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* *Embedding Formative Assessment*, Evaluation report and executive summary, Education Endowment Foundation, published July 2018

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Formative assessment: Classroom strategies

In this *Best Practice Focus*, **Matt Bromley** considers good practice for assessment and feedback, including five strategies for formative assessment and what these look like in the classroom. We also hear from **Professor Dylan Wiliam**, who outlines five perspectives on why formative assessment is at the heart of good teaching

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Effective assessment: Strategies for the classroom

Assessment is an essential ingredient of good teaching. Broadly speaking, there are two ways in which the outcomes of an assessment might be used:

- **Summatively:** To identify what a pupil has achieved at the end of a unit, year, course or school, and to compare pupils and cohorts.
- **Formatively:** To inform a teacher's planning and instruction, and to diagnose a pupil's next steps and provide them with feedback on which they can act to improve.

Whereas summative assessment is the assessment of learning, formative assessment is assessment for learning because it is a way of providing pupils with feedback about the progress they have made and what they need to do next in order to make further progress.

Formative assessment is also a means through which pupils might actually learn, not just a guide to future learning. For example, by engaging in classroom discussions, pupils can deepen their knowledge

and understanding and therefore enact a change in their long-term memory (one common definition of learning).

Formative assessment is also a mechanism for providing information to the teacher on which they too can act – after all, teachers use the outcomes of assessments to guide their planning and teaching. Formative assessment provides useful and useable data that tells them what pupils know and can do and what they do not yet know and cannot yet do, and therefore proffers intelligence about whether to reteach, recap or move on.

Assessment data might provide information about the pace of learning and about the order in which learning is sequenced, as well as about the appropriate level of task difficulty.

It is worth noting before we move on that “assessment for learning” only truly becomes formative when evidence of pupils' learning is used to adapt teaching to better meet pupils' needs. To say that assessment for learning and formative assessment are



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synonymous is therefore slightly misleading, albeit a common claim.

Wiliam and Thompson (2007)

posit that there are five key strategies for formative assessment:

- 1 Clarifying and understanding learning intentions and criteria for success.
- 2 Engineering effective classroom discussions, questions and tasks that elicit evidence of learning.
- 3 Providing feedback that moves pupils forward.
- 4 Activating pupils as instructional resources for each other.
- 5 Activating pupils as owners of their own learning.

In this *Best Practice Focus*, we explore these five strategies and consider what they might look like in practice. And, in order to ensure our assessment practices are effective and do not become a behemoth, we will also look at how to sense-check our approaches and ensure that marking and feedback are meaningful, manageable and motivating. However, before we continue, Professor Dylan Wiliam shares five perspectives on formative assessment...

- **Page 3: Professor Dylan Wiliam**
- **Page 4: Matt Bromley continues**

Five perspectives on formative assessment

Professor Dylan Wiliam
 Emeritus Professor of Educational Assessment, UCL



This means that school leaders need to be critical consumers of educational research. This requires answering the following questions:

Does this solve a problem I have?

For example, increasing teachers' pedagogical content knowledge has been shown to increase student achievement, but where pedagogical content knowledge is already at a reasonable level, higher levels may have diminishing or even no benefit.

Can it be implemented here?

Class-size reduction has been shown to increase student achievement, but obviously requires additional teachers. Where there is a plentiful supply of effective teachers, a class-size reduction programme can raise student achievement (although at great cost). However, where teacher recruitment is challenging, class-size reduction may require the employment of teachers who are less good, and thus may even reduce student achievement.

How much additional achievement will we get?

For many years, the results of educational experiments were reported only in terms of whether they were statistically significant, giving little idea of the impact on achievement. Nowadays, research reports typically provide estimates of the size of the effect, but these can often give unrealistic indications of the real effects on students' learning in real classrooms. What is needed is an indication of the additional months of progress that would be expected if the innovation is successfully implemented.

How much will it cost?

One of the most interesting findings from educational research is that the relationship between the cost of an innovation and its impact on achievement is weak: expensive innovations often have no effect while the most effective often cost little.

To judge the usefulness of an innovation, the size of the effect and the cost – in both money and teacher time – need to be weighed. When we adopt such a perspective, classroom

formative assessment appears to be one of the most cost-effective things we can do.

A strong case

While the research evidence will never be as clear-cut as we like, the following five perspectives make a strong case that improving the practice of formative assessment is a key element of improving educational outcomes.

Intuitive perspective

More than 50 years ago, David Ausubel suggested that the single most important factor influencing learning was what the learner already knows – and that effective teaching should first ascertain this, and then teach accordingly.

However, no matter how well we know our students, what they remember from our teaching is unpredictable. In other words, teaching should begin with formative assessment.

Cross-cultural perspective

The 2015 round of the OECD's Programme for International Student Assessment (PISA) focused on students' science achievement. After socio-economic status, the strongest predictor of high achievement was the extent to which teachers adapted their teaching in the light of evidence of what their students were learning.

Of course, it could be that in classrooms full of highly motivated students, teachers are more able to use such responsive teaching strategies, so the cause-effect relationship is not clear-cut. Nevertheless, this is another piece of evidence about the effectiveness of formative assessment.

Functional perspective

Over the longer timescale (months, terms), formative assessment allows teachers and schools to monitor student progress, and to ensure that the curriculum is aligned to the educational goals of the school.

Over a medium timescale, formative assessment requires that teachers engage their students more in the assessment process, thus ensuring that assessment is

something done with students rather than to them. Over a shorter timescale (minute-to-minute and day-to-day), formative assessment allows teaching to be more responsive to students' needs, and when the teacher gets evidence from all students, rather than just “the usual suspects”, then students become more engaged.

Equity perspective

The Education Endowment Foundation's (EEF) Teaching and Learning Toolkit is intended to help schools make better choices about strategies for ensuring that students from disadvantaged backgrounds do as well as their more affluent peers.

The three most cost-effective strategies identified by the EEF are feedback, metacognition/self-regulated learning, and peer-tutoring. These are three of the five “key strategies” of formative assessment that I and my colleagues have used to support teachers in their development of their practice of formative assessment.

What about the other two? Well, before we can give feedback, we have to find out what is going on, so we have to elicit evidence of achievement. And then to know what evidence to elicit, we need to be clear about what we intend our students to learn.

In other words, the five key strategies of formative assessment form a minimum set of the most cost-effective ways to close the achievement gap; these strategies will be explored in more detail later in this *Best Practice Focus*.

Empirical perspective

Reviews of research find that formative assessment ranks among the strongest influences on student achievement. Such a “top-down” perspective is complemented by a large number of studies that directly help teachers to develop their practice of formative assessment (a “bottom-up” perspective), and which have shown substantial increases in student achievement, with small-scale studies finding increases in the rate of learning of 50 to 70 per cent and even large-scale trials finding increases of 25 per cent.

Put simply, there is now considerable evidence that classroom formative assessment should be a part of every school's and every teacher's efforts to help their students achieve better educational outcomes.

Five strategies for effective formative assessment

As Dylan Wiliam points out in his article on page 3, the three most effective strategies identified by the EEF are feedback, metacognition/ self-regulated learning, and peer-tutoring.

They are also three of the five “key strategies” of formative assessment that Wiliam and Thompson outline (2007). The other two are eliciting evidence of achievement and clarifying learning intentions and criteria for success. Taken together, these five strands of formative assessment represent the bread and butter of good teaching.

An effective teacher starts by articulating what they want their pupils to learn and shares the criteria against which that learning will subsequently be measured. Then they provide opportunities for pupils to actively engage in the learning process, as well as to support each other’s learning.

The teacher uses classroom discussions and questioning to deepen pupils’ understanding and to determine how well they are progressing – and provides feedback to help guide pupils on their journey.

But, even if we accept that formative assessment is common sense, we need to be careful not to regard it as a panacea and not to focus on the “what” at the expense of the “how”.

We also need to remember that the five strategies of formative assessment do not represent the entirety of good teaching; teachers need to do other things unrelated to assessment, such as attend to their instructional design, too.

So, with this in mind, let us explore Wiliam and Thompson’s (2007) five strategies.

1, Learning intentions and criteria for success

The first strategy is clarifying and understanding learning intentions and criteria for success. The notion here is simple: if pupils do not know what they are supposed to be learning and how their work will be judged – what a successful outcome looks like – then their ability to learn and make progress will be stymied. This talks to the three processes that are central to formative assessment:

- 1 Establishing where pupils are in their learning.
- 2 Establishing where they are going.
- 3 Establishing how to get there.

An important caveat: sharing

learning intentions and success criteria does not mean that every lesson must start with a set of objectives scribed on the board for pupils to copy down.

First of all, lessons are artificial blocks of study, not a complete learning sequence. So not every lesson need start with objectives. Second, there are rarely gains to be made by getting pupils to copy verbatim. Rather, the direction of travel should be shared with pupils when you begin a new module.

A second caveat: learning intentions are not the same as activities. As such, setting out what pupils will do is not particularly helpful; rather we should focus on what pupils are expected to think about and learn.

As Wiggins and McTighe (2010) said, we should start from what we want pupils to know and plan backwards. They advocate a two-stage process: first, we clarify the learning intentions followed by the success criteria; second, we explore the activities that will lead to the required learning.

I would suggest that learning intentions are measurable statements which articulate what pupils should know and/or be able to do by the end of a lesson or sequence of lessons. The best learning intentions are pupil-centred rather than teacher-centred – they set out what pupils will learn, not what the teacher will teach, and do so in language pupils understand.

The best learning intentions actually shape what pupils learn because when pupils know what they are expected to learn they can direct their attention towards those ideas or concepts. They help pupils to attend to the curriculum content they need to learn and avoid distractions, thus making efficient use of their limited working memory. Having clear learning intentions can also help pupils to organise their notes, track their progress towards meeting their goals, and improve their ability to self-study.

Sharing learning intentions at the start of a sequence of lessons is an important element of direct instruction – shown to be a more effective strategy than less-structured approaches, particularly for novice learners (Kirschner, Sweller & Clark, 2006) – because knowing the intended outcomes in advance helps pupils to practise their metacognitive skills and to self-regulate.

Ultimately, this strategy helps pupils to understand how what they are learning today fits into the “bigger picture” and how they will be assessed. It is about connecting learning and making explicit the purpose – articulating why pupils need to achieve these learning goals and why this learning will be of use to them in the future. As such, it can increase pupils’ motivation and engagement.

Learning intentions and success criteria are often opaque. To avoid this, we can give pupils examples of annotated work. It can also be very helpful to provide pupils with opportunities to design their own assessments.

2, Effective discussions and questioning

Once we know what we want our pupils to learn and how that learning will be assessed, we need to gather evidence about pupils’ progress. One way we can do this is by planning effective classroom discussions and questions.

The art of asking good questions is what good teaching is often about (Socrates argued that “questioning is the only defensible form of teaching”).

There are two particular reasons for asking a question in class: either to cause pupils to think, or to provide information to the teacher about what to do next.

The former involves dialogic questioning – questions that encourage discussion, questions that are open, philosophical and challenging. Dialogic questions – such as Socratic questions – do not just cause thinking, they promote critical thinking and are seen as part of an effective teaching strategy. For more, see my teaching practice series for *SecEd* (Bromley, 2017).

But the latter is what we will focus on here. Closed questions are great assessment tools. They can provide valuable assessment information to the teacher about pupils’ learning and progress.

Closed questions used as a form of assessment reduce the marking load on teachers and make assessment “live” and responsive. Closed questions can turn assessment into a means of learning, too.

An effective form of closed question is the multiple-choice question, used at a “hinge point” of a lesson when a teacher needs to check whether pupils have grasped a



key concept and are ready to move on to study another.

Usually, pupils’ ability to understand the next concept being taught is contingent on their mastery of the concept that has just been taught. It is important, therefore, that the teacher assesses pupils’ levels of mastery before moving on.

Making multiple-choice questions involves creating several wrong options that are nevertheless plausible and related to the right answer. These wrong answers can uncover common misconceptions or false assumptions. Create them by mining a class’s work or drawing on previous years when the topic was last taught to find pupils’ common misconceptions, misunderstandings and mistakes. This process will also help teachers to understand more generally what pupils tend to get wrong and will help inform and improve lesson-planning.

This act of mining pupils’ work for misconceptions and then applying the findings in a way that helps anticipate pupils’ difficulties and questions is the difference between content knowledge and pedagogical content knowledge, between knowing your subject and knowing how to teach your subject in a way that makes sense to pupils.

A hinge question, then, is a diagnostic tool which a teacher employs when their pupils reach the

“ We need to consider when we give feedback, what form feedback takes, and what pupils are expected to do with it ”

“hinge” point. Pupils’ responses provide the teacher with evidence about what their pupils know, do not know and need to do next. A class’s response should inform the teacher whether to completely reteach the topic, recap the main points, or move on to the next topic.

To be effective, every pupil must respond to a hinge question within a set timeframe, ideally one to two minutes. As such, it is best to avoid a “hands-up” approach and instead employ a tactic that ensures every pupil shows the teacher their answer at the same time (using mini-whiteboards, voting buttons or numbered or coloured cards).

The teacher must be able to interpret pupils’ responses quickly so that the flow of the lesson is not stunted. The teacher needs to set a pass rate for what they consider to be an acceptable level of “mastery”.

For example, we may move on to the next topic if more than 80 per cent of pupils answer correctly. We will of course need to consider what to do to support the 20 per cent. This might involve setting a task for the 80 per cent while we work with the 20 per cent scaffolding learning, recapping on key points, etc. Or perhaps we could enlist some of the 80 per cent as peer-teachers (an effective approach – see strategy 4).

The use of multiple-choice questions is what Wiliam and Black (2018) call the “pedagogy of engagement” because the teacher requires every pupil to engage in the process, think about the question, and give them some information. After all, it is immediately evident if a pupil does not respond. Multiple-choice questions are also what Dylan Wiliam has called the “pedagogy of contingency”, because the teacher’s actions depend on the learning that is evidenced by their questioning (Wiliam & Black, 2009; Wiliam, 2006).

3, Feedback that moves pupils forward

Feedback tops the EEF chart as the most impactful strategy at a teacher’s disposal (EEF, 2018a). 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 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”.

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, feedback can be verbal or written, via tests or digital technology, and can come from a teacher or from peers.

Meta-analyses tend to show very high effects of feedback on learning, but some studies show that certain types of feedback can have negative effects (e.g. Kluger & DeNisi, 1996).

In general, approaches that explicitly aim to provide feedback to pupils, such as Bloom’s mastery learning (Bloom, 1971), tend to have a positive impact.

Ultimately, we need to be mindful that just because meta-analyses suggest feedback is good, this does not imply that we should do lots more of it. It means that, when done well, it can really benefit pupils and so feedback should be done better, which is to say that feedback should be meaningful and helpful.

In practice, we need to consider when we give feedback, what form feedback takes, and what pupils are expected to do with it. We need to consider how quickly to give feedback after a task has been attempted, and whether to do so verbally or in writing, in narrative or code form, and with marks, marks and comments, or only comments.

It is the how, not just the what, that we need to consider. Meta-analyses can only take us so far. Beyond the meta-analysis, we know that effective feedback tends to:

- Be specific, accurate and clear (e.g. “It was good because you...” rather than just “correct”).
 - Compare what a pupil is doing now with what they have done before (e.g. “I can see you were focused on improving X as it is much better than last time’s Y”).
 - Encourage and support further effort.
 - Be given sparingly so that it is meaningful.
 - Provide specific guidance on how to improve and not just tell pupils when they are wrong.
- One more health warning before we move on – marking and feedback are perhaps the most time-

consuming activities for teachers. The Department for Education Workload Challenge Working Group report on marking (DfE, 2016) states: “Written feedback has become disproportionately valued by schools and has become unnecessarily burdensome for teachers.”

It also warns schools not to confuse quantity with quality: “The quality of the feedback, however given, will be seen in how a pupil is able to tackle subsequent work.”

The report recommends that all marking should be meaningful, manageable and motivating. So, what might this look like in practice?

Making it 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, or indirectly, by providing assessment information to the teacher to guide planning and teaching. Marking and feedback for any other purpose is not meaningful.

The best person to decide which type of marking and feedback to use and when to use it is, of course, the teacher, as it is they who will use the assessment information to aid planning and to support pupil progress. A school’s assessment policy may set broad guidelines about how often pupils’ work should be marked, but it also needs to build in sufficient flexibility for teachers.

While having a set of shared expectations regarding marking and feedback across a school will help everybody to be clear about what is required, each subject discipline should be allowed to determine the detail for their areas, responding to the workload demands of their subject and the differences inherent in each phase and key stage.

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. Teachers should be allowed to be pragmatic, adjusting their approach according to context.

In practice, this might mean school leaders avoid asking teachers to mark at set times of the year. Instead, schools might ask teachers to mark a set number of times during the year but allow them or their departments to choose when.

Schools must also remember ➤

that marking looks different in different subjects. As such, departments should be allowed to decide what effective marking and feedback looks like for them. Each subject team may collate examples of best practice to help new staff and to reinforce expectations for existing teachers. But these examples should not be seen as “the only way” and should not acquire mythic status.

Making it manageable

It is important that, whatever approach schools take, they ensure they protect teachers’ wellbeing.

Marking and feedback should, therefore, be proportionate. Any expectation on the frequency of marking should take into account the complexity of marking and the volume of marking required in any given subject, qualification type, and phase and stage of education.

There is no doubt that feedback is valuable, as we have seen, but we need to decide which one of all the valuable things teachers do is more worthwhile than the others and focus on the areas of biggest impact for the smallest investment of teacher time and energy.

Put simply, if teachers are spending more time marking and giving feedback than pupils are spending on the piece of work then your priorities are skewed.

We need to ensure that teachers are selective in what they mark, rather than expecting them to mark every piece of work or “tick and flick” every page of an exercise book. Marking everything is time-

consuming and counterproductive. Feedback becomes a single grain of sand on a beach, ignored by the pupil because of its sheer ubiquity.

Subject teams and teachers should identify the best assessment opportunities in each topic, module or scheme of work – perhaps a synoptic piece that demonstrates pupils’ knowledge and understanding across a range of areas, or practice exam questions that garner the most marks (for example, the teacher may assess the questions worth six marks or more, while peer-assessment is used for the five mark or fewer questions).

Making it motivating

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 and can be confusing or overwhelming.

Too much feedback is not only harmful to teacher workload, it can become a disincentive for pupils because there is too much information on which to focus and respond. It can threaten a pupil’s long-term retention and 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.

Feedback should also prompt further thinking and drafting, perhaps by posing questions on which the pupil has to ruminate and act, as opposed to ready-made

suggestions and solutions. Feedback can be more motivating if it requires pupils to think. For example, we might use comment-only marking more often as this engages pupils, requiring them to take action. Rather than correcting a pupil’s spelling, punctuation and grammar, for instance, the teacher might place a letter in the margin for each error, using G for grammar, S for spelling and so on.

For higher-performing pupils, the teacher could just put a dot in the margin for each error. This gives pupils something to do and therefore makes them think. By thinking, they are more likely to remember and avoid repeating the same mistakes.

4, Pupils as instructional resources for each other

Slavin, Hurley and Chamberlain (2003) argue that activating pupils as instructional resources for each other leads to large gains. But there are two important conditions: pupils must work as a group (not just in a group), and every pupil must be responsible for his or her own contribution to the group.

A simple approach is to ensure that all work is peer-assessed before it is handed to the teacher. Before a pupil can submit an essay, for example, they must get a partner to complete a peer-assessment checklist. Pupils cannot submit work until it has been peer-assessed and the onus is on the peer-assessor not the originator of the work because it is them who will be held accountable

However, such strategies come with health-warnings. Pupils need to be helped to develop the necessary skills and knowledge to be able to assess and give feedback. We also need to provide pupils with time in lessons to process, reflect upon and respond to peer feedback.

This process of self-monitoring, self-assessing and self-adjusting work can be aided if we:

“ Ask pupils to attach a note to any formal piece of work in which they are honest about what they do and do not understand ”

• Allocate five minutes in the middle and at the end of a lesson in order to consider: “What have we found out? What remains unresolved or unanswered?”

• Include a one-minute essay at the end of an instruction-based lesson in which pupils summarise the two or three main points and the questions that still remain for them (and, thus, next time, for the teacher).

• Teach pupils to evaluate work in the same way that teachers do so that pupils become more

accurate as peer-reviewers and self-assessors.

- Ask pupils to attach a note to any formal piece of work in which they are honest about what they do and do not understand.
- Start lessons with a survey of the most burning questions pupils may have. Then, as part of the final plenary, judge how well the questions were addressed, which ones remain, and what new ones emerged.
- Leave the second half of a unit deliberately open to allow pupils to frame and pursue the inquiry (rather than be directed by the teacher) based on the key questions that remain and clues that have emerged.
- Get pupils to develop a self-profile of their strengths and weaknesses as learners, whereby they consider how they learn best, what strategies work well for them, what type of learning is most difficult, and what they wish to improve upon. Structure periodic opportunities for pupils to monitor their efforts and reflect on their struggles and successes, before they then edit or update their own profiles. Of course, the approaches above also ensure that pupils are encouraged to take ownership of their own learning...

5, Pupils as owners of their own learning

When pupils are told to take a more active role in monitoring and regulating their own learning, the pace of their progress increases (Deci et al, 1982).

A simple method to help pupils take ownership of their own learning is to give each pupil a laminated card, one side green, the other red. At the start of the lesson, the card is placed on the pupil’s desk with the green side up. Once the teacher has given an explanation, if the pupil does not understand, they flip the card over to red.

As soon as one pupil flips the card to red, the teacher selects a pupil who is still showing green and that pupil goes to the front of the class and answers a question that the red pupil wants to ask.

This approach encompasses both the pedagogy of engagement and the pedagogy of contingency because there is nowhere to hide – pupils are either saying they understand, or that they want some help. This means pupils are

constantly required to think about whether they understand or not. This approach activates pupils as owners of their own learning but it also allows the teacher to be responsive to pupils’ needs.

This is an example of metacognition. Metacognition describes the processes involved when pupils plan, monitor, evaluate and make changes to their own learning behaviours. Metacognition has two dimensions: metacognitive knowledge and self-regulation (EEF, 2018b).

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

- The pupil’s knowledge of their own cognitive abilities.
- The pupil’s knowledge of particular tasks.
- The pupil’s knowledge of the different strategies that are available to them and when they are appropriate to the task.

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

Self-regulated pupils are aware of their strengths and weaknesses, and can motivate themselves to engage in, and improve, their learning.

And finally...

We should ensure all assessment decisions are focused on three things: purpose, process and validity

Purpose

Whenever we engage in a form of assessment, we should ask ourselves why. How will this assessment data help pupils to make better progress? If an assessment or data collection exercise is solely for management purposes, rather than to actually help pupils make progress, then it should stop.

Process

We should think about the process by which we assess, input data, and report the outcomes of assessment. When and how often are we expected to assess and input data? Are we expected to engineer a test for pupils or can data be gathered in a more holistic, synoptic way? What will be the outcome of this data collection exercise? Think about the opportunity cost. How long will it

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take and what else could you be doing that might have more impact?

Validity

How valid will the data we garner from assessments be? How accurate and useable? The data might help us by, for example, identifying “at-risk” pupils who require additional interventions, but if the actual data we mine is not accurate then all our subsequent actions may be futile or misguided.

Have we triangulated previous assessments with actual validated outcomes? Have previous assessments helped to predict these outcomes and therefore been useful? Did the subsequent learning interventions prove effective?

We may wish to consider what is actually being assessed and if indeed that thing is assessable in a meaningful way. What, for example,

are we comparing a pupil outcome to? Are those things comparable? Is it possible at this stage to assess progress? Or might we be measuring a poor proxy for progress? Is progress in this topic and subject actually linear? Or is progress messier because different things are being assessed in different topics at different times?

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