

Implementation theme - Active ingredients

In 2018, the EEF published *Putting Evidence to Work: A School's Guide to Implementation*—a guide for schools on how to implement their plans and interventions with the best chance of success. The guide is designed around a stage-by-stage approach to implementation.

This supplementary set of summaries draws together recommendations relating to specific themes across those stages—this one focuses on active ingredients and fidelity. It provides further information on what we mean by 'active ingredients', how to define them, and ways in which they can be used to support implementation. We discuss the importance of fidelity and how to balance fidelity with thoughtful adaptation.

Key points

- a. What do we mean by 'active ingredients'?
- b. Real-world examples of active ingredients—outside education
- c. Real-world examples of active ingredients—in education
- d. How do we define the active ingredients for our approach?
- e. Use your active ingredients to anchor the implementation process
- f. Ensure programmes and practices are delivered as intended, i.e. with fidelity
- g. Make thoughtful adaptations only when the active ingredients are securely understood and implemented.

a. What do we mean by ‘active ingredients’?

It is easier to implement an intervention if it is clear which features need to be adopted closely (that is, with fidelity) to get the intended outcomes.^{1,2,3} These features are sometimes called the ‘active ingredients’ of the intervention. A well specified set of ‘active ingredients’ captures the essential principles and practices that underpin the approach.³ They are the key behaviours and content that make it work.

Generally, the more clearly identified the active ingredients are the more likely the programme or practice is to be implemented successfully.^{2,3,4} On the other hand, implementation will be

more difficult if there isn’t a shared understanding of what the approach actually involves. Hence, when preparing for implementation, try and distil the essential elements of the programme or practice, share them widely, and agree them as fixed components that are applied consistently across the school.

Ultimately, the active ingredients can relate to any aspect of the intervention that you think is key to its success—the important thing is that you have an idea of where to be ‘tight’ and where to be ‘loose’.

b. Real-world examples of active ingredients—outside education

To illustrate what is meant by active ingredients let’s initially look at an example from outside education. Both the women’s and men’s English football teams are having a degree of success at the moment. This may in part be because the coaching staff and teams have built a better shared understanding of what they are collectively looking to achieve, both on and off the pitch. They have developed a set of core behaviours and principles that are intended to be applied consistently across all of the teams, from the junior squads through to the senior international teams. Here is a quote from Matt Crocker, Head of Player and Coach Development at the Football Association:

“We might not see players for two or three months, but condensing ‘England DNA’ down to six principles has made it really easy to get those messages across to the players. There

is a simple consistency across our teams and the players have more confidence when they step up to the seniors.”

Developing a consistent style of play has been helped by applying these principles on the training ground, so every session is familiar:

“One of the principles is ‘look up, play forward’. We want to dominate the ball, but we want to be positive and dynamic with it too,” Crocker says.

In the video below, the national men’s team manager, Gareth Southgate, and colleagues outline what they are looking to achieve through the process of defining and communicating ‘England DNA’: <https://vimeo.com/165766280>

c. Real world examples of active ingredients—education

As we apply the notion of active ingredients to education, we see a similar outcome in terms of a well-defined set of desired principles, activities, interactions and behaviours. Members of the [EEF Research School Network](#) have developed implementation plans to support changes in their schools, all of which specify active ingredients for an intervention (see below - available to

download [here](#)). Note how precisely the problem has been specified (*why?*), which then feeds through into a sharp description of the intervention (*what?*), implementation activities (*how?*) and implementation outcomes (*how well?*). The active ingredients are described in the second column.

- A plan to improve vocabulary and engagement with challenging texts at Bedlington Academy in Northumberland. Note how precisely the problem has been specified (*why*), which then feeds through into a sharp description of the intervention (*what*), implementation activities (*how*), and implementation outcomes (*how well*).
- An intervention designed to improve attendance of vulnerable pupils at Huntington School in York.
- A hypothetical example of an implementation plan for a new behaviour management policy, based on the [Improving Behaviour in Schools](#) guidance report.
- An implementation plan for the EEF project 'Flash Marking'—an approach to improve marking and feedback in Key Stage 4 English lessons, developed by Meols Cop High School in Southport.
- An implementation plan for the introduction of Knowledge Organisers at Durrington High School in Worthing.
- An implementation plan to improve reading at Key Stage One and Two, developed by The Greetland Academy in Halifax.
- An implementation plan to introduce retrieval practice at Bedlington Academy in Northumberland.

d. How do we define the active ingredients for our approach?

Established evidence-based programmes can go to great lengths to identify, test and refine the active ingredients for their approach. They are sometimes identified by reviewing multiple evaluations of a programme, or by mapping the underlying logic in great detail. Ideally, these active ingredients can then be scientifically tested to find out which elements really make a difference, and which don't.

Unfortunately, in a school environment it is rarely feasible to work in such a thorough way. At the same time, there is still value at the outset in defining a core set of practices that you think are required for successful implementation. They may not be exactly right, and should be tested and revisited over time, but it is a good place to start.

- ***Get the level of specificity right***

If your active ingredients are too broad then they can become vague platitudes; if they are too fine grained they can become overwhelming and constrictive. Schools have found it useful to set out the overall active ingredients with more detailed exemplification in bullets below (see the examples of implementation plans in section c).

- ***Separate the 'what' from the 'how'***

When distilling the key features of the intervention ('what' the intervention is) there is tendency to also include implementation activities for the intervention ('how' it will be put into action). Try and tease these two sets of factors out (the Implementation Plan template has columns for each—see [here](#)). For example, professional development activities should go in the 'Implementation Activities' column, whilst key behaviours that result from that professional development should be captured in the active ingredients column.

- ***Treat complex interventions systematically***

If you have a complex intervention that is made up of a number of different approaches, it may be worth defining the active ingredients for each approach, then creating an overarching implementation plan that describes how these various elements work together. For example, if you

One way to begin identifying the active ingredients for your intervention is to ask yourself, 'What are the key consistent activities and behaviours that will occur when it is working well?' For example, if the intervention is focused on developing pedagogy across the school—e.g. formative assessment—what are the core principles, strategies and behaviours that will reflect its use? The use of formative assessment is likely to differ across subjects, although there will be some core consistent features across these different contexts.

Here are a few guiding principles when capturing the active ingredients for your approach:

are looking to implement a new literacy strategy that is composed of multiple elements—e.g. phonics programme, 1-2-1 intervention, homework policy—consider their implementation both individually and collectively.

- ***Engage a range of stakeholders in the process***

Different people will bring different perspectives on what is more and less important. Being involved in defining the active ingredients is also a way of creating a sense of ownership and buy-in.

- ***Expect it to be tricky!***

The process of defining the active ingredients for an intervention and approach often turns out to be harder than you initially imagine. Create adequate space and time and consider asking someone to chair the process (who is willing to ask searching questions!).

- ***Test and develop over time***

Ultimately, there are limits to how accurately you can specify the active ingredients of an intervention before its use. Schools should therefore carefully monitor and assess the implementation of the active ingredients during delivery and use this data to refine the design of the intervention over time.

If you are looking to implement a programme outside of the school, speak to the developers for their thoughts on the key activities and principles (they may not be documented).

e. Use the active ingredients to anchor the implementation process

Although identifying the active ingredients for an intervention is not straightforward, it is worthwhile, and will set a firm foundation on which to base the implementation effort. Here are a few examples of where and how the active ingredients can support the implementation process:

- ***Directing the choice, sequence and content of implementation activities***

It is hard to know how to implement something without knowing precisely what that something is; yet, surprisingly often, schools head into making a change without a precise understanding of what they are looking to achieve. By clearly defining the active ingredients for your intervention you should be better placed to establish the nature, sequence and content of activities required to implement those ingredients. For example, professional development activities—e.g. training, coaching—should focus squarely on developing the knowledge, skills and behaviours that are captured in the active ingredients (see [here](#) for more information on Professional Development).

- ***Creating a shared understanding of the implementation process***

In the implementation guidance we stress the importance of clearly communicating what will be expected, supported and rewarded during the implementation process. This can only be achieved if there is clarity on the intended activities and behaviours for the approach. Specifying the active ingredients provides a way of developing a shared understanding of those intended behaviours, which in turn is likely to increase faithful implementation.

- ***Shaping the choice of implementation outcomes***

Monitoring implementation is a key, and often overlooked, aspect of the process. Clearly specifying the active ingredients for an intervention should naturally inform the selection of those outcome measures—if you know what you are looking for it is easier to capture it. The Prepare section of '[Putting Evidence to Work: A School's Guide to Implementation](#)' has more information on monitoring implementation.

- ***Knowing where to be 'tight' and where to be 'loose'***

Specifying the active ingredients can help you to establish the fixed elements of the intervention (i.e. those that require fidelity) and where there is scope for adaptation (see sections **f** and **g** for more information on fidelity).

- ***Handling problems during delivery***

It is almost inevitable that school will encounter difficulties when delivering a new approach. At this point, having a set of key active ingredients that you can return to can help refocus staff on the purpose and nature of the intervention.

f. Ensure programmes and practices are delivered as intended, i.e. with fidelity

A common challenge when adopting new programmes and practices is ensuring they are being used as intended. Staff may like some aspects of an intervention more than others and ‘cherry pick’ their favourite elements; new ideas and practices may lead to unintended adaptations to a programme that diminish its effect; people may struggle with some aspects of an approach and leave these elements out. The use of an approach, therefore, can vary greatly from teacher to teacher, and the educational outcomes they achieve may not meet the initial expectations.⁵ If we want to enable effective change, we need to make sure that the core requirements of the innovation are being met.

Fidelity is the most well-known and common measure of implementation. It describes to what degree an intervention has been implemented as intended by its developers (both in-school and external developers). Fidelity can relate to structural aspects of the intervention, such as ‘dosage’ (for example, the correct

number of sessions are delivered) or training (for example, teachers are trained as planned and receive the necessary supervision). It can also refer to more dynamic aspects of the intervention, such as whether key teaching strategies are included in lessons, or whether the delivery of those strategies is sufficiently student-centred.^{4,5} Reviews of implementation studies in education consistently report a positive relationship between the fidelity with which an intervention is implemented and the outcomes for students.^{5,6}

At the same time, it is important to ensure that the focus on fidelity is in the right place. Specifying the active ingredients of an intervention enables educators to identify which features need to be adopted closely (with fidelity) to get the intended outcomes, as well as areas where there is scope for intelligent adaptations.

g. Make thoughtful adaptations only when the active ingredients are securely understood and implemented

Embracing a notion of active ingredients naturally acknowledges the significance of ‘flexible elements’—those features or practices within an intervention that are not directly related to the theory and mechanism of change, and where there is scope for local adaptations.

Local adaptations to interventions are almost inevitable, particularly in UK schools where professional flexibility and autonomy are highly valued.⁴ Staunch supporters of ‘fidelity’ have tended to view such adaptations as failures of implementation, however, this may be taking too pessimistic a view. Although the evidence base isn’t robust, there is an increasing body of research showing that local adaptations can potentially be beneficial to implementation, encouraging buy-in

and ownership, and enhancing the fit between an intervention and the local setting.⁴ Novel additions to interventions—in contrast to modifications—are likely to be most beneficial.

Too much flexibility can be damaging, however, with over-modification resulting in lack of impact, particularly where modifications are made to the core components of the intervention.² As such, teachers shouldn’t view fidelity as a threat to professional autonomy, rather see it as guide to understanding where to be ‘tight’ and where to be ‘loose’.

The take-home lesson is: stick tight to the active ingredients of an intervention until they are securely understood, characterised, and implemented, and only then begin to introduce local adaptations.

Additional Resources

An [interactive course](#) is available to help guide you through some of the recommended actions in *Putting Evidence to Work: A School's Guide to Implementation*. The course contains a case study of Bedlington School, in Northumberland, and how they have used the guide to help introduce retrieval practice into lessons. The implementation plan to support this process is available [here](#). Note how clearly defined the active ingredients are, and how they are used to underpin preparation and delivery during implementation.

References

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This resource supports the [Putting Evidence to Work: A School's Guide to Implementation](#) guidance report.