Loughborough University MATHEMATICS EDUCATION NETWORK



TEACHING DILEMMAS 1 If they probably won't know, should I ask anyway?

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You're introducing a new concept, which you think it's unlikely your learners will already know much or anything about. Do you just tell them what you want them to learn, or do you first ask them what they know? This *Teaching Dilemma* looks at the pros and cons of 'asking anyway', and tries to offer some principles to help you decide in any particular case.

1. If the learners probably *do* know, then *it's generally better to ask than to tell*.

Asking rather than telling gives learners opportunities for retrieval practice¹ and for developing their communication and explanation skills. It can be empowering for learners to discover that if they try hard to think or remember something then they can. Asking also offers a formative assessment opportunity, whereas if you just tell them then you have no idea if they might have known it already.

2. If the learners probably won't know, then there are reasons both for and against asking.

In favour of asking anyway:

- Having the same approach regardless of your preconceptions about what learners might know is simpler to implement and avoids risking communicating deficit beliefs in learners (i.e., "I'm going to tell you this" = "I don't expect you to know").
- 2. The *pretesting effect* is that asking learners questions about content before you teach it tends to improve their subsequent learning, even if they get all the initial questions wrong. Asking these questions seems to prime the learners for what's to come and help them learn it better, especially if correct answers are provided reasonably soon after learners' answers. However, this has mainly been observed with undergraduate learners, rather than in school classrooms.
- It takes minimal time, because all that's needed is the opportunity for learners to think – the responses don't necessarily have to be collected in or assessed, even formatively.



Against asking anyway:

- 1. Beginning every new topic with most learners saying or feeling 'Dunno' may contribute to them feeling ignorant and negative about learning and self. It may also set up a pattern of classroom discourse in which learners saying they don't know becomes normative.
- 2 Asking learners about things they haven't yet been taught may reward learners who have advantages (e.g., a private tutor or more support at home), and so could be unfair, leading to 'Matthew effects' (those already with advantages get more advantaged).
- 3. If learners think that they know but are wrong, the articulating of the wrong answer risks reinforcing the error ('get it wrong learn it wrong'). The teacher might go on to emphasise that something offered was a common error or misconception, but do the learners remember that or just remember it wrong?



3. Arbitrary knowledge is better to tell, if unlikely to be known, and necessary knowledge is better to ask for, even if unlikely to be known.

It may be less useful to ask learners for *arbitrary* knowledge² that you think they won't have: facts, definitions or conventions that could be otherwise, and that they will either know or they won't. It may be more useful to ask learners for *necessary* knowledge, where it is something that they can work out from what they *do* know by thinking hard and reasoning it through.

Summary

Generally, it's better to ask first, even when you think learners probably won't know, unless the knowledge is arbitrary, or you judge that *not* knowing will be too damaging to learners' self-esteem.

¹Agarwal, P. K., Nunes, L. D., & Blunt, J. R. (2021). Retrieval practice consistently benefits student learning: A systematic review of applied research in schools and classrooms. *Educational Psychology Review, 33*(4), 1409-1453.

²Hewitt, D. (1999). Arbitrary and necessary part 1: A way of viewing the mathematics curriculum. *For the Learning of Mathematics*, *19*(3), 2-9.