



3. Providing feedback that moves learning forward

The research on feedback shows that much of the feedback that students receive has, at best, no impact on learning and can actually be counterproductive. Kluger and DeNisi (1996) reviewed more than three thousand research reports on the effects of feedback in schools, colleges, and workplaces and found that only 131 studies were scientifically rigorous. In 50 of these studies, feedback actually made people's performance worse than it would have been without feedback. The principal feature of these studies was that feedback was, in the psychological jargon, "ego-involving." In other words, the feedback focused attention on the person rather than on the quality of the work—for example, by giving scores, grades, or other forms of report that encouraged comparison with others. The studies where feedback was most effective were those in which the feedback told participants not just what to do to improve but also how to go about it.

Given the emphasis on grading in U.S. schools, teachers may be tempted to offer comments alongside scores or grades. However, a number of studies (e.g., Butler 1987, 1988) have shown that when comments are accompanied by grades or scores, students focus first on their own grade or score and then on those of their neighbors, so that grades with comments are no more effective than grades alone, and much less effective than comments alone. The crucial requirement of feedback is that it should force the student to engage cognitively in the work.

Such feedback could be given orally, as in this example from Saphier (2005, p. 92):

Teacher: What part don't you understand?

Student: I just don't get it.

Teacher: Well, the first part is just like the last problem you did. Then we add one more variable. See if you can find out what it is, and I'll come back in a few minutes.

Written feedback can support students in finding errors for themselves:

- There are 5 answers here that are incorrect. Find them and fix them.

- The answer to this question is ... Can you find a way to work it out?

It can also identify where students might use and extend their existing knowledge:

- You've used substitution to solve all these simultaneous equations. Can you use elimination?

Other approaches (Hodgen and Wiliam 2006) include encouraging pupils to reflect:

- You used two different methods to solve these problems. What are the advantages and disadvantages of each?
- You have understood ... well. Can you make up your own more difficult problems?

Another suggestion is to have students discuss their ideas with others:

- You seem to be confusing sine and cosine. Talk to Katie about how to work out the difference.
- Compare your work with Ali and write some advice to another student tackling this topic for the first time.

The important point in all this is that as well as "putting the ball back in the students' court," the teacher also needs to set aside time for students to read, respond to, and act on feedback.