Whitepaper

The EEF's Effective Professional Development Report

What does it mean for school-based instructional coaches?

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Executive Summary

Instructional coaching has become one of the most-discussed forms of teacher professional development (PD) globally. Defined by regular, individualised, evidence-informed cycles of observation, feedback, and practice, coaching is often positioned as one of the most effective forms of job-embedded PD. The EEF's 2021 Effective Professional Development Guidance Report provides the most rigorous and detailed articulation to date of what actually makes PD work. At its heart is the identification of 14 mechanisms: specific, observable building blocks that shift teacher practice and improve pupil outcomes. This white paper analyses those mechanisms through the lens of instructional coaching, offering an integrated model that draws together PD science, cognitive science, and research on teacher expertise.

Key conclusions:

- Instructional coaching is uniquely well-aligned to the mechanisms identified by the EEF - particularly those connected to rehearsal, feedback, modelling, action planning, and prompts/cues.
- Coaching's strength lies not in its form but in its mechanisms: the EEF cautions that forms (e.g., coaching, lesson study) are too loosely defined to guarantee effectiveness; mechanisms are what matter.
- The science of learning shows that expert performance develops through deliberate practice, feedback cycles, cognitive load management, and spaced retrieval - all embedded within well-designed coaching.
- Instructional coaches can use the mechanisms as a blueprint for designing coaching cycles that maximise teacher change and minimise cognitive overload.
- Implementation is critical: coaching must fit workload, be supported by leadership, be aligned with school priorities, and be protected from performative or appraisal-driven distortions.

This paper concludes with a set of practical actions for instructional coaches and school leaders and a proposed framework - the 'Mechanism-Aligned Coaching Cycle,' that aligns evidence on teacher learning with the EEF's guidance.

Introduction

The challenge of effective professional development

Teacher quality is the most significant in-school factor influencing pupil outcomes (Coe et al., 2014). Effective professional development (PD) is therefore one of the most cost-effective levers schools have for improvement. Yet PD quality varies widely, and many teachers report that PD does not improve their instructional capability. The EEF's review of 104 PD studies revealed substantial variance: while PD is positive on average, poorly designed PD can waste time or even harm practice. For those of us who have been in the classroom ourselves, this negative experience of teacher learning may have been a common experience: hours and hours a term, sat in a school hall, listening to training which didn't seem relevant and rarely transferred into classroom changes.

This is why the EEF's *Effective Professional Development* guidance report has been so transformational to school leaders. It brings together a large body of evidence to answer a deceptively simple question: what makes professional development (PD) actually change teaching and improve pupil outcomes? It draws on systematic reviews and trials and concludes that PD is most effective when it activates specific mechanisms. These mechanisms are the building blocks that really change teacher behaviour.

The EEF report sits on top of a growing literature, showing that PD can improve both teaching quality and pupil learning, but with highly variable effect sizes. Systematic reviews and meta-analyses by Fletcher-Wood & Zuccollo (2020) and Sims et al. (2021) found that well-designed PD can have impact comparable to reducing class sizes or adopting new curricula, yet many programmes have negligible effects. Kennedy's (2016) review of experimental PD studies makes the same point: PD is not inherently effective. Its impact depends on how it changes teachers' underlying reasoning and repertoires, not on whether it is labelled 'coaching,' 'lesson study' or a 'workshop.'

The EEF therefore shifts the conversation away from the **forms** of professional development and its simple structural features, such as total hours, and towards the mechanisms through which PD exerts its influence.

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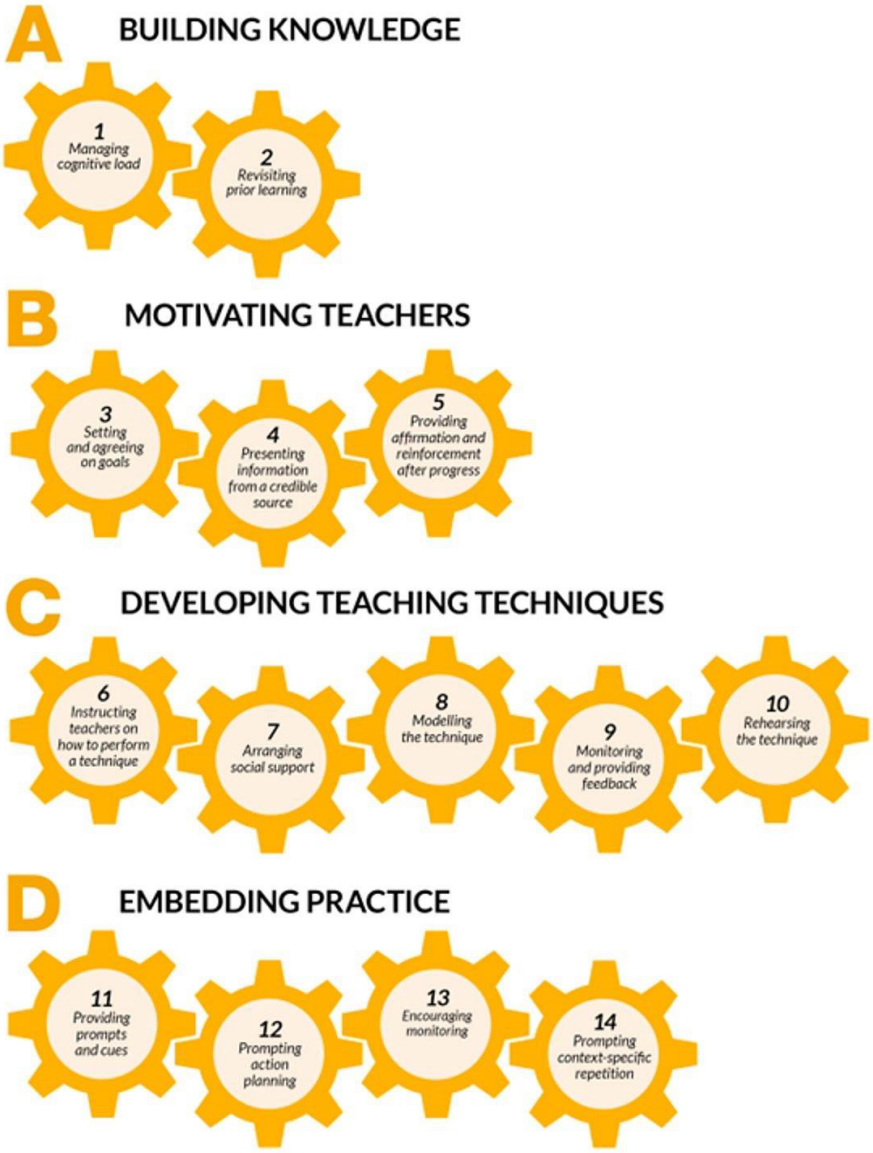
Mechanisms, not formats: 14 building blocks of effective PD

Synthesising evidence from its own systematic review and wider literature, the EEF identifies 14 mechanisms of the most effective and impactful professional development. These are then grouped into four functions: building knowledge, motivating teachers, developing teaching techniques and embedding practice.



PD that activates more of these mechanisms, from across the four groups, tends to have larger and more reliable effects. This mirrors Sims & Fletcher-Wood's (2021) critical review, which argues that traditional design features (like duration or collaboration) only matter insofar as they enable underlying mechanisms such as

practice, feedback or reflection. Kennedy (2016) similarly proposes that programmes differ mainly in the problems of practice they target and the mechanisms they use to address them, not in superficial design features.

Effective PD builds knowledge while managing cognitive load

The report's first function, building knowledge, stresses two mechanisms:

1. Managing cognitive load
2. Revisiting prior learning

Effective PD helps teachers understand new ideas without overwhelming working memory, by: sequencing content, using worked examples, and limiting extraneous information. This is consistent with Cognitive Load Theory, which shows that instructional design must respect the limited capacity of working memory to support learning (Sweller, van Merriënboer and Paas, 2019).

The second mechanism, revisiting prior learning, reflects strong evidence on retrieval practice and spacing. Roediger & Karpicke (2006), for example, show that testing and recalling information leads to better long-term retention than restudying alone, and that spacing these retrieval opportunities boosts durability of learning.

The EEF therefore recommends PD that:

- revisits key ideas over time
- incorporates opportunities for teachers to retrieve and apply concepts
- deliberately sequences learning so that new ideas connect to prior knowledge

A second cluster of mechanisms relates to motivation: setting and agreeing meaningful goals, using credible evidence and role models, and providing affirmation when teachers make progress.

Goal-setting research also supports this emphasis. Locke and Latham's (2002) synthesis of 35 years of studies finds that specific, challenging goals, agreed with participants and accompanied by feedback, consistently produces higher performance than vague 'do your best' exhortations.

The EEF also highlights the importance of credibility and trust. Teachers are more likely to engage with PD led by knowledgeable experts or respected peers, and framed in terms of robust evidence. This resonates with Cordingley et al.'s (2015) review, which finds that sustained, collaborative PD involving specialist expertise and structured peer support is more likely to change practice than one-off events.

At the organisational level, Kraft & Papay (2014) show that teachers working in schools with strong professional environments, which are characterised by supportive leadership, collaboration and useful PD, improve substantially more over time than colleagues in weaker environments, even with similar experience. The implication here aligns with the EEF: effective PD is not just about content, but also about climate. Teachers need to feel psychologically safe, professionally valued and confident that the PD is worth their limited time.

Effective PD develops concrete teaching techniques

A major contribution of the EEF report is to foreground mechanisms that move beyond knowing to doing:

- Explicit instruction in practical techniques
- Modelling of those techniques
- Guided feedback on attempts
- Rehearsal in a safe environment, before and after classroom use

These mechanisms are strongly supported by wider research. Cordingley et al. (2015) identify modelling and opportunities to practise new approaches, often with external feedback, as common features of effective PD. Ericson's (1993) work on expert performance, highlights that expertise develops through sustained, structured, goal-directed practice over many years. Great teachers are not born, they are made. Exceptional performers across other domains, such as music, sport, chess and medicine, typically accumulate thousands of hours of such practice.

However, deliberate practice is not the same as experience or repetition. Just doing something repeatedly does not lead to expertise. Ericsson differentiates deliberate practice from:

- Performance (doing the activity in real time)
- Play or enjoyment-based practice
- Routine work experience. Years of experience alone do not reliably predict improved performance.

Instead, deliberate practice requires specific conditions. According to Ericsson, deliberate practice is characterised by:

- Clear performance goals
- Immediate, informative feedback
- Opportunities to correct errors

- Tasks at the edge of current ability (optimal challenge)
- Focused, effortful attention
- Repetition with refinement, not just rote repetition

Ericsson also emphasises that this type of practice is effortful, cognitively taxing, and cannot be sustained for long periods. Even elite performers rarely exceed 3–4 hours a day of true deliberate practice. Cognitive research also reinforces the value of *effortful* practice. Bjork & Bjork (2011) argue that 'desirable difficulties,' conditions that require effortful retrieval and adaptation, enhance long-term learning, even if they depress short-term performance. PD that includes rehearsal, problem-solving around real classroom dilemmas, and feedback on actual lessons aligns well with this principle.

The EEF therefore emphasises active PD, where teachers should *do* something with new ideas, rather than just hearing about it.

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Effective PD embeds change into everyday practice

Perhaps the most distinctive part of the EEF framework is its final group of mechanisms aimed at embedding practice: prompts and cues, detailed action planning, self-monitoring, and repeated practice in the classroom.

These align with a large body of implementation science. Durlak & DuPre's (2008) review of more than 500 studies shows that the quality of implementation, including ongoing monitoring and adaptation, is strongly related to programme outcomes.

In PD terms, this means that teachers are more likely to sustain new practices when:

- they have clear action plans specifying when, where and how a technique will be used
- they receive prompts and reminders at the moment of need (e.g. checklists, cue cards, emails)
- they monitor their own implementation (for example via logs, video reflection or pupil work)
- they have opportunities for context-specific repetition, trying the same technique across multiple lessons and classes

The EEF argues that many PD programmes underperform because they stop at the training stage and fail to support behaviour change over time. Effective PD, by contrast, includes concrete supports that help teachers turn intentions into habits.

Overall, the EEF report advances several key messages about what effective PD looks like in practice.

Key messages

1. Balance mechanisms across four functions
   PD is most powerful when it *builds knowledge, motivates teachers, develops techniques, and embeds practice*. Focusing only on knowledge, or only on motivation is insufficient.
2. Don't over-rely on structural proxies
   Longer, collaborative programmes are not automatically better. Duration, collaboration, or external expertise are useful only insofar as they enable the core mechanisms, such as modelling, rehearsal, feedback and follow-up.
3. Align PD with the science of learning
   Effective PD mirrors how people learn: it manages cognitive load, builds on prior knowledge, uses retrieval and spacing, encourages effortful practice and gives timely feedback.
4. Attend to school context and professional environment
   Supportive leadership, time allocation, coherent priorities and a culture of trust shape whether PD mechanisms can operate at all. This echos Kraft & Papay's (2014) finding that professional environments powerfully influence teacher growth.
5. Plan for implementation from the start
   Effective PD designs build in prompts, action planning, self-monitoring and context-specific repetition, consistent with wider evidence that implementation quality is a major determinant of programme success.

However, to do many of these things well, particularly the third category of mechanisms on developing teacher techniques, a skilled coach is needed. A teacher or coach is essential to help:

- Diagnose weaknesses

- Break down complex skills
- Provide precise models
- Design targeted practice tasks

Without guided support, teachers may plateau, which is why schools worldwide are now looking to instructional coaching to help their professional development transfer to classroom practice.

Instructional Coaching: The solution to the problem of implementation

Instructional coaching has emerged as a promising approach to developing teacher expertise, with Kraft, Blazar and Hogan (2018) claiming it not only has a positive impact on teacher performance, yet also on student progress. Yet, like all forms of professional development, it must be understood not as a monolith but as a set of processes. Indeed, the EEF highlights the problem of forms: two programmes labelled 'instructional coaching' can differ dramatically. Any search on the internet will prove this point: instructional coaching has an identity crisis and when people use this term, their mental model of what the process looks like could be completely different from somebody else's. This might include a different frequency, feedback type or rehearsal expectations for instance. When perhaps what matters more are the mechanisms: those actions that reliably shift behaviour.

Why instructional coaching?

Instructional coaching is distinct from other forms of PD because it:

- is individualised and context-specific
- is ongoing, not one-off
- typically includes observation, feedback, modelling, and rehearsal
- creates a protected space for goal-setting and practice
- includes accountability and support in manageable, regular cycles

These features align strongly with the EEF's mechanisms and because coaching relies on frequent contact, it also naturally enables spaced retrieval and iterative refinement.

Yet, for a busy school leader wishing to implement instructional coaching in his school, it can be difficult to know where to start. There are a plethora of platforms and courses they could invest in and indeed, are many different coaching models they could embed. However, the EEF's professional development guidance report is also a useful

tool in helping leaders make sense of exactly what an instructional coach should be doing in their daily interaction with their coachee. This white paper examines how the fourteen mechanisms can help teachers become better instructional coaches and what this means for designing effective coaching systems.

Mechanism Group A: Building Knowledge

As previously outlined, the EEF identifies two mechanisms essential to building knowledge:

- Managing cognitive load
- Revisiting prior learning

These principles are foundational to cognitive science and have significant implications for coaching.

Managing cognitive load

The guidance emphasises that PD must reduce unnecessary load, offer clear examples, and focus on the most relevant content. This is crucial because human working memory is limited, as Sweller et al. (2019). In addition, Shavelson and Stern's (1981) cognitive processing studies found that teachers make decisions at extremely rapid rates because of simultaneous demands from differing pupils. They suggest teachers make one decision every few seconds, supporting the estimate of 100–300 decisions per hour. Research on expert/novice teacher cognition also shows expert teachers automate many decisions, while novices experience heavier cognitive loads because of the intense density of decisions. Leinhardt (1983) documented rapid micro-decisions in task monitoring, pacing, and questioning. While, Livingston & Borko (1989) found novices spent more cognitive resources deciding what to respond to and when.

However, Instructional coaching is uniquely positioned to manage cognitive load because it focuses on one small, high-leverage change at a time. Techniques are also broken down into component parts before being introduced in practice and modelling provides worked examples that reduce intrinsic load. Effective coaches can also tailor complexity based on the teacher's expertise level. In his book, Responsive Coaching (2023), Goodrich argues that novice, competent, and expert teachers learn in different ways and therefore require different forms of coaching. A 'one-size-fits-all' coaching model is not only ineffective but can actively overload teachers.

Novices need:

- *High-scaffold*, tightly focused steps
- Modelling of short, highly specific actions
- Rehearsal and repetition
- Protection from extraneous cognitive load

Developing teachers need:

- Increased autonomy
- Opportunities to problem solve
- Coaching that builds on emerging schemas

Expert teachers need:

- Complex, adaptive challenges
- Coaching focused on reasoning, decision-making, and pupil thinking
- Collaborative inquiry rather than directive scripting

Goodrich also emphasises the importance of adjusting the balance between challenge and support depending on expertise, with more novice teachers needing high support and lower challenge and more expert teachers requiring higher challenge and greater autonomy.

Practical strategies for coaches

- Coaches need to work with their coachee to:
- Identify a single actionable step (Bambrick-Santoyo, 2012) to avoid overload.
- Prioritise classroom routines or explanations that free up teacher capacity.
- Avoid giving lists of disconnected strategies; connect advice to a shared mental model.
- Break complex strategies (e.g., retrieval practice routines) into steps.
- Use worked examples, through modelling to reduce element interactivity.
- Introduce progressive complexity: Expertise develops by gradually increasing challenge.

Revisiting Prior Learning

The EEF stress that retrieval and spaced practice, long established in cognitive psychology, are essential for embedding knowledge. PD should revisit topics, use quizzes, or use tasks that require application over time.

Coaching cycles typically run weekly or fortnightly, which are ideal for spaced retrieval. During their meetings, coaches can revisit previous goals, pupil work connected to earlier techniques and video evidence of classroom events. The structured nature of cycles supports interrupting forgetting, a key insight from Bjork's 'desirable difficulties' theory.

Practical strategies for coaches

Coaches might start each session with a question which encourages retrieval, for example, 'What did we focus on last time? What happened when you tried it?' Or, as Hughes, Cottinghatt and Kohlbeck (2026) advocate in their book, to as the teacher to learn from success and reinforce a decision they made which had the desired impact.

It might also be useful to embark on some professional dialogue on technique sequences, such as cold call steps. This also helps teachers avoid lethal mutations of strategies which may creep in, such as not allowing enough wait time or saying a student's name before asking a question. These instructional choices undermine the effectiveness of a strategy, yet the teacher might not even be aware they are doing them. This is why it is key to spend time reiterating and retrieving previous steps in coaching cycles.

Video can also be a useful tool here. The ability to rewatch clips of earlier lessons to observe progress can help centre a teacher's reflections on the decisions they made. While the dialogue which sits alongside that can help make their mental models clearer to a coach.

Mechanism Group B: Motivating Teachers

The EEF identifies three mechanisms that enhance motivation: Setting and agreeing on goals; Presenting information from credible sources; Providing affirmation and reinforcement after progress.

Goal Setting

Goal setting has the potential to be one of the strongest behaviour-change mechanisms, improving performance when goals are specific, challenging and ideally, agreed collaboratively. As instructional coaching is inherently goal-driven, it has the potential to embody this mechanism perfectly.

When done well, goals in instructional coaching are personalised, observable, and time-bound. Teachers commit to trying the new technique in the next lesson and coaching platforms like StepLab can also enable teachers to self-track these goals.

Practical strategies for coaches

There are many different scripts and feedback guides instructional coaches might use to help frame their goal setting conversations with teachers. The '3Ps' format can be simple but effective. It stands for: Precise, Practical, Proximal.

Precise means that the goal must identify a specific, clearly observable, and unambiguous teacher action. Not only does this remove interpretive ambiguity, but it also enables focused rehearsal and ensures the teacher and coach share the same mental model. So for example, rather than a goal of 'improving questioning,' it would be reframed to 'use 'cold call' by asking a question, pausing for 3 seconds, then selecting a pupil.' This precision prevents overload by narrowing the target behaviour.

Practical ensures the goal describes an action the teacher can realistically perform in their next lesson and can be directly practised during coaching. **It** makes improvement actionable**,** builds procedural knowledge through rehearsal and avoids abstract or conceptual goals that do not translate into behaviour. So, for example **'**use more formative assessment strategies' becomes 'after each explanation, use a show-me board check with at least 3 follow-up questions.'

Proximal ensures the goal is near-term, achievable within days rather than weeks, and represents the next logical step in a teacher's development, not a leap too far ahead. This helps to build momentum and early success, supports habit formation, ensures cognitive load is at the right level of challenge and matches the teacher's expertise – which is central to responsive coaching.

As the EEF state, small, incremental, repeated action steps, reviewed frequently, help embed practice.

It is also key to connect teacher goals to student outcomes to enhance purpose. Understanding the 'why' behind strategies deepens mental models and supports transfer. Teachers who know why a strategy works are more able to:

- make adaptations that preserve its effectiveness
- choose when (and when not) to use it
- respond flexibly to pupil needs

This is because understanding principles develops robust mental models. Shavelson and Stern (1981) found that expert teachers base decisions on deep conceptual

knowledge about learning, not surface routines. Without knowing the underlying rationale, teachers cannot recognise when a strategy fits the demand of the situation.

Presenting Information from Credible Sources

The EEF notes that PD is more effective when grounded in evidence and presented by credible experts. For example, Dylan Wiliam's involvement in Embedding Formative Assessment increased teacher buy-in. So what are the implications for instructional coaching? Simply, instructional coaches themselves must be credible. They need to have deep content knowledge, their advice must be evidence-based and they must be able to demonstrate their own teaching skill through modelling.

Practical strategies for coaches

Now more than ever, instructional coaches have access to quality trusted sources for research. Yet, there is also the risk, with increased blogging and social media, that something which might seem evidence-based could be a lethal mutation. Therefore, instructional coaches should prioritise engaging with research from trusted sources, such as the Education Endowment Foundation, or from cognitive science backed teacher courses such as 'How Teaching and Learning Happens' from Academica University of Applied Sciences. Harnessing internal expertise can also be powerful, so sharing examples of high-quality practice from within the school.

Providing Affirmation and Reinforcement

The EEF cites evidence that affirmation after progress increases motivation and persistence. Reinforcement must come after teachers attempt the behaviour. Skilled coaching includes highlighting 'bright spots' in teacher practice, celebrating incremental improvement and reinforcing the effective implementation of goals.

Practical strategies for coaches

Again, the use of video can be a great way to highlight and emphasise success. There is something incredibly powerful about being able to refer specifically to granular steps or decisions the teacher took with the visual evidence. The impact on the students when watching lesson clips is also often more noticeable and it is much more effective to offer praise that is specific and connected to impact. This helps build a culture where improvement is normalised.

Mechanism Group C: Developing Teaching Techniques

This group contains five mechanisms which are central to instructional coaching:

- Instruction

- Practical social support
- Modelling
- Feedback
- Rehearsal

Instructional coaching is, arguably, the PD form most capable of delivering all five with high fidelity.

Instructing Teachers How to Perform a Technique

A common misconception about instructional coaching is that the word ‘instruction’ means telling teachers what to do. As this type of instructional coaching was developed in America by Jim Knight in the 1990s, it uses the word ‘instruction’ which translates to ‘teaching’ in many other parts of the world. Instructional coaching therefore means coaching on teaching. Does this mean that a coach never instructs a teacher about how to get better? It doesn’t, as sometimes a coach may need to offer their advice and share their expertise. Jim Knight’s brand of instructional coaching is more dialogic than directive and he also concedes that if needed, a coach should never withhold their expertise (ref here).

The EEF also emphasises that effective professional development includes clear, guided instruction that explains concepts and procedures. This means that coaches should regularly explain specific techniques, break down complex instruction into steps and provide explanations tailored to coachee need. They might also suggest learning experiences for the teacher which include an element of social support.

Arranging Practical Social Support

Social support, through peer observation, conversation and shared practice can improve implementation and wellbeing. When instructional coaching is done well, coaches serve as continuous partners in improvement.

Practical strategies for coaches

Using triads - a structure where coach + teacher + peer collaborate together, may be more effective for instructional coaching because it strengthens learning, motivation, reflection, and transfer, while reducing the cognitive load and emotional pressure associated with one-to-one coaching. There is also strong evidence from research on social learning, peer support, cognitive apprenticeship, and professional communities showing that small-group structures like triads lead to deeper, more sustained teacher change (Jarvis et al., 2017).

The key with triads is that they increase social support, which the EEF identifies as a key PD mechanism, which states that peer support:

- boosts motivation
- normalises challenges
- improves problem solving
- supports long-term implementation

In triads, the teacher is supported not only by the coach but also by a peer who understands the context, routines and culture of the school. This makes the coaching 'stickier' because it is embedded in real professional relationships rather than dependent on one coach, which improves implementation (Sims et al., 2021). This teacher collaboration is key. Cordingley (20025) argues that collaboration is one of the strongest drivers of teacher learning, when it is inquiry-based and focused on evidence of practice. In her landmark reviews for the *Centre for the Use of Research and Evidence in Education* (CUREE), Cordingley found that 'Collaborative professional learning has a consistently positive impact on teachers' classroom practice' (Cordingley et al., 2005: 3). This review synthesised 17 systematic research studies and showed that teachers who worked together on problems of practice, not just met socially or shared resources, developed: greater confidence, an increased repertoire of strategies, a better ability to analyse pupil thinking and more responsive, adaptive teaching. This kind of collaboration included co-planning, jointly analysing evidence of student learning, observing one another and sustained cycles of reflection. This is where another practical coaching strategy could be recommended: a collaborative analysis of video evidence of a teacher's lesson.

Video removes the limitations of memory and perception. Human memory is selective and fallible and too often, teachers cannot accurately recall what happened moment-to-moment in a lesson because they make hundreds of rapid decisions and attend to multiple stimuli simultaneously. Shavelson and Stern (1981) show teachers rely on selective perception and often miss important classroom interactions during real-time teaching. While Van Es and Sherin (2002) demonstrate that video allows teachers to re-see and re-think classroom events with far greater clarity. This is what makes video so powerful as it provides objective, revisitable evidence that anchors coaching conversations in reality, not perception.

Collaborative video analysis may also support deeper professional noticing – a teachers' ability to recognise key features of classroom interactions, such as pupil thinking, misconceptions, or missed opportunities. Sherin and Han (2004) found that collaborative watching of video significantly improves teachers' ability to notice student thinking. Furthermore, Van Es and Sherin (2010) show that teachers who analyse their

own and others' videos develop more sophisticated pedagogical reasoning. Watching together also builds shared expertise and improves teachers' in-the-moment judgement.

Modelling the Technique

Modelling is one of the most powerful EEF mechanisms, enabling teachers to see expert performance and reducing cognitive load. Coaches can model:

- live in the classroom
- through video exemplars
- by scripting explanations
- by practising routines with teachers in a rehearsal space

Modelling links strongly to cognitive apprenticeship theory (Collins, Brown and Newman, 1989), where novices learn through observing experts perform tasks with commentary. This commentary allows coaches to make their mental models much more visible to their coachees. Yet, it also helps coaches to understand their coachees' mental models, steer their probing questions and offer bespoke guidance.

Providing Feedback

The EEF also recognises feedback as a powerful (if variable) PD mechanism. In coaching, feedback should be formative, specific and actionable. Deans for Impact (2019) state that feedback should be timely (ideally within a day or two of observation), granular and focused on one area and include clear examples of what effective practice looks like.

Rehearsing the Technique

The EEF also notes that rehearsal, even in a non-classroom context, strengthens skill acquisition and habit formation. This is because rehearsal sits at the intersection of:

- deliberate practice
- behaviour change
- automaticity development

Coaching encourages teachers to 'over-learn' techniques so they embed into procedural memory, reducing cognitive load during teaching.

Practical strategies for coaches

Role-play, rehearsal, practice of routines and scripting/modelling are all effective strategies which are underpinned by the evidence in the EEF PD report. These strategies create deliberate practice conditions (Ericsson et al., 1993) which can help reduce cognitive load (Sweller, 2019) and support habit formation (EEF, 2021). They also align with what we know about how teachers move from novice to expert.

Role-playing questioning sequences for instance builds cognitive scripts and decision pathway**s** for a skill that is otherwise extremely cognitively demanding in real time. This is because classroom questioning requires the teacher to attend to:

- sequencing of prompts
- pupil responses
- misconceptions
- cold-calling choices
- pacing
- class behaviour

Trying to master questioning while teaching overloads a teacher's working memory, while practising the structure of responses outside the classroom frees cognitive resources for in-the-moment teaching. Ericsson's deliberate practice research (1993) also demonstrates that breaking skills into components and practising them repeatedly leads to quicker automaticity. It also allows the teacher to try out questioning without pupil unpredictability, refine the active ingredients of questioning to increase fluency before using it in a lesson. This could make classroom execution sharper, calmer and cognitively lighter.

Rehearsing explanations can also be an effective strategy for a coach to employ. High-quality explanations rely on:

- conceptual clarity
- sequencing of ideas
- examples and non-examples
- anticipating misconceptions
- language precision

Explaining live without prior rehearsal massively increases extraneous cognitive load and might often lead to muddled explanations. Instead, rehearsal allows the teacher

to practice concise language, refine examples and check sequencing with the coach. This might leads to clearer direct instruction and improved pupil understanding.

Practising transitions or routines also help with habit formation and developing automaticity. If routines aren't automated, the teacher must think consciously about them - consuming cognitive resources needed for instruction. Habit formation research (Lally et al., 2010) shows that repeated practice in context-specific settings builds routines that become automatic and resistant to variation. Therefore, instruction improves because routines remove disruption and free attention.

Finally, spending some time scripting and performing modelling episodes makes implicit expert thinking explicit and coherent. The Cognitive Apprenticeship Model (Collins, Brown and Newman, 1989) shows modelling is foundational for novices. While scripting clarifies what expert performance should look like.

Mechanism Group D: Embedding Practice

The final group of mechanisms helps sustain behaviour change, which after all is the fundamental goal for coaching. The report outlines the following mechanisms:

- Prompts and cues
- Action planning
- Self-monitoring
- Context-specific repetition

Again, this is another group of mechanisms where instructional coaching, particularly when supported by technology, excels.

Prompts and Cues

The EEF emphasises that reminders such as emails, posters, checklists, prevent the decay of training. Coaches can naturally provide prompts in regular cycles, such as post-session reminders, cue cards for routines or the embedding of micro-prompts in lesson plans.

Action Planning

Action planning is a high-impact behaviour-change mechanism. Effective coaching sessions routinely end with an action plan, such as 'In tomorrow's lesson, I will… so that…' Coaching only matters if it leads to behaviour change in the classroom. The role of the coach is to help the teacher turn advice into deliberate, manageable

action and by taking the time to action plan, this creates a commitment from the teacher that they will do something with their feedback.

Encouraging Self-Monitoring

Self-monitoring increases intentionality and reflection. Again, video coaching is especially powerful here: teachers can observe their own behaviour and track progress over time.

Context-Specific Repetition

As previously highlighted, repeated practice in the same context helps habits form. Because coaching cycles align with actual teaching, they provide ideal conditions for this context-specific repetition.

Practical strategies for coaches

Teachers operate in complex, cognitively demanding environments. Therefore, using prompts and cues reduces the load on working memory and helps ensure that the intended action happens in the moment, not just during coaching. Micro-prompts on lesson plans, such as a short, bold “Coaching Focus: Wait 3 seconds before Cold Call” line at the top of the teacher’s lesson plan template, can help remind the teacher to action the feedback. As can cue cards for routines, which remind the teacher of the steps of transitions, key language stems or behaviour expectations scripts. These can sit on the teacher’s desk or laptop lid and act as a scaffold during those key decision making moments.

Turning coaching feedback into deliberate, manageable behaviour choices through action planning transforms feedback into an intention with a precise behavioural commitment, increasing follow-through and reducing ambiguity. Lesson-specific planning, where the coach and teacher plan:

- the *exact spot* in tomorrow’s lesson where the target move will happen
- what language will be used
- which pupils will be cold called
- what the success signal will look like

Keeps accountability visible and enables checking back: coaching is only effective when it results in behaviour change in the classroom, and action planning is the bridge between feedback and execution.

Helping teachers become intentional, reflective and self-aware in cycles through self-monitoring can also strengthen agency as it turns teachers into analysts of their own

behaviour, not passive recipients of advice. Pre-lesson self-monitor checks can help here, where the teacher completes a quick mental checklist:

- "Am I ready to stand still for instructions?"
- "What is my Cold Call plan today?"

This self-monitoring cultivates ownership - the strongest driver of sustained improvement.

Summary of instructional coaching strategies

EEF Mechanism Group	EEF Mechanism	Aligned Practical Coaching Strategies
A. Building Knowledge	1. Managing Cognitive Load	• Set one actionable step only • Break complex techniques into component parts • Prioritise routines/explanations • Use worked examples through modelling • Avoid disconnected strategies; link to mental models • Adjust scaffolds to expertise
A. Building Knowledge	2. Revisiting Prior Learning	• Start sessions with retrieval questions • Revisit previous steps to prevent lethal mutations • Use video to review progress • Discuss technique sequences
B. Motivating Teachers	3. Setting and Agreeing on Goals	• Use 3Ps: Precise, Practical, Proximal • Make goals observable and short-term • Link goals to pupil outcomes • Rehearse goal behaviour

EEF Mechanism Group	EEF Mechanism	Aligned Practical Coaching Strategies
B. Motivating Teachers	4. Presenting Information from Credible Sources	• Reference trusted evidence (EEF, cognitive science) • Use internal exemplars • Avoid lethal mutations
B. Motivating Teachers	5. Affirmation and Reinforcement	• Use video to highlight success • Give specific, impact-linked praise • Reinforce incremental progress
C. Developing Teaching Techniques	6. Instruction	• Break techniques into clear steps • Provide worked examples • Tailor support to expertise level
C. Developing Teaching Techniques	7. Practical Social Support	• Use triads (coach + teacher + peer) • Joint analysis of pupil work/lesson events • Build supportive professional culture
C. Developing Teaching Techniques	8. Modelling	• Model live or through video • Script explanations • Make expert thinking visible
C. Developing Teaching Techniques	9. Monitoring and Feedback	• Give timely, granular feedback • Use video evidence • Provide clear success criteria
C. Developing Teaching Techniques	10. Rehearsal	• Role-play questioning • Rehearse explanations • Practise routines and

EEF Mechanism Group	EEF Mechanism	Aligned Practical Coaching Strategies
		transitions • Script modelling episodes
D. Embedding Practice	11. Prompts and Cues	• Use cue cards for routines • Embed micro-prompts in plans • Send post-session reminders
D. Embedding Practice	12. Action Planning	• Create 'In tomorrow's lesson I will…' plans • Identify exact lesson moment • Plan wording, pupil selection, success signals
D. Embedding Practice	13. Self-monitoring	• Use video for self-reflection • Pre-lesson self-check prompts • Encourage reflective habits
D. Embedding Practice	14. Context-Specific Repetition	• Repeat techniques across lessons • Align coaching cycles with classroom practice • Use repetition for habit formation

Conclusion

Teacher expertise develops over years, not weeks. Research on expert teachers (Berliner, 2004; Hattie, 2003) suggests that expert practice is:

- intuitive but underpinned by deep domain knowledge
- automatic in routine decisions
- adaptive to complex contexts

- grounded in rich mental models of instruction

Instructional coaching can accelerate this development because it creates structured practice opportunities. Yet, there are implementation considerations for school leaders.

The EEF stresses that PD success requires attention to context, adaptation, leadership alignment and time constraints. Instructional coaching must be implemented carefully to avoid becoming burdensome or performative.

Leaders must consider:

- How they protect coaching time; otherwise cycles break down.
- How they separate coaching from appraisal.
- What adaptations are necessary for their context, be that frequency, pairing, focus - so long as the mechanisms remain intact.
- How coaching aligns with school priorities without losing individualisation.

Overall, the EEF's Effective Professional Development report offers the most detailed, actionable map of teacher learning mechanisms currently available. Instructional coaching, when implemented with fidelity to those mechanisms, is one of the PD forms most naturally aligned to cognitive science, behaviour change theory, expertise development and deliberate practice principles. Instructional coaching is not automatically effective. But when operationalised through the mechanisms outlined by the EEF, it becomes a powerful tool for improving instructional quality.

Recommendations for schools:

1. Adopt coaching models that explicitly embed the 14 EEF mechanisms.
2. Protect time for coaches and teachers to engage in meaningful cycles.
3. Train coaches in evidence-based pedagogies and behaviour-change science.
4. Use video to enhance feedback, modelling, self-monitoring and retrieval.
5. Align coaching goals with school priorities, but individualise techniques.
6. Track mechanism fidelity, not just completion of coaching sessions.
7. Avoid pairing coaching with high-stakes appraisal, which undermines openness and risk-taking.

References

Bambrick-Santoyo, P. (2012) Leverage Leadership: A Practical Guide to Building Exceptional Schools. San Francisco: Jossey-Bass.

Berliner, D.C. (2004) 'Describing the behavior and documenting the accomplishments of expert teachers', Bulletin of Science, Technology & Society, 24(3), pp. 200–212.

Bjork, E.L. and Bjork, R.A. (2011) 'Making things hard on yourself, but in a good way: Creating desirable difficulties to enhance learning', in Gernsbacher, M.A., Pew, R.W., Hough, L.M. and Pomerantz, J.R. (eds.) Psychology and the Real World: Essays Illustrating Fundamental Contributions to Society. New York: Worth Publishers, pp. 56–64.

Coe, R., Aloisi, C., Higgins, S. and Elliot Major, L. (2014) What Makes Great Teaching? Review of the Underpinning Research. London: Sutton Trust.

Collins, A., Brown, J.S. and Newman, S.E. (1989) 'Cognitive apprenticeship: Teaching the crafts of reading, writing, and mathematics', in Resnick, L.B. (ed.) Knowing, Learning, and Instruction: Essays in Honor of Robert Glaser. Hillsdale, NJ: Lawrence Erlbaum Associates, pp. 453–494.

Cordingley, P. (2015) 'The contribution of research to teachers' professional learning and development', Oxford Review of Education, 41(2), pp. 234–252.

Cordingley, P., Bell, M., Evans, D. and Firth, A. (2005) 'The Impact of Collaborative Continuing Professional Development (CPD) on Classroom Teaching and Learning.' Review: How Do Collaborative and Sustained CPD and Sustained but Not Collaborative CPD Affect Teaching and Learning? London: EPPI-Centre, Social Science Research Unit, Institute of Education.

Cordingley, P., Higgins, S., Greany, T. and Coe, R. (2015) Developing Great Teaching: Lessons from the International Reviews into Effective Professional Development. London: Teacher Development Trust.

Deans for Impact (2015) The Science of Learning. Austin, TX: Deans for Impact.

Deans for Impact (2019) Practice with Purpose: The Emerging Science of Teacher Expertise. Austin, TX: Deans for Impact.

Durlak, J.A. and DuPre, E.P. (2008) 'Implementation matters: A review of research on the influence of implementation on program outcomes', American Journal of Community Psychology, 41(3–4), pp. 327–350.

Education Endowment Foundation (2021) Effective Professional Development. Guidance Report. London: Education Endowment Foundation.

Ericsson, K.A., Krampe, R.T. and Tesch-Römer, C. (1993) 'The role of deliberate practice in the acquisition of expert performance', Psychological Review, 100(3), pp. 363–406.

Fletcher-Wood, H. and Zuccollo, J. (2020) The Effects of High-Quality Professional Development on Teachers and Students: A Rapid Review and Meta-analysis. London: Education Policy Institute.

Goodrich, J. (2023) Responsive Coaching: The Art and Science of Helping Teachers Improve. Woodbridge: John Catt.

Hattie, J. (2003) 'Teachers make a difference: What is the research evidence?', paper presented at the Australian Council for Educational Research (ACER) Annual Conference: Building Teacher Quality, Melbourne, October 2003.

Hughes, H., Cottinghatt, S. and Kohlbeck, M. (2026) Coaching for Adaptive Expertise. London: Routledge.

Jarvis, R., Dempsey, K., Gutierrez, G., Lewis, D., Rouleau, K. and Stone, B. (2017) Peer Coaching That Works: The Power of Reflection and Feedback in Teacher Triad Teams. Denver, CO: McREL International.

Kennedy, M.M. (2016) ‘How does professional development improve teaching?’, Review of Educational Research, 86(4), pp. 945–980.

Kraft, M.A. and Papay, J.P. (2014) ‘Can professional environments in schools promote teacher development? Explaining heterogeneity in returns to teaching experience’, Educational Evaluation and Policy Analysis, 36(4), pp. 476–500.

Kraft, M.A., Blazar, D. and Hogan, D. (2018) ‘The effect of teacher coaching on instruction and achievement: A meta-analysis of the causal evidence’, Review of Educational Research, 88(4), pp. 547–588.

Lally, P., van Jaarsveld, C.H.M., Potts, H.W.W. and Wardle, J. (2010) ‘How are habits formed: Modelling habit formation in the real world’, European Journal of Social Psychology, 40(6), pp. 998–1009.

Leinhardt, G. (1983) ‘Routines in expert and novice math teachers’ instruction’, Journal of Educational Psychology, 75(5), pp. 727–742.

Livingston, C. and Borko, H. (1989) ‘Expert–novice differences in teaching: A cognitive analysis and implications for teacher education’, Journal of Teacher Education, 40(4), pp. 36–42.

Locke, E.A. and Latham, G.P. (2002) ‘Building a practically useful theory of goal setting and task motivation: A 35-year odyssey’, American Psychologist, 57(9), pp. 705–717.

Roediger, H.L. III and Karpicke, J.D. (2006) ‘Test-enhanced learning: Taking memory tests improves long-term retention’, Psychological Science, 17(3), pp. 249–255.

Sims, S. and Fletcher-Wood, H. (2021) ‘Identifying the characteristics of effective teacher professional development: A critical review’, School Effectiveness and School Improvement, 32(1), pp. 47–63.

Shavelson, R.J. and Stern, P. (1981) ‘Research on teachers’ pedagogical thoughts, judgments, decisions, and behavior’, Review of Educational Research, 51(4), pp. 455–498.

Sweller, J., van Merriënboer, J.J.G. and Paas, F. (2019) ‘Cognitive architecture and instructional design: 20 years later’, Educational Psychology Review, 31(2), pp. 261–292.

Van Es, E.A. and Sherin, M.G. (2002) ‘Learning to notice: Scaffolding new teachers’ interpretations of classroom interactions’, Journal of Technology and Teacher Education, 10(4), pp. 571–596.

Van Es, E.A. and Sherin, M.G. (2008) ‘Mathematics teachers’ “learning to notice” in the context of a video club’, Teaching and Teacher Education, 24(2), pp. 244–276.

Sherin, M.G. and Han, S.Y. (2004) ‘Teacher learning in the context of a video club’, Teaching and Teacher Education, 20(2), pp. 163–183.

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