Worked Examples and Backward Fading

From Teaching Walkthrus by Tom Sherrington & Oliver Caviglioli

WORKED EXAMPLES & BACKWARD FADING

One of the ideas that comes from Cognitive Load Theory is that novices learn more successfully from studying a series of complete worked examples of problems or tasks than they do if asked to problem-solve independently. This is because the cognitive load is reduced if we learn the overall method separately from trying to apply it to a particular question. Once we know the method, it is easier to apply it successfully. Teachers should make sure they're providing enough worked examples. The backward fading technique provides a good model for moving from guided to independent practice through worked examples.

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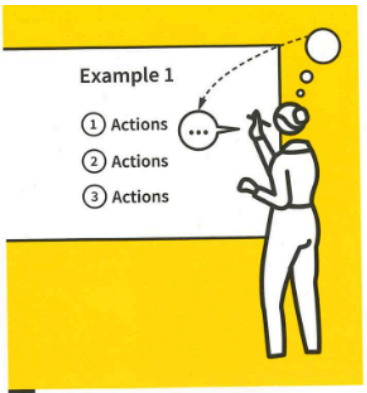
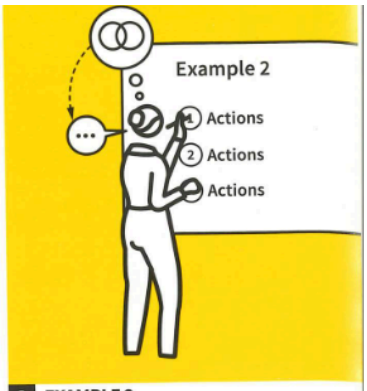


1 EXAMPLE 1

FULLY WORKED TO INTRODUCE THE METHOD OR IDEAS

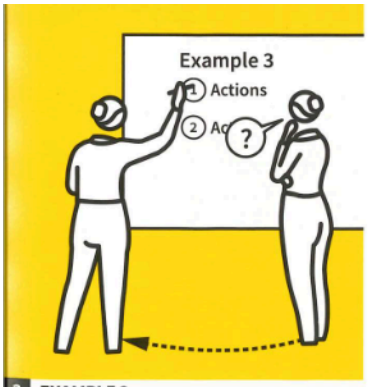
Introduce the first example of a question that you are aiming for students to answer. With their attention secured, go through the problem on the board, producing a model answer, talking through what you are doing as you write. It is often better to model it live than to produce a pre-prepared example. With the answer in view, talk through each of your steps again and check for student understanding of each one. *"What did I do here?". "Why did I choose to write that phrase?"*



2 EXAMPLE 2

FULLY WORKED FOR REINFORCEMENT

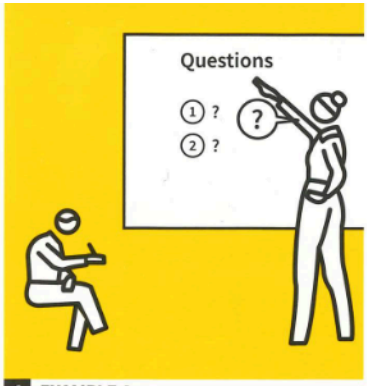
Repeat the process with another example, taking care to draw out the ways in which it is similar to the first example and the ways it is different. The similarities should serve to reinforce the general idea or method you are teaching. The differences should illustrate how the method works with different cases (numbers, words, phrases, examples). Again, be sure to narrate your thinking and then to check for understanding. *"How is this example the same/different to the previous example?"*



3 EXAMPLE 3

PARTIALLY WORKED FOR STUDENTS TO FINISH OFF

This time, introduce a question and begin to answer it, perhaps doing the first couple of lines of a maths problem or providing some of the ideas in a written response, following the pattern or procedure you introduced in the first two examples. Give students time to complete the question and then check for answers, errors and any variations or misunderstanding.



4 EXAMPLE 4

CUED START FOR STUDENT COMPLETION

Students should now be ready for a practice phase. Initially, set one or more questions, of the same type as the examples, giving information so that they are cued i.e. where you have started them off or signalled the way to begin.

5 EXAMPLE 5

COMPLETED INDEPENDENTLY

When ready, set one or more questions of the same type that you have modelled where students have to undertake the whole thinking process independently. Stress the need to follow the details of the modelled examples. Follow-up with self-assessment, checking for accuracy including process questions to verify that the methods are understood as well as being copied. You may need to include a range of questions of varying difficulty in order for independent completion to be successful and challenging for all learners.