- For primary, secondary and post-16 teachers · a five-minute questioning habit

ELABORATIVE INTERROGATION · ASKING "WHY"

Does asking learners "why" actually help them learn?

A large research synthesis, mostly from North American schools and universities, translated for UK classrooms.

Asking learners to explain why a fact is true carries a real, moderate boost to learning (d = 0.56 across 254 comparisons and 2,138 learners), but the boost depends on how it's done: it's bigger when the explanation is precise, self-generated and builds on more prior knowledge, and it helps surface recall more reliably than deep understanding.

●●○ **Evidence: Promising**

An updated meta-analysis reporting effects for weakest moderator combinations, deep understanding, and primary learners would establish the evidence floor.

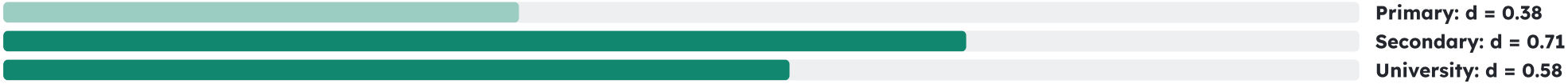
Donoghue & Hattie (2021). 'A Meta-Analysis of Ten Learning Techniques.' Frontiers in Education, 6, 581216. doi.org/10.3389/feduc.2021.581216

WHAT HAPPENED

Asking learners to explain "why" carries a real, moderate boost

Elaborative interrogation, prompting learners to explain why a stated fact or idea is true, was first identified as one of ten popular learning techniques by Dunlosky et al. (2013). A later synthesis by Donoghue and Hattie (2021) quantified it directly: across 254 separate comparisons and 2,138 learners, the technique produced a moderate positive effect on learning (d = 0.56), landing inside the researchers' own "Moderate" band (0.54 to 0.69). The purpose of the "why" question is to help learners connect new information to what they already know.

Effect size (d) for elaborative interrogation, by school phase



Bar length shows the size of the effect (Cohen's d), not a percentage. Based on 28 primary, 84 secondary and 110 university-level comparisons (Donoghue & Hattie, 2021, Table 3). Primary-level evidence for this technique specifically is thinner than secondary or university.

What raises the effect

1

Self-generated, not handed to them

Effects were higher when learners produced their own "why" explanation rather than being given one.

2

Precise, not vague

A specific, accurate reason worked better than a fuzzy or general one.

3

More starting knowledge helps

The technique works by linking new facts to existing knowledge, so it did more when learners already knew more.

Donoghue & Hattie (2021). 'A Meta-Analysis of Ten Learning Techniques.' Frontiers in Education, 6, 581216. doi.org/10.3389/feduc.2021.581216

MAKE IT YOURS

Across your subjects and classes

This comes from a wide research synthesis of comparisons across ages and countries, not a UK classroom trial of this specific technique. What follows are sensible ways to build "why" questions into different subjects: worth trying, not separately proven for your context.

Subject	How the finding could translate
Maths	After a worked example, ask "why does that step work", not just "what's the next step", before moving to independent practice.
Science	Ask learners to explain why a result makes sense given the theory, not just to report what the result was.
English / History	After a key plot turn or historical event, build "why did that happen" into comprehension checks, not just "what happened".
MFL	Ask why a grammar rule applies in this particular sentence, not just to recite the rule.
Revision	Turn flashcard review into "why is this the answer", not just "what is the answer".

Adapt it to the class in front of you

Learners with strong prior knowledge

Lean harder on this technique here: the evidence shows bigger effects when there's more existing knowledge to connect to.

Learners with weaker prior knowledge

Build the missing knowledge first, or scaffold a partial explanation, before asking for an independent "why".

Learners who default to guessing

Insist on a specific, precise reason rather than accepting a vague one: precision is part of what makes this work.

Confident, verbal classes

Push for learner-generated explanations rather than supplying a starter reason for them to repeat.

Donoghue & Hattie (2021). 'A Meta-Analysis of Ten Learning Techniques.' Frontiers in Education, 6, 581216. doi.org/10.3389/feduc.2021.581216

HOW SOLID IS THIS?

A large, consistent synthesis, with real conditions attached

Developing

This rates the evidence's firmness, not our endorsement. It's a large, consistent synthesis (d = 0.56, just inside the researchers' own "Moderate" band of 0.54 to 0.69), but the effect depends heavily on implementation details this evidence can't fully quantify.

- The effect is heavily moderator-dependent (self-generated vs. given, precise vs. vague, more vs. less prior knowledge), and the source doesn't report the effect size for the weakest combination of these, so we don't know how small it becomes when done poorly.
- The great majority of the underlying studies measured surface, factual learning tested soon after the technique was used. In the authors' own words, the technique "is more applicable to surface than to deep understanding."
- No new data has been added to this evidence base since 2014, and primary-level evidence for this technique specifically is much thinner (28 comparisons) than secondary (84) or university (110).

What that means for you: treat "ask why, and insist on a precise, learner-generated answer" as a well-evidenced questioning habit worth using routinely for surface recall and understanding, not a guaranteed route to deep understanding on its own.

Donoghue & Hattie (2021). 'A Meta-Analysis of Ten Learning Techniques.' Frontiers in Education, 6, 581216. doi.org/10.3389/feduc.2021.581216

TRY IT THIS WEEK

Your first small step

THIS WEEK

Next time you check understanding with a factual question, follow it with "why is that true", and don't accept a vague answer: push for a specific, learner-generated reason.

Try it and watch: notice whether learners' explanations get more specific over a few weeks, and whether they can recall the fact later without the "why" prompt. That's your own evidence, not ours. The research behind this is a synthesis of many comparisons worldwide, not a UK classroom trial of this specific technique, and it says more about straightforward recall than about deep understanding.

Go deeper
Our Thinking Framework tools · structural-learning.com/thinking-framework

Open a free account
app.structural-learning.com/register

Structural Learning · evidence without the hype.

Donoghue & Hattie (2021). 'A Meta-Analysis of Ten Learning Techniques.' Frontiers in Education, 6, 581216. doi.org/10.3389/feduc.2021.581216