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The Secret of Effective Feedback

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Feedback is only successful if students use it to improve their performance.

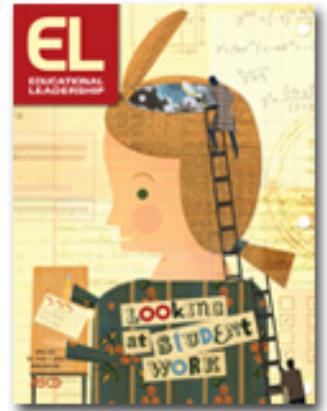
It's a universal process in education—so universal that we regularly fail to appreciate its complexity. Here's how it goes: (1) A teacher looks at a piece of student work; (2) The teacher writes something on the work (sometimes a grade, sometimes a score, sometimes a comment); and (3) Later, the student looks at what the teacher has written.

Of course, the idea is that what the teacher has written on the student's work improves the student's learning. But as many studies have shown, students often learn *less* when teachers provide feedback than they do when the teacher writes nothing (Kluger & DeNisi, 1996). The apparently simple process of looking at student work and then giving useful feedback turns out to be much more difficult than most people imagine. We could make the whole process considerably more effective by understanding one central idea: The only important thing about feedback is what students do with it.

Keeping Purpose in Mind

In psychology and education, it is common to define *feedback* as any actions taken by an external agent to provide individuals with information regarding some aspect of their performance. At its simplest, therefore, feedback might identify the quality of the work, as happens when a typing teacher tells a student that his typing speed is 45 words per minute. More helpfully, the feedback might indicate the gap between the current performance and the desired performance—for example, by also telling the student that his target speed is 50 words per minute. More helpfully still, the teacher might tell the student that his typing speed will increase if he uses only his thumb to depress the space bar. In other words, the best feedback provides information not just about current performance, but also about how to improve future performance.

In the typing example above, and in most sports coaching, this point is obvious. When a coach gives a softball pitcher feedback on her pitching action, it's clear that the purpose of the feedback is to help

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the player improve her pitches. This is also true in many school subjects. For example, a visual arts teacher might give a student advice on how to develop a piece of sculpture or a painting, and a language arts teacher might give feedback on the draft of a story so the next draft is better.

In general, however (and this is what makes feedback so challenging), the main purpose of feedback is to improve the student's ability to perform tasks he or she has not yet attempted. If the language arts teacher advises the student that his story would be improved by swapping around the third and fourth paragraphs, the student can do this, but he will learn little. The intellectual heavy lifting has been done by the teacher, not the student. Similarly, if a math teacher corrects a student's arithmetic errors, there's nothing left for the student to do but note how many of her calculations were incorrect. It's easy to see why such forms of feedback are unlikely to be effective. And if we don't keep the purpose of feedback in mind, the same problems may also crop up in more subtle ways.

For example, many school districts allow students to revise assessed pieces of work and resubmit them for a higher grade after receiving feedback from teachers. Such a system can create incentives for students to turn in poor-quality work, wait for the teacher to tell them how to improve it, and then just follow the instructions. The feedback *has* improved the work, but the student has probably not learned much from the process.

The real issue is purpose. Why are we looking at student work in the first place? Sometimes we *do* want to focus on improving the existing work. For instance, when I'm reading a final thesis draft from one of my PhD students before it goes to the bookbinder, it would be rather perverse for me to just tell the student that I saw a typographical error in one of the equations on page 36. It's possible that the student would learn something by checking the equations on page 36 and locating the error herself, but given this particular context, it would be far more sensible for me to tell the student what the error was.

Most of the time, however, the student work we're looking at is not important in and of itself, but rather for what it can tell us about students—what they can do now, what they might be able to do in the future, or what they need to do next. Looking at student work is essentially an *assessment* process. We give our students tasks, and from their responses we draw conclusions about the students and their learning needs.

When we realize that most of the time the focus of feedback should be on changing the student rather than changing the work, we can give much more purposeful feedback. If our feedback doesn't change the student in some way, it has probably been a waste of time.

Giving Feedback They Can Use

There's an old joke about a driver lost in a remote region, trying to find a way to get to the city. Eventually, he asks a local about how to get there. The local replies, "Well, if I were you, I wouldn't start from here." It's a joke because we can see that this is not a particularly helpful thing to say. The driver has no other choice but to start from where he is.

Yet, we do this to our students all the time. We say things like, "You should be able to do this. You're in 5th grade"—which, when you think about it, is not helpful. The crucial insight here was captured by David Ausubel (1968) many years ago:

The most important single factor influencing learning is what the learner already knows. Ascertain this and teach ... accordingly. (p. vi)

In other words, we need to start from where the learner is, not where we would like the learner to be. We need to use the information we obtain from looking at the student's work—even through that information may be less than perfect—and give feedback that will move the student's learning forward. Here are a few suggestions about how teachers might do this.

Assign Tasks That Illuminate Students' Thinking

Sometimes, we just want to know whether students can do something. In such situations, it's perfectly appropriate to give them a task that simply tells us whether they can do it or not. However, most of the time, we want to know more than that. We want to know how we can help them get better, and this requires that we carefully design tasks to illuminate each student's thinking.

In language arts and social studies, most tasks are so open that we almost always learn something about a student's thinking by looking at his or her work. For example, even that traditional essay so hated by students returning from vacation, "What I did on my holidays," will provide insights into a student's writing capabilities. In social studies, in responding to a question such as "Why did the Union army want to capture Atlanta?" students are likely to reveal the extent of their understanding of Atlanta as a transportation and logistics hub. However, in math and science, looking at students' work often tells us only that they didn't do it very well and they need to do it again, but better. Designing tasks that, in Ritchhart and Perkins's (2008) phrase, "make thinking visible" takes time, but front-loading the work in this way makes it much more likely that we'll provide useful feedback.

For example, the question below probes students' understanding of the arithmetic mean of a set of numbers. However, rather than asking students to calculate the mean of a set of numbers, as most standardized tests do, the question explores whether the students really understand the *concept* of the mean:

What can you say about the means of the following two sets of numbers:

Set A: {2, 5, 12, 7, 0}

Set B: {2, 5, 12, 7}

- (a) The two sets have the same mean.
- (b) The two sets have different means.
- (c) It depends whether you choose to count the zero.

Many students choose option (c), which is, of course, incorrect. It takes authentic understanding of the definition of the mean to realize that there is no discretion about whether to count the zero. The only correct response is option (b).

Similarly, in science, the following question helps teachers figure out whether students understand the important distinction between climate change in general and the specific issues related to the depletion of the ozone layer through the use of chlorofluorocarbons.

What can we do to preserve the ozone layer?

1. Reduce the amount of carbon dioxide produced by cars and factories.
2. Reduce the greenhouse effect.
3. Stop cutting down the rainforests.
4. Limit the numbers of cars on the road when the level of ozone is high.

5. Properly dispose of air conditioners and fridges.

What's particularly interesting about this question is that option (e) may look like a fifth option included just to increase the number of choices, but in fact it's the only correct response.

To be sure, no matter how carefully or deeply you probe, you can never make thinking wholly visible. Sometimes you're going to get it wrong. But at least by trying to get a handle on the student's thinking, you're giving yourself the chance to get it right more often than not. Major league hitters are happy getting things right three times out of ten. Don't beat yourself up.

Make Feedback into Detective Work

One way of making sure that students actively use feedback is to make responding to the feedback a task in itself. In other words, make feedback into detective work.

In a previous article in *Educational Leadership* (William, 2012), I mentioned Charlotte Kerrigan, a language arts teacher who sometimes responds to her students' essays by writing her comments on strips of paper. She then gives each group of four students their four essays, along with the four strips of paper. The group's task is to figure out which comments apply to which essays.

Or consider a math teacher who provides feedback on 20 solved equations. Rather than telling the student which equations are incorrect, the teacher can instead say, "Five of these are incorrect. Find them and fix them."

The same basic principle can be applied to any school subject. For example, in social studies, if a student has included the Emancipation Proclamation as one of the causes of the U.S. Civil War, instead of telling the student that the Proclamation was issued in the second year of the war, the teacher could point out that one of the causes he has mentioned can't be a cause because it occurred after the start of the war, and ask the student to sort this out.

Such practices ensure that students, the recipients of feedback, do as much work as the teacher who provides the feedback. Making feedback into detective work encourages students to look at the feedback more closely and to think about their original work more analytically.

Build Students' Capacity for Self-Assessment

The amount of feedback we can give our students is limited. In the longer term, the most productive strategy is to develop our students' ability to give themselves feedback. With adults, we do this intuitively. Whenever I observe a lesson by a student teacher, the first question the teacher asks me is, "How did I do?" My response—and the response of most administrators I know—is, "How do *you* think you did?" If the teacher knows what he or she did well and what still requires work, then my feedback is irrelevant. More important, teachers who can critique their own performance can improve when nobody is observing them.

In my work with music teachers, I've seen the importance of self-feedback. Instrumental music teachers commonly get only 20 to 30 minutes each week with a student. But these teachers realize that most of the progress a student makes in playing a musical instrument happens when the student practices at home. A student could improve his or her performance very little in 30 minutes a week. Therefore, many instrumental music teachers spend most of their instructional session ensuring that students have the skills to practice productively—which requires that students can evaluate how well they've performed and make adjustments accordingly. Contrast this approach with most content-area teaching in schools, where teachers seem to believe that students make most of their progress when

the teacher is present, with homework as a kind of optional add-on.

It's important, therefore, to develop students' capacity for self-assessment. At the same time, we need to remember that it can be emotionally challenging to assess one's own work. Therefore, I recommend starting with samples of anonymous student work, and asking students to describe what feedback they would give the creator of the work. After that, students can move on to the work of actual peers, and finally, to self-assessment.

To start with, a simple approach, sometimes called "plus, minus, interesting," is all that is needed. At the end of a task, ask students to identify something they found easy about the task, something they found challenging or difficult, and something they found interesting. Such reflection develops language skills and helps the students become clear about what areas they need to work on.

With any task that has a qualitative element rather than just being correct or incorrect, students can be asked to identify what they would do differently if they did the task again. In science, for instance, students might be prompted to think about what they would change to improve a science experiment they conducted. In mathematics, students might be asked how they might report the result of a mathematical investigation differently. Sometimes it's appropriate to ask students to make the changes they have identified, such as redrafting a literary essay in language arts. Sometimes, however, it's useful to tell students in advance that they won't have to make the improvements they've identified, so they don't have an incentive to say that the work is fine as it is.

The purpose of this exercise is to develop the student's own critical eye. Once a student has that, feedback from others becomes less and less necessary.

A Trusting Relationship for Feedback

In the end, it all comes down to the relationship between the teacher and the student. To give effective feedback, the teacher needs to know the student—to understand what feedback the student needs right now. And to receive feedback in a meaningful way, the student needs to trust the teacher—to believe that the teacher knows what he or she is talking about and has the student's best interests at heart. Without this trust, the student is unlikely to invest the time and effort needed to absorb and use the feedback.

The only thing that matters is what the student does with the feedback. If the feedback you're giving your students is producing more of what you want, it's probably good feedback. But if your feedback is getting you less of what you want, it probably needs to change.

Finally, talk to your students. Ask them, "How are you using the feedback I'm giving to help you learn better?" If they can give you a good answer to that question, then your feedback is probably effective. And if they can't, ask them what they *would* find useful. After all, they're the clients.

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