

Action Research 2021/22: Guidance for action planning

Introduction

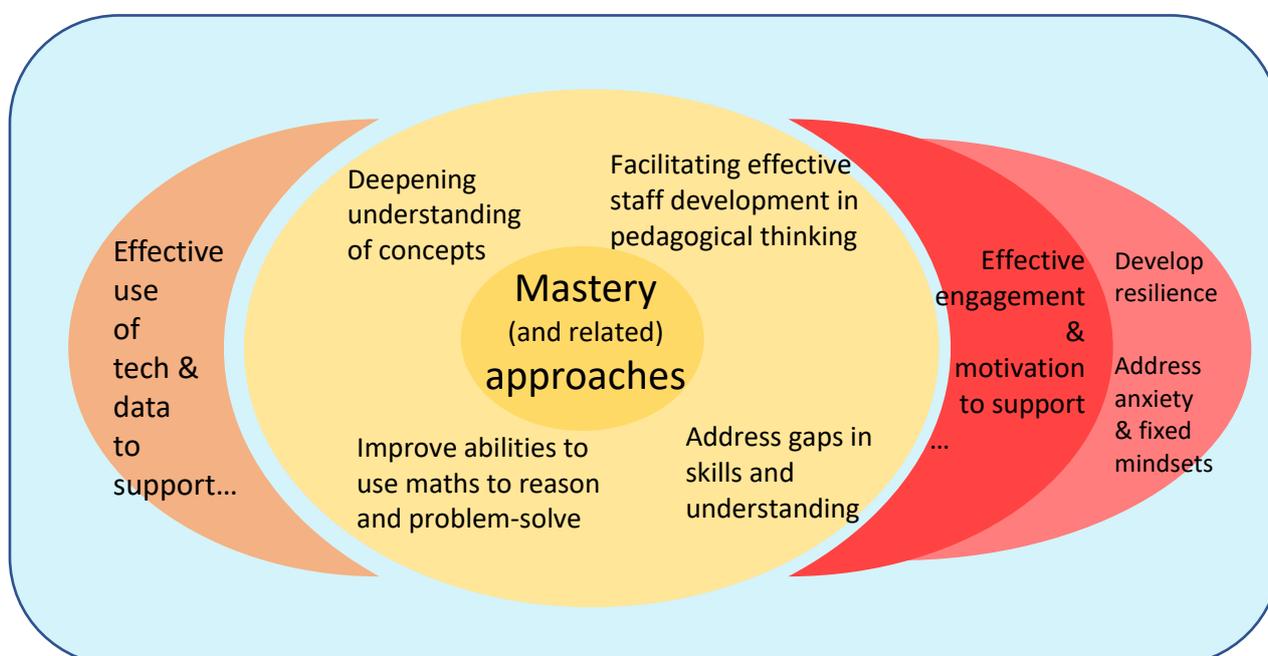
Action Research is an approach to continuous professional development. It is teacher-centred, identifying real 'problems' they face and gathering evidence to find out what works better. It is more enjoyable and successful when done collaboratively.

In 2019/20, most ARGs did a single 'cycle' of action research lasting the academic year. In 2020/21, most did two, some three, cycles of action research. In 2021/22, it is expected that each ARG will do three or more cycles of action research – indeed, it might be more useful to think in terms of cycles than 'a project'.

There is no distinction between 'new' and 'continuing' projects this year, and we hope that many centres are able to build on successful projects from previous years across CfEMs, and help build a more focused & robust body of research. Note, however, that simply duplicating ideas tested previously is not acceptable.

Key messages

- The primary aim of the CfEM project is to **improve learner progress and raise attainment in mathematics at level 2**. Centres need to keep this at the heart of their AR project planning – even if the link is indirect (e.g. motivation & engagement can be seen as a first step towards progress & attainment).
- All projects should have **mastery (& related) approaches to teaching, learning and assessment at their core**. More specifically, beyond staff awareness and understanding of pedagogies at a more holistic level, four aspects of mastery have been identified as being of particular relevance and value (*small text on paler yellow in the diagram below*) which projects should choose from.
- Building on our work to-date, projects should **include effective use of technology and of motivation & engagement** in order to support mastery interventions. Specific aspects of motivation & engagement have been identified as particularly relevant (*small text on pale red below*) which projects should choose from; these are the focus of the new *CfEM Motivation & Engagement toolkit* which is in the final stages of development and should be available to centres shortly.
- Where projects focus on the use of technology or on motivation & engagement these should still be consistent with a mastery approach and sit under an overarching research aim or question focusing on improving progress/attainment.



Overarching research questions

Following initial analysis of current and previous CfEM action research projects, four emerging areas for enquiry have been identified, expressed below as overarching questions, and which we would like centres to build on further in their 2021-22 projects. This will facilitate the subsequent process of summarising common findings across the range of diverse projects and enable more robust conclusions to be drawn from the CfEM action research programme as a whole.

1. How can mastery (& related) teaching approaches be used to develop learners' deeper understanding of maths concepts and their ability to use maths to reason & solve problems? How does this relate to learners' progress in maths & attainment?
2. How can we organise & deliver the maths curriculum in order to address the gaps in individual learners' maths skills & understanding? How does this relate to learners' progress in maths & attainment?
3. How can we develop learners' engagement & resilience in maths learning, and overcome negative attitudes, anxiety & fixed mindsets? How does this relate to learners' progress in maths & attainment?
4. How can technology be used effectively to address any combination of questions 1-3 (*i.e. facilitate mastery teaching to develop deeper understanding, address gaps in learners' skills & understanding, develop learners' engagement & resilience*). How does this relate to learners' progress in maths & attainment?

For 2021-22 we are particularly keen for centres to submit proposals relating to overarching Q1, ***the use of mastery (& related) teaching approaches to deepen understanding of maths concepts and learners' ability to use maths to reason & solve problems***. In this respect, centres might wish to focus on the use of specific pedagogical approaches to maths teaching & learning (e.g. use of visual representations, variation theory, dialogic approaches, contextualisation, etc.)

Many colleges have moved towards a GCSE scheme of work which is focused on a narrower range of key topics, and we recommend this approach to centres in their action research projects. An analysis on recent exam results carried out by ETF revealed that the following topics¹ were the biggest discriminators between learners who achieved grade 3 and those who achieved grade 4 in GCSE maths:

- a) **Ratio, proportion & rates of change**, esp. percentages (R9), compound measures & units (R1), ratio (R5), ratio with fractions (R8), direct & inverse proportion (R10)
- b) **Number**, esp. four operations (N2), primes, factors & multiples (N4), fraction operations (N8)
- c) **Simplifying & manipulating algebraic expressions** (A4)
- d) **Area & Volume** (G16)

This list is not exhaustive, & local issues or analysis may suggest further key topics.

¹ Referenced to: Mathematics: [GCSE subject content and assessment objectives, DfE, 2013](#)

In submitting proposals for action research projects, centres should:

- a) Provide a clear rationale for their research, and in particular how they anticipate their project will **contribute to raising learners' progress and attainment in maths** (and how this will be measured)
- b) Provide details of their local context in support of their proposal, e.g. centre/network-wide strategic goals, identified needs of learners, main challenges in delivering GCSE/FS maths qualifications.

Costings

- We appreciate that it could be difficult to do costings before planning your projects in detail. However, staffing is by far the greatest cost and is unlikely to be majorly affected by which topics your ARG(s) research (except in the case of CfEM paying for coaches or other support staff, see below).
- Please make a judgement on items above mid-hundreds of pounds, such as small items of equipment (e.g. Wacom boards or manipulatives) & software, including this in your Action Plan. Please take great care to consult with RMLs before paying for software licences of more than a few hundred pounds as they may well be able to advise on what each particular product is/isn't useful for.
- If you are considering researching coaching or other support staff whose salaries are currently paid for from CfEM, please discuss with Cath Gladding or your RML. It is very important that any work that coaches/support staff do could be sustained beyond the lifetime of the funded CfEM programme. We do not advise that anyone who hasn't already done so employs coaches/support staff using CfEM funding unless your Colleges agree to continue paying for these staff after March 2023 when CfEM funding ends. However, you could do research into how coaching techniques could be used by permanent support staff, which would be sustainable.