

How (digital) formative assessment can serve teachers, students and parents in the context of Covid 19.

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Over the last fifty years, research in education and psychology has made great progress in helping us understand the best ways to teach our students when they are in front of us—what is sometimes called “face-to-face” teaching. We have also learned quite a lot about the best approaches to distance learning, supporting printed materials with audio and video presentations.

However, the closure of schools around the world caused by the novel coronavirus pandemic presents us with completely new challenges. The widespread (though not of course universal) availability of technology provides us with important tools for what Paul Kirschner calls “emergency remote teaching” but most of these tools are so new that we have little evidence about the best ways to use them. What we can do, however, is use what we know about how humans learn in general, and try to use these general ideas as best we can using digital technology.

Perhaps the most important thing to keep in mind is that **good teaching starts from where our students are, rather than where we would like them to be**. It sounds obvious, but it is in fact, in practice, extremely difficult, because the processes by which our experiences are translated into long-term increases in capability are rather mysterious.

After all, if students learned what we taught them, there would be no need to assess. We could just record all the things we had taught our students, secure in the knowledge that all students had learned what we had taught. However, every teacher knows that this is not true. Every teacher has had the experience of teaching something to a group of students, which the students seem to have understood.

They can reproduce the key ideas at the end of the lesson, and maybe even in the next lesson. However, two weeks later, the students seem to have forgotten it all. Psychologists describe these as issues of learning and performance. **Learning is the change in long-term capability that we are seeking to produce in our students, and performance is how well our students complete a learning task that we give them.** Many teachers assume that if students satisfactorily complete a task that is designed to teach them something, then the students will in fact learn whatever it is that the task was intended to teach. But often this is not the case. Students can complete a task well, and yet remember little or nothing of what the task was about two weeks later. Conversely, students might have a great deal of difficulty in completing the task, and yet remember the material well weeks later.

This is why assessment is at the heart of effective teaching; **assessment is the bridge between teaching and learning. It is only by assessing our students that we can find out whether what we have taught has been learned.** Some people prefer not to use the word “assessment” in this context, because it connotes formal processes such as tests and examinations. They prefer to talk about “frequent checks for understanding”. However, by thinking of “checking for understanding” explicitly as an assessment process, this highlights the quality of the evidence that teachers have for the decisions they need to take about what to do next. Specifically, we need to think about the depth of



the evidence—do our questions really reveal what students are thinking—and the breadth—are we getting evidence from all our students, rather than just those who are confident and happy to share their thinking with us.

When teachers are teaching online, or in hybrid settings, the use of assessment to improve teaching and learning—what is generally called ‘formative assessment’—is particularly important for a number of reasons. First, the cues that we rely on as teachers, such as the expressions on our students’ faces are missing or harder to see in online settings. Second, when we are teaching online, the experiences of our students are much more variable. It is much easier to see whether students are paying attention when they are in the classroom with us than when they are small images on a computer screen. Third, the normal interactions that we have with our students in face to face settings are much more stilted in online teaching, because of the inevitable time-delays.

Emergency remote teaching will never be as effective as face-to-face teaching, but the research that we have on what makes formative assessment effective in face-to-face settings can be applied in online settings reasonably well.

First, **we should make sure that we design our questions well** so that it is highly unlikely that the students answer correctly if they have an important



misconception. For example, we know that many young children think that all living things move, so if we ask them whether a rock or a cat is living, students with this misconception will give us the correct answer, even though they do not really know what a living thing is. If, instead, we asked whether a tree, or a bus, is living, then students with the misconception would give incorrect responses. It is essential that students with the correct thinking and students with incorrect thinking give us different answers!

Second, **we should systematically get evidence from all the students we are teaching** on a regular basis—I would suggest at least once every 20 minutes in regular face-to-face teaching and perhaps even more frequently when teaching online. Depending what software you are using, you could ask students to respond via the Chat function. For questions in multiple choice format,

you could use a Poll, or even ask students to use finger voting—holding up one finger for A, two for B and so on. As well as providing the teacher with information about the level of student understanding, asking such questions at the beginning of a session, for example to review what was taught at a previous session, makes future learning “stickier”.

Third, **encourage students, when offline, to test themselves**, using what I call “zero-stakes” tests. The idea here is that the students are given tests on which they can test themselves, after which they are given the correct answers, they score their own work, and they do not even have to tell the teacher how they did unless they want to. **Self-testing has been shown to be one of the most cost-effective ways to ensure that students remember what they have been taught.** If students know that they do not have to tell someone else how they did, then the negative associations around testing are lessened.

Fourth, **parents can help their children consolidate their learning by asking their children to design some test questions**, with correct answers, on what they have been learning. Designing

questions has been shown to substantially improve learning, and by looking at the questions that children write, it is possible to check on whether what the children think they have been learning is what they should have been learning! This task can be made more interesting, and

challenging, by asking children to make some of their questions harder than the others, and some easier, forcing the learner to think about what makes a question easy or hard, which is likely to improve long-term learning.

Teaching online will never be as good as face-to-face teaching, but by applying what we know about human learning in general, **we can make online and hybrid teaching a reasonable, if imperfect, stopgap** until we are able to get all our students back into our classrooms.