

- For primary teachers, Years 2 to 4

COGNITIVE SCIENCE: WORKING MEMORY

Spot the Overload

A screening checklist built in England, put through an independent two-year test in Canadian classrooms.

Which of your learners quietly falls behind, not through defiance, but because a task has outrun what they can hold in mind?

A two-year study of 524 six- to nine-year-olds found that five everyday classroom behaviours, not the original twenty-item checklist, reliably flagged working memory struggles still linked to weaker reading and maths eighteen months later.

● ● ● Evidence: Promising

Independent UK-representative validation of the reduced five-item checklist, including evidence that acting on it improves learners' outcomes.



WHAT HAPPENED

A 20-item checklist shrank to the five that mattered

Teachers in Southern Ontario rated 524 six- to nine-year-olds on the Working Memory Rating Scale, a 20-item checklist first built and validated in England. Tested independently, on its own, for the first time, the original 20-item structure did not hold up. A shorter list of five behaviours did, consistently, for both boys and girls, across two separate school years. Those five ratings, taken at the start of Year 1, were still linked to weaker reading and maths fluency scores six and eighteen months later.



"Fit" is the comparative fit index (CFI), which shows how well a checklist's structure matches what 506 real learners' ratings actually looked like; 95 or higher is usually considered a good match. The five-item list hit a near-perfect match in both Year 1 and Year 2; the original 20-item list fell short of a good match in both years.

The five behaviours that held up

- 1

Abandons activities before completion
Starts a task, then leaves it unfinished. Not defiance, losing track of it.
- 2

Needs continued support in lengthy activities
Keeps needing the instruction restated, even after hearing it once.
- 3

Follows only some steps of an instruction
Carries out the first part of a multi-step instruction, then stalls.
- 4

Poor progress in literacy and maths despite effort
Falls behind quietly, because tasks outrun what they can hold in mind.
- 5

Depends on a neighbour to know the current task
Watches or copies a classmate rather than working from memory.

Across your subjects and classes

This is a screening checklist, not a tested classroom intervention. It tells you which behaviours to notice, not what to do about them. What follows are sensible ways to use that noticing across your subjects and classes: worth trying, not separately proven.

Subject	How the pattern could apply
English / Literacy	Extended writing is where "abandons activities before completion" tends to show up. Breaking a piece into plan, opening line, and one paragraph at a time gives working memory less to hold at once.
Maths	Multi-step word problems are exactly where "follows only some steps of an instruction" appears. Ask the learner to say the plan back before they start writing.
Science	A practical method with several ordered steps can produce "poor progress despite effort" that looks like carelessness but is not. A numbered step card on the bench removes the need to hold the sequence in mind.
Any subject with stacked instructions	"Get your book, underline the date, then start the answer" stacks three instructions in one breath. Watch for the learner who reliably completes only the first.

Adapting to your class

Quiet, reserved learners

"Depends on a neighbour" can look like cooperative behaviour rather than confusion, and is easy to miss. Check quietly, one-to-one, rather than calling it out.

High-attaining classes

Overload can hide behind strong vocabulary. Watch the pattern itself, starting then not finishing, needing an instruction twice, not the mark on the page.

Learners with SEND or EAL support

This checklist is a noticing prompt, not a diagnosis. If several of the five turn up together, that is a reason to talk to your SENCO, not to label the learner yourself.

Classes needing more scaffolding

Treat one-step-at-a-time instructions as a whole-class default, since the underlying pattern is likely to apply to more than just the learners you have already flagged.

Start with one: pick "follows only some steps of an instruction" first. It is the easiest of the five to notice during an ordinary lesson, and needs no extra paperwork, just watching who completes the first part and stalls on the rest.

A checklist that survived a real attempt to break it, once

Developing

This rates the evidence's firmness, not our endorsement of the checklist. It is the first independent test of the original 20-item tool on its own, and it found real problems with that version. That kind of honesty is a good sign, but one independent replication is not the last word.

- This tracks who shows working memory difficulties. It does not test whether noticing, or any teaching response, actually helps them; no intervention was tried or measured.
- The study followed six- to nine-year-olds for two years in Canadian schools. We can't yet say the same five-item pattern holds for older learners, or that it was tested on a UK sample specifically.
- The original 20-item version, still the one sold commercially, did not hold up under this independent test. A longer checklist is not automatically a more accurate one.

What that means for you: treat the five behaviours as a good place to start noticing, not a diagnosis. If the pattern worries you for a particular learner, talk to your SENCO rather than relying on a checklist alone.

TRY IT THIS WEEK

Your first small step

THIS WEEK

Pick one of the five behaviours, "follows only some steps of an instruction" is often the easiest to spot, and simply notice, for yourself, which learners show it during ordinary lessons. No form, no label. Just watching.

Try it and watch: the same few names may turn up for more than one of the five behaviours. That pattern is your own evidence, not ours, and it's worth a quiet conversation with your SENCO if it holds up.

Go deeper

Working Memory: A Teacher's Guide · structural-learning.com/post/working-memory-a-teachers-guide

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