's education. Moreover, the students were given no examples or models, just told that a summary contains the big ideas from a text. The learning target should probably have been something like this, expressed from the student's point of view: "I can summarize information on ecosystems from my textbook, and I'll know I can do it when I can put all the important ideas in one section of the textbook in a single paragraph."

Second, consider the performance of understanding, what the students were actually supposed to do to move toward their target and show evidence of having learned it. It was just a list of five page ranges, the supposition being that when students read text, they'll be able to capture main ideas.

Third, consider the criteria. Using big ideas and eliminating detail are descriptions of quality summaries of the sort the teacher envisioned, but "getting a minimum of 75 percent" is an evaluative criterion that is of no help to students as they're writing their summaries.

Finally, consider the summative or end-of-story nature of the feedback. This is what breaks my heart about this example. What the teacher actually wrote on her students' scored worksheets was very thoughtful, descriptive feedback, with suggestions for next steps. For example, on one set of summaries that she awarded a grade of 3 out of 4 she wrote, "I can see you made an effort to keep your summary brief, and that was a goal of this lesson. If you had told us how the Everglades was formed and then almost destroyed, this would have given you a 4." Just looking at this feedback, without knowing the rest of the story, you might judge it effective.

But there was no next step. The assignment was done, the students were finished, and the feedback was moot. If the teacher had given the same feedback as an intermediate step, before the final set of summaries was due, the student could have used it to revise the work before turning it in for grading. An alternative, and probably a better use of time, would have been for the teacher to ask students to write a summary of one of the five sections she listed and turn it in for feedback. Students could then have used her feedback to revise that one summary and, with this knowledge under their belts, write the additional four summaries.

When Feedback Sparkles

Teachers set up feedback to be effective when the learning target and the performance of understanding match, when students have a clear idea of the criteria for their performance and get immediate feedback on that performance, and when they have an opportunity to perform this skill or activity again. Here's an example.

A 9th grade physical science teacher wanted her students to learn how varying conditions affect projectile motion. This was her objective. Her learning target for students was that they would be able to predict how projectiles would move. For a performance of understanding, she asked students to predict the effects of four projectile characteristics (the object's angle of launch, initial speed, mass, and diameter, both with and without air resistance) on three characteristics of the projectile's motion (how far it goes, how high it goes, and how long before it hits the ground—or, range, height, and time, respectively). In groups, students wrote a statement about how they predicted each of the four characteristics would affect the three aspects of motion and explained their reasoning.

The next learning target was that students would be able to assess the accuracy of their predictions and reasoning. The performance of understanding was a lab. Students used a web-based simulation in which they changed one input variable at a time and created a table to record their results. Then they compared the predicted and observed results for each input variable and wrote down whether the simulation results supported their initial reasoning or not. The criteria were accuracy of comparison and soundness of scientific reasoning.

Students used their prediction sheets and data tables to write lab reports, and they submitted rough drafts to the teacher. She gave feedback on the substance of the reports—that is, on students' observations and reasoning about how changing the characteristics of objects affected their projectile motion. Her feedback was not about lab report format or "correctness" of conclusions, but about the observations and reasoning. The feedback was not "giving away answers" but rather pushing students to learn more. For example, on one student's report she noted, "A larger diameter should have a shorter range, distance, and hang time than a smaller diameter when air resistance is present. How can you show this?" Students then had an opportunity to revise their lab reports before handing them in for a final grade.

Avoid the Fizzle

To avoid feedback fizzle, take the following steps.

First, share the learning target and success criteria for each lesson with your students. Make sure your performance of understanding—what the students actually do during the lesson—is a spot-on match with your learning target. This accomplishes several good things. By sharing the learning target in the assignment itself—and not just in words—students can envision what they're supposed to learn by looking at what they're asked to do. As students do their work,

they make progress toward the target. This work produces evidence on which teachers can base effective feedback, which students can use, in turn, to self-regulate their learning.

Second, whether your feedback is oral or written, choose your words carefully. Describe the work's strengths and give at least one suggestion for a next step that is directly in line with the learning target. Use words that suggest the student is an active learner and will make decisions about how to go forward, not words that suggest a student should use the feedback by complying with a request. For example, you might say, "What were you thinking as a writer when you described the tree?" and not, "Why did you write about the tree?"

Third, follow episodes of feedback with immediate opportunities for students to use their feedback, before you give them a grade. For writing and complex projects, students may use feedback for revisions and redos. However, for solving a mathematics problem, applying punctuation rules, balancing chemical equations, and other application-level tasks, revisions and re-dos are not appropriate because students have already seen the answers. They need to use feedback to tackle other similar problems. They don't necessarily have to do another whole page of work; sometimes another problem or two is enough to show themselves and you that they've been able to use the feedback and are ready to move on.

Put these feedback tips in place—and watch your students sparkle!

Good Feedback Is ...

Timely. It arrives while the student is still thinking about the work and while there's still time for improvement.

Descriptive of the work, not the student personally. It focuses on one or more strengths of the work and provides at least one suggestion for a next step. Don't assume that your students know what they did well and that they only need corrections or fixes.

Positive. It shows how learning is a journey forward, and it's honest about both strengths to build on and weaknesses to improve. Its tone conveys to the student that the teacher thinks of him or her as an active learner.

Clear and specific. It's specific enough so the student knows what to do next, but it leaves the student with some thinking to do.

Differentiated. It meets the needs of each student with respect to the current work. For some students, a reminder is all that's needed for a next step; others may need prompts or examples.