Feedback, metacognition and other interventions

The research reviews of the Teaching and Learning Toolkit show that metacognition and feedback are among the most effective strategies, especially for Pupil Premium students. *Matt Bromley* looks at what the evidence says about these and other promising approaches

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Becoming an evidence-informed profession

When I started teaching, we were not what you would call an evidence-informed profession. We did what teachers had been doing for decades, what our teacher-training lecturers told us to do and what our own teachers had done to us when we were at school. We did these things irrespective of whether they were the best or the right things to do.

The truth was, we simply did not know what the best or right things to do were because no-one had really analysed teachers' methods or sought to compare approaches.

Formative assessment, including in the form of Black and Wiliam's *Inside the Black Box* (1998), signalled – for me, at least – the beginning of a paradigm shift.

The national curriculum – first introduced in 1988 – had brought greater continuity to what was taught in England's state schools.

Assessment for learning, and the government's interpretation of it in

the form of the National Strategies – introduced a decade later in 1998 – brought greater continuity to how the curriculum was taught.

Suddenly, we were encouraged to hand aspects of teaching and learning over to our pupils, to share learning objectives and assessment criteria, and to get our pupils to self and peer-assess their work.

Too much of my time – I realise with hindsight – was dedicated to devising fun activities, things to do which would fill my timetable and entertain my pupils. My lesson planning would often start with the question: "What will pupils do in this lesson?"

As such, not enough of my time – and not enough of my pupils' active attention – was focused on curriculum content and on what I needed them to think about and know. In retrospect, my lesson planning should have started with the question: "What will pupils think about this lesson?"

Or, more accurately: "What will

pupils think about in this series of lessons?"

These days, however, there is a surfeit of evidence about what works and what does not. This is epitomised in the Educational Endowment Foundation's (EEF) Teaching and Learning Toolkit.

In this *Best Practice Focus*, I will look at some of the strategies reviewed by the EEF, most notably the two it says are the most effective – metacognition and feedback. I will attempt to turn this theory into tangible classroom practice.

The Teaching and Learning Toolkit

The EEF was founded in 2011 by The Sutton Trust, in partnership with the Impetus-Private Equity Foundation and with help from a £125 million grant from the Department for Education (DfE). In 2013, the EEF and Sutton Trust were jointly designated as the What Works centre for education and set out to summarise and share research. On top of its

toolkits, which cover the early years and five to 16 education, the EEF publishes guidance reports providing actionable recommendations.

Meta-analyses analysed

One criticism aimed at the EEF concerns the way in which it conducts meta-analyses in order to rank strategies by effect size and months of additional progress.

The Teaching and Learning Toolkit, much like John Hattie's *Visible Learning* (2009), is based on meta-analyses of other studies.

A meta-analysis is a way of collating the outcomes of similar studies and converting the data into a common metric, then combining these in order to report an estimated impact or influence of interventions in that given area.

There are a number of advantages of meta-analyses. They allow large amounts of information to be assimilated quickly and they also help reduce the delay between

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research "discoveries" and the implementation of effective strategies. Meta-analyses enable the results of different studies to be compared and in so doing highlight the reasons for any inconsistencies between similar studies.

However, meta-analyses are not without their problems. First, it is a misconception that larger effect sizes are associated with greater educational significance. Second, it is a misconception that two or more different studies on the same interventions can have their effect sizes combined to give a meaningful estimate of the intervention's educational importance.

Why? Because original studies that used different types of "control group" cannot be accurately combined (not least because what constitutes "business as usual" in each control group will be different).

Likewise, unless the studies used the same range of pupils, the combined effect size is unlikely to be an accurate estimate of the "true" effect size of a particular strategy.

Put simply, the original effect sizes we combine to calculate an average (or meta-analysis), in order to be meaningful, must relate to the same outcomes and similar conditions and pupils, including in the control groups.

Finally, trials are often carried out without first analysing and understanding the barriers that pupils face. When random controlled trials (RCTs) are used in medicine, they only take place after intensive theorisation. In education, the process often begins with the trial and subsequent measurements.

For example, if it is identified that pupils eligible for the Pupil Premium are not doing as well as their peers in literacy, then a trial is launched to test an intervention, the outcome is measured and – if positive – the intervention is recommended.

However, rarely is there any initial theorising about precisely why some pupils are not doing as well; rarely is there any detailed analysis of the actual barriers some of these pupils face.

For example, for some pupils it may be that English is an additional language or that their attendance is low. The intervention may work for some pupils but not all, and the meta-analysis may mask the complexity of the issue and send us down the wrong path. For more on this discussion, see Phil Naylor's recent article *An intervention epidemic?* (*SecEd*, 2019).

Exercising caution
So, while we are finally becoming an evidence-informed profession, we should always exercise caution. We should not regard the data as an oracle, rather we should contest it and balance what the evidence suggests with what we know from our own experiences or contexts.

We should also analyse the original studies on which the effect sizes are based, because the averages may hide huge variations.

Teaching is a highly complex, nuanced art-form and we would do well not to reduce it to statistics, for only madness lies that way.

Additional progress
The two EEF toolkits present more than 40 approaches to improving teaching and learning, each summarised in terms of its average impact on attainment, its cost and the strength of the evidence. The results are presented as an estimate of the average impact in terms of expected extra months of progress and based on an effect size estimate derived from the meta-analyses and the research available.

Top of the table: Feedback
Feedback tops the chart as the most impactful strategy, offering eight months additional progress and with a very low cost rating. However, "feedback" is a slippery term and

can mean many different things. So, before we continue, let us be clear how the EEF defines feedback…

What is feedback?
The EEF says that feedback is "information given to the learner or teacher about the learner's performance relative to learning goals or outcomes".

It adds: "Feedback should aim towards (and be capable of producing) improvement in students' learning. Feedback redirects or refocuses either the teacher's or the learner's actions to achieve a goal, by aligning effort and activity with an outcome."

Feedback, says the EEF, can be about "the output of the activity, the process of the activity, the student's management of their learning or self-regulation, or them as individuals (which tends to be the least effective)".

Likewise, this feedback can be "verbal or written, or can be given through tests or via digital technology. It can come from a teacher or someone taking a teaching role, or from peers".

Is feedback effective?
According to the EEF, studies tend to show very high effects of feedback on learning. However, some studies show that feedback can actually have negative effects and make things worse. It is therefore important, the EEF says, to understand the potential benefits and the possible limitations of feedback as a teaching and learning approach. In general, research-based approaches that explicitly aim to provide feedback to learners, such as Bloom's "mastery learning" (1971), tend to have a positive impact (see also Guskey, 2010).

What does effective feedback look like in practice?
Just because the EEF toolkit says

> **❝** *Marking everything is time-consuming and counter-productive. Feedback becomes like a grain of sand on a beach, ignored by the pupil because of its ubiquity* **❞**

that feedback is good does not imply that teachers should do lots more of it. Rather it means that, when done well, it can really benefit pupils. So feedback should be done better rather than more often, which is to say that feedback should be meaningful and helpful to pupils, and given sparingly.

A useful maxim to obey is this: only give feedback to pupils when they are afforded time in class to process it and do something with it.

In practice, according to the EEF, effective feedback tends to:
- Be specific, accurate and clear (e.g. "It was good because you…" rather than just "correct").
- Compare what a learner is doing right now with what they have done wrong before.
- Encourage and support further effort.
- Be given sparingly so that it is meaningful.
- Provide specific guidance on how to improve and not just tell students when they are wrong.
- Be supported with effective CPD.

Broader research suggests that feedback should be about complex or challenging tasks or goals as this is likely to emphasise the importance of effort and perseverance as well as be more valued by the pupils.

Feedback can come from peers as well as teachers.

The beast of burden
In their 2016 report, *Eliminating unnecessary workload around marking*, the working group set up after the DfE's Workload Challenge stated: "Written feedback has become disproportionately valued by schools and has become unnecessarily burdensome for teachers." The group argued that quantity should not be confused with quality: "The quality of the feedback, however given, will be seen in how a pupil is able to tackle subsequent work."

The group recommends that all marking should be meaningful, manageable and motivating – but what might this look like in practice?

Meaningful
Marking and feedback have but one purpose: to help pupils make better progress and achieve good outcomes. They might do this directly by providing cues to the pupil about what to improve, and they might do it indirectly by giving assessment information to the teacher to guide their planning. ➤

Marking and feedback carried out for any other purpose are not meaningful activities and, as well as being a waste of time, can distract and detract from this vital goal.

The nature and volume of marking and feedback necessarily varies by age group, subject, and what works best for the individual pupil (and for the particular piece of work being assessed).

As such, teachers should be encouraged to be pragmatic, adjusting their approach according to context. This involves trust and, as American statesman Henry L Stimson (1867-1950) once said, the only way to make someone trustworthy is to trust them.

School leaders will soon know if a teacher's practice is ineffective – they do not need to straitjacket all their staff to ensure consistency or quality.

In practice, this means that school leaders need to avoid asking teachers to mark at set times of the year – those times might not always be the best times for that subject and that teacher. Instead, schools should ask that teachers mark a set number of times through the year but allow them or their departments to choose precisely when this should be. In so doing, schools can ensure that marking is less frequent but more meaningful.

Schools should also be aware that marking looks very different in some subjects compared with others. As such, subject areas should be allowed to decide what effective marking and feedback should look like for them.

Each area may collate examples of best practice to help new staff and to reinforce expectations for existing teachers, but these examples should not be regarded as "the only way" and should not acquire mythic status. Rather, they should continue to evolve and be challenged over time.

Manageable
A teacher's job is a complex one and it would be possible to work 24/7 and still not feel that the job is done.

It is important that, whatever approach schools take to marking and feedback, they ensure they protect teachers' work/life balances, because tired teachers do not perform as well and burn-out can lead to issues with teacher retention.

Marking and feedback should, therefore, be proportionate. We want to ensure maximum impact for

pupils from the minimum amount of energy teachers expend. Any expectation on the frequency of marking or feedback should take into account the complexity of marking and feedback and the volume required in any given subject, phase and key stage.

In practice, school leaders need to ensure that teachers are selective in what they mark, rather than expecting them to mark every piece of work a pupil produces and "tick and flick" every page of their exercise books. Marking everything is time-consuming and counter-productive. Feedback becomes like a grain of sand on a beach, ignored by the pupil because of its ubiquity.

Subject areas and teachers should identify the best assessment opportunities in each scheme of work – this might be a synoptic piece that demonstrates pupils' knowledge and understanding across a range of areas, or it might be the exam questions that garner the most marks (for example, the teacher may only assess the questions worth six or more marks while pupils and their peers assess the one-to-five-mark questions).

If nothing else, schools should end the pointless practice of "tick and flick".

Motivating
Marking should help to motivate pupils to progress. In this regard, short verbal feedback is often more motivational than long written comments on pupils' work.

Indeed, some pupils find written comments demotivating because they ruin the presentation of their work, are confusing, or can be overwhelming. Once again there is a simple rule to obey here: if the teacher is doing more work than their pupils, they need to stop.

Not only is it harmful to teacher workload, it can become a disincentive for pupils because there is too much feedback on which to focus and respond.

Furthermore, with too much feedback we risk spoon-feeding the pupil and they, in turn, are less likely to take responsibility for improving their work – particularly if they had not sufficiently checked their own work before receiving the feedback.

What is more, too much feedback can reduce a pupil's long-term retention and harm resilience. To build retention and resilience, pupils need to be taught to check their own work and make improvements

before the teacher marks it and gives feedback.

The feedback should also prompt further thinking and redrafting, perhaps by posing questions on which the pupil has to ruminate and act, as opposed to ready-made suggestions and solutions.

In practice, schools need to liaise with pupils on what kind of feedback motivates them best. Evidence suggests that rewarding pupils for their attainment rather than their effort is harmful and counter-productive.

Many pupils, when surveyed, say they do not want summative comments, they just want to know how to improve. What is more, many pupils say they do not want praise. They do not need a written affirmation that they are working hard. In fact, many pupils simply ignore the praise when given.

> ❝ *Any expectation on the frequency of marking or feedback should take into account the complexity of marking and feedback and the volume required in any given subject, phase and key stage* ❞

However, what applies to written feedback does not always apply to verbal feedback – in fact, the only time to offer praise, in my opinion, is when giving verbal feedback. Positive verbal feedback can be motivating and certainly improves the learning environment. Written feedback, meanwhile, should focus on what needs to happen next.

Metacognition
Second in the Teaching and Learning Toolkit table, with an additional seven months of progress and very low costs, is metacognition and self-regulation. But, like feedback, metacognition can mean different things to different people...

What is metacognition?
The EEF says that metacognitive approaches aim to help pupils think about their own learning more explicitly, often by teaching them specific strategies for planning, monitoring and evaluating their learning.

Metacognition gifts pupils a repertoire of strategies to choose from and the skills to select the most suitable strategy for any given learning task.

Is metacognition effective?
The EEF says that metacognition and self-regulation approaches have consistently high levels of impact. These strategies are usually more effective when taught in collaborative groups so that pupils can support each other and make their thinking explicit through discussion.

The potential impact of these approaches is high, but can be difficult to achieve in practice as they require pupils to take greater responsibility for their learning and develop their understanding of what is required to succeed.

The evidence indicates that teaching these strategies can be particularly effective for low-achieving and older pupils.

When seeking to develop pupils' metacognitive abilities, the EEF advises teachers to consider which

explicit strategies they can teach pupils to help them plan, monitor, and evaluate specific aspects of learning. Teachers should also consider how to give pupils opportunities to use these strategies, with support and then independently, and ensure they set an appropriate level of challenge to develop pupils' self-regulation and metacognition in relation to specific learning tasks.

In the classroom, teachers should consider how they can promote and develop metacognitive talk related to lesson objectives, and what CPD is needed to develop teachers' knowledge and understanding of these approaches.

Metacognition is not…
First, metacognition is not simply "thinking about thinking". Although metacognition does indeed involve thinking about one's thinking, it is much more complex than this; rather metacognition is actively monitoring one's own learning and, based on this monitoring, making changes to one's own learning behaviours and strategies.

Second, not every strategy used while performing a cognitive task

can be described as metacognitive. Indeed, Flavell (1981) made a useful distinction. He said that strategies used to make cognitive progress are "cognitive strategies"; strategies used to monitor cognitive progress, meanwhile, are "metacognitive strategies".

Third, metacognition is not solely in the domain of the learner and not solely for the benefit of older learners. Although it is true that a metacognitive approach typically focuses on allowing the learner rather than the teacher to take control, this is not to say that the teacher has no role to play.

Indeed, the teacher is integral to the development of their learners' metacognitive skills. For example, in order for pupils to become metacognitive, self-regulated learners, the teacher must first set clear learning objectives, then demonstrate and monitor pupils' metacognitive strategies, and prompt and encourage their learners along the way.

Model example: The Thinker by Auguste Rodin. Metacognitive approaches aim to help pupils think about their own learning more explicitly

And metacognitive skills can be developed from an early age, certainly while pupils are at primary school; it is not something to be reserved for secondary pupils.

Metacognition vs self-regulation

Metacognition describes the processes involved when learners plan, monitor, evaluate and make changes to their own learning behaviours. Metacognition is often considered to have two dimensions: metacognitive knowledge and self-regulation.

Metacognitive knowledge refers to what learners know about learning. This includes:

- The learner's knowledge of their own cognitive abilities (e.g. "I have trouble remembering key dates in this period of history").
- The learner's knowledge of particular tasks (e.g. "The politics in this period of history are complex").
- The learner's knowledge of the different strategies that are available to them and when they are appropriate to the task (e.g. "If I create a timeline first it

will help me to understand this period of history").

Self-regulation, meanwhile, refers to what learners do about learning. It describes how learners monitor and control their cognitive processes. For example, a learner might realise that a particular strategy is not yielding the results they expected so they decide to try a different strategy.

Put another way, self-regulated learners are aware of their strengths and weaknesses, and can motivate themselves to engage in, and improve, their learning.

According to the EEF, we approach any learning task or activity with some metacognitive knowledge about:

- Our own abilities and attitudes (knowledge of ourselves as a learner).
- What strategies are effective and available (knowledge of strategies).
- This particular type of activity (knowledge of the task).

When undertaking a learning task, we start with this knowledge, then apply and adapt it. This, the EEF says, is metacognitive regulation. It is about "planning how to undertake a task, working on it while monitoring the strategy to check progress, then evaluating the overall success".

> **" ** *The most effective learners will have developed a repertoire of different cognitive and metacognitive strategies and be able to effectively use and apply these in a timely fashion* **"**

A metacognitive cycle

Metacognition and self-regulation might take the following form:

The planning stage: During the planning stage, learners think about the learning goal the teacher has set and consider how they will approach the task and which strategies they will use. At this stage, it is helpful for learners to ask themselves:

- "What am I being asked to do?"
- "Which strategies will I use?"
- "Are there any strategies that I have used before that might be useful?"

The monitoring stage: During the monitoring stage, learners implement their plan and monitor the progress they are making towards their learning goal. Pupils might decide to make changes to the strategies they are using if these are not working. As pupils work through the task, it is helpful to ask themselves:

- "Is the strategy that I am using working?"
- "Do I need to try something different?"

The evaluation stage: During the evaluation stage, pupils determine how successful the strategy they have used has been in terms of helping them to achieve their learning goal. To promote evaluation, it is helpful for pupils to ask themselves:

- "How well did I do?"
- "What did not go well?"
- "What could I do differently next time?"
- "What went well?" "What other types of problem can I use this strategy for?"

The reflection stage: Reflection is an integral part of the process. Encouraging learners to self-question throughout the process is therefore crucial.

A metacognitive regulation cycle

The EEF offers a slightly different version of this process which they call the metacognitive regulation cycle. Helpfully, they posit some concrete examples. For instance, they introduce us to John who is set a maths question. He starts with some knowledge of the task (word problems in maths are often solved by expressing them as equations) and strategies (how to turn sentences into an equation). ➤

His knowledge of the task then develops as it emerges from being a word problem into a simultaneous equation. He would then continue through this cycle if he has strategies for solving simultaneous equations.

He could then evaluate his overall success by substituting his answers into the word problem and checking they are correct. If this was wrong, he could attempt other strategies and once more update his metacognitive knowledge.

Most learners, says the EEF, go through many of these thinking processes to some extent when trying to solve a problem or tackle a task in the classroom. The most effective learners, however, will have developed a repertoire of different cognitive and metacognitive strategies and be able to effectively use and apply these in a timely fashion. They will, in other words, self-regulate and find ways to motivate themselves when they get stuck. Over time, this can further increase their motivation as they become more confident in undertaking new tasks and challenges.

Teaching metacognition

The EEF argues that metacognition and self-regulation must be explicitly taught. For example, during the planning stage, the teacher encourages pupils to think about the goal of their learning (set by the teacher or themselves) and how they will approach the task. This might include ensuring they understand the goal, relevant prior knowledge, selecting appropriate strategies, and considering how to allocate effort.

At the monitoring stage the teacher emphasises the need for pupils to assess their own progress. This might include self-testing and self-questioning, as well as making changes to their strategies. Teachers can explicitly teach these skills by prompting pupils with examples of the things they should be considering at each stage of a learning task.

The EEF uses the example of a self-portrait task where effective teacher questioning while modelling can aid the development of metacognitive reflection.

Planning questions activate prior knowledge or model the use of cognitive strategies:
- What resources do I need?
- What have I learned from the examples we looked at?
- Where do I start?

> *Effective collaborative learning requires much more than just sitting pupils together and asking them to work in a group; structured approaches with well-designed tasks lead to the greatest learning gains*

- Do I need a line guide to keep my features in proportion?
Monitoring questions emphasise progress and check motivation:
- Am I doing well?
- Do I need any different techniques to improve?
- Am I finding this challenging?
- Is there anything I need to stop/change to improve my work?
Evaluation questions assess the relative success of strategies and what can be learnt:
- How did I do?
- Did my line guide strategy work?
- How would I do better next time?

The EEF suggests that these prompts are accompanied by explicit instruction in the relevant cognitive strategies (such as, in this example, perspective and artistic techniques).

A seven-step guide

The EEF proffers a handy guide to teaching metacognitive strategies:

1 **Activating prior knowledge:** The teacher discusses with pupils the different causes that led to the First World War while making notes on the whiteboard.
2 **Explicit strategy instruction:** The teacher explains how a "fishbone" diagram will help organise their ideas, with the emphasis on the cognitive strategy of using a "cause and effect model" in history that will help them to organise and plan a better written response.
3 **Modelling learned strategy:** The teacher uses the initial notes on the causes of the war to model one part of the fishbone diagram.
4 **Memorisation of learned strategy:** The teacher tests if pupils have understood and memorised the key aspects of the fishbone strategy, and its main purpose, through questions and discussion.
5 **Guided practice:** The teacher models one further fishbone cause with the whole group, with pupils verbally contributing ideas.
6 **Independent practice:** Pupils complete their own fishbone diagram analysis.
7 **Structured reflection:** The

teacher encourages pupils to reflect on how appropriate the model was, how successfully they applied it, and how they might use it in the future.

Best of the rest…

So, what other approaches does the toolkit recommend as being the most effective in terms of additional progress.

Reading comprehension strategies

Ranked in third, with six months additional progress and very low cost, reading comprehension strategies focus on the learners' understanding of written text. They include techniques which enable them to comprehend the meaning of what they read, including inferring meaning from context, summarising or identifying key points, using graphic or semantic organisers, developing questioning strategies, and monitoring their own comprehension and identifying difficulties themselves.

Secondary school homework

There are a number of interventions in the toolkit that yield an additional five months of progress. Among these is homework, which has the added benefit of being low-cost.

The research covers a wide range of approaches, however, including homework clubs and flipped learning. The EEF warns: "There is a wide variation in potential impact, suggesting that how homework is set is likely to be very important."

The EEF does report some evidence showing that homework is most effective when used as a short and focused intervention, such as "in the form of a project or specific target connected with a particular element of learning".

The evidence also suggests that how homework relates to learning during lessons is important – it should be an integral part of learning, rather than an add-on. High-quality feedback is also important if homework is to be effective.

Mastery & collaboration

Also offering five months additional progress and very low costs are two further strategies.

Mastery learning breaks subject matter and learning content into units with clearly specified objectives which are pursued until they are achieved. For more, see my recent *Best Practice Focus* on differentiation (*SecEd*, April 2019).

Collaborative approaches, meanwhile, involve pupils working together on activities or learning tasks in small groups, allowing all students to participate. This could also include peer-tutoring approaches. The impact, the EEF says, is consistently positive. It adds: "Effective collaborative learning requires much more than just sitting pupils together and asking them to work in a group; structured approaches with well-designed tasks lead to the greatest learning gains."

Oral language interventions

Completing the list of interventions yielding five months additional progress are peer-tutoring, one-to-one tuition and, finally, oral language interventions.

Oral language interventions emphasise the importance of spoken language and verbal interaction in the classroom. They aim to support learners' articulation of ideas and spoken expression.

This includes, according to the EEF, explicitly extending pupils' spoken vocabulary, the use of structured questioning to develop

reading comprehension, and the use of purposeful, curriculum-focused, dialogue and interaction.

The EEF states: "Interventions which are directly related to text comprehension or problem-solving appear to have greater impact."

The evidence also shows the benefits of trained teaching assistants supporting both oral language skills and reading outcomes. Meanwhile, approaches which explicitly develop spoken vocabulary work best when they are related to current content being studied in school and involve the "meaningful use of new vocabulary".

Not worth it?

Readers will of course look at the Teaching and Learning Toolkit and pick out the strategies most relevant to them. In doing so, we should not ignore those ranked more lowly and we certainly must not take at face value claims that certain interventions are "not worth it".

We should consider what we know of our own contexts and take a long-term, pragmatic, nuanced view. We should also consider the wider effects, beyond hard outcomes data. With this in mind, I would like to look at two further interventions…

Teaching assistants

According to early iterations of the toolkit, teaching assistants were "not worth it" because they are costly and have little demonstrable impact on pupil progress. The current toolkit ranks teaching assistants as high cost and yielding one month

additional progress. The EEF states: "Effects tend to vary widely between those studies where teaching assistants provide general administrative or classroom support, which on average do not show a positive benefit, and those where teaching assistants support individual pupils or small groups, which on average show moderate positive benefits."

However, the true picture is a little more nuanced. There is evidence that when teachers delegate routine administrative tasks to teaching assistants it allows them to focus more time on teaching, planning, and assessment tasks. Teaching assistants have also proven beneficial in terms of reducing teacher workload and improving teachers' job satisfaction.

Those teachers featured in the EEF evidence-base were also positive about the contribution that teaching assistants made in their classrooms. They said the presence of additional adults in the room helped increase pupils' attention and supported pupils who struggled most.

Results from observations made as part of the DISS research (2006-09) suggest that teaching assistants had a positive effect in terms of reducing disruptions and therefore affording teachers more time to teach.

Poor effects tended to derive from situations where teaching assistants had not been prepared properly, had been used poorly or not used at all.

Reducing class sizes

The toolkit claims that reducing

class sizes yields just three months additional progress for a high cost. However, although the direct impact on pupil outcomes may not be overwhelming or immediate, this does not mean that smaller classes do not have wider positive impacts.

The EEF states: "The key issue appears to be whether the reduction is large enough to permit the teacher to change their teaching approach."

The toolkit says that, overall, the evidence does not show particularly large or clear effects until class size is reduced substantially to fewer than 20 or even 15 pupils. It appears to be very hard to achieve improvements from modest reductions in class size to numbers above 20.

However, as the size of a class gets smaller, the amount of attention the teacher can afford each pupil will inevitably increase.

Reducing class sizes should also increase the amount of high-quality feedback or one-to-one support pupils receive.

Moreover, reducing class sizes means that the teacher's marking load reduces and this should lead to improvements in work/life balance and help boost retention.   *SecEd*

ℹ INFORMATION & REFERENCES

▶ The EEF's evidence and guidance reports and its toolkits can be accessed via *https://education endowmentfoundation.org. uk/evidence-summaries*

▶ *Inside the Black Box: Raising standards through classroom assessment*, Black & William, Phi Delta Kappa, October 1998: *http://bit.ly/2KbZyhz*

▶ *Visible Learning: A synthesis of over 800 meta-analyses on achievement*, Professor John Hattie, 2009: *https://visible-learning.org*

▶ *Pupil Premium: An intervention epidemic?*, Phil Naylor, *SecEd*, June 2019: *http://bit.ly/2R1eJuC*

▶ *The Deployment and Impact of Support Staff (DISS) Project*, Institute of Education, University of London, 2006-09: *http://maximising tas.co.uk/research/ the-diss-project.php*

▶ *Mastery learning*, Bloom, 1971 (in *Mastery learning: Theory and practice*, Black (ed), Holt, Rinehart and Winston).

▶ *Lessons of Mastery Learning*, Guskey, *Educational Leadership*, October 2010: *http://bit.ly/2X33HL4*

▶ *Eliminating unnecessary workload around marking*, Workload Challenge Working Group Reports, DfE, March 2016: *http://bit.ly/2OSOfJk*

▶ *Effective feedback techniques and practices*, Matt Bromley, Seven-part *SecEd* series, May-June 2018: *http://bit.ly/2VRP09d*

▶ *Cognitive Monitoring*, Flavell, 1981 (in *Children's Oral Communication*, Dickson (Ed), Academic Press).

▶ *Differentiation in the classroom (part 1)*, *SecEd*, April 2019: *http://bit.ly/2HSLdpr*

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