Embedded Maths Pilot: Implementation & Process Evaluation Protocol

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Ipsos ies King's College London L&W RAND Corporation Department for Education

SKILLS FOR LIFE MULTIPLY

Contents

Overview of pilot

PILOT NAME	Multiply: Embedding Maths in Health & Social Care (H&SC) Level 2 courses
PROJECT TITLE	Pilot Implementation & Process Evaluation of the Feasibility of Embedding Maths in H&SC curricula to improve vocational maths competence
DEVELOPER	Education and Training Foundation (ETF)
GEOGRAPHY	England
DELIVERY	Learning providers
EVALUATOR	Institute for Employment Studies (IES) and Ipsos UK
PRINCIPAL INVESTIGATOR(S)	Becci Newton (Lead), Emily Kramers
EVALUATION PLAN AUTHOR(S)	Seemanti Ghosh, Becci Newton, Emily Kramers and Susie Bamford
POPULATION	Adult learners (19+) completing H&SC Level 2 qualifications
NUMBER OF SETTINGS / PROVIDERS	c.12 providers taking part in intervention
NUMBER OF RECRUITS / LEARNERS	c.60-240 learners based on minimum of five and maximum of 20 in each provider

Version history

Table 1: Version history

Version	Date	Reason for revision
1.0 Original	02/09/2024	

Background

This pilot will integrate Level 1 maths concepts into the curricula of Health & Social Care (H&SC) Level 2 qualifications (certificate or diploma programmes). The intervention has adapted Functional Skills Level 1 maths concepts to align with the application of maths in H&SC jobs (for example, calculating BMI, counting pills). Through a series of H&SC maths sessions, which amount to 18 guided learning hours (GLH) and which cover approximately 60% of the FSQ L1 maths curriculum, the intervention covers: interpreting data and averages; understanding units, precision and context; measuring; using scales; budgeting; cost and profit; understanding time; recording and presenting data; understanding temperature; and charts and graphs, as these relate to working in H&SC. The sessions meet the needs of FSQ Level 1 and H&SC qualifications.

The intervention developer, Education and Training Foundation (ETF) led a review of the theoretical underpinnings for the approach. Embedded Maths is supported by educational theories and research that highlight benefits of connecting mathematical concepts to real-world contexts and integrating them into various subjects. Early work by the National Research and Development Centre (NRDC) for Adult Literacy and Numeracy to inform policy development, teacher training and learner achievement, found ‘learners often engage most successfully with scenarios that are ‘real’ and ‘relevant’ to their everyday lives and experiences’. Moreover, that embedding language, literacy and numeracy (LLN) into ‘other types of learning or workplace activity is often the best way to attract learners and maintain their motivation.’ (Blunkett, 2000). The 2006 NRDC report found that vocational courses at Level 1 and 2 in which LLN was embedded led to: higher retention and success rates in the vocational subject; learners being more likely to achieve the vocational qualification; and believing that they were better prepared for their work (Casey, et al., 2006). This intervention embeds maths learning that is relevant to the H&SC curriculum and jobs in the sector.

The intervention will support H&SC teachers to develop new teaching practices aligned to intervention. Central to this is to expose maths as integral to the H&SC curriculum so that teachers and learners understand its relevance and importance. Intervention training is designed to develop teachers’ knowledge, understanding and skill in embedding maths approaches, leading to changes in their practice and confidence in their own maths abilities. It is also expected that because of this, they will promote a positive maths mindset to learners. This will lead to improved learner maths competences and confidence, and employment opportunities. Training and support will be key to this process of change in teaching practice.

Intervention and Theory of Change

The following sections draws on the Education Endowment Foundation (EEF) adapted TIDiER framework (see appendix 1).

What is the intervention called?

The intervention is called Embedding Maths in H&SC Level 2 courses. It is a new approach that differs from normal practice as learners are given the opportunity within their H&SC lessons to enhance and reinforce their maths skills in naturally occurring, relevant work-related contexts. This contrasts with usual practice where learners are signposted to maths learning without vocational context and with limited or no opportunity to explore vocational application of maths.

Why is the intervention needed?

Many adult learners are motivated to take vocational courses to access employment but are less keen to return to study maths; the OECD (2020) recommends that to be effective in overcoming low rates of adult participation in basic skills it is important to tailor 'basic skills content and programmes to vocational contexts'. Adults often come with an experience of failure with maths, which can lead to anxiety and negative attitudes to the subject (Ryan and Fitzmaurice, 2017). The vocational focus for this intervention is H&SC at Level 2. It has been selected as a popular course among adults (DfE data shows over 506,410 adult learning in Health, Public Services and Care courses in 2023.24, that is, around 19% of enrolments across 16 reported subject areas[1]), and one where many learners have weak numeracy skills on entry. H&SC has a high number of job vacancies available.

Embedding maths as integral to H&SC Level 2 courses means that learners understand the relevance of maths to their future career aspirations. The maths is derived from the numeracy and problem-solving skills required for the H&SC course and reflects practices in the workplace. Examples of the embedded maths included in this approach are:

1. **Statistics and Data** - teaching learners to collect, analyse and interpret healthcare data and explore statistical concepts like averages and percentages.
2. **Dosage Calculations** – integrating practical examples of dosage calculations for medications and treatments, emphasising the importance of accuracy to prevent medical errors.

[1] https://explore-education-statistics.service.gov.uk/data-tables/fast-track/4782fba5-17d3-4aa9-6637-08dc0dea598f

3. **Budgeting and Resource Management** – use of mathematical concepts to analyse budgets and allocate resources in health and care settings to make informed decisions.
4. **Clinical Measurements** - explore the importance of accurate measurements in healthcare settings, such as body mass index (BMI) and vital signs and teach learners how to interpret and apply measurement data in H&SC context.

The intervention materials address the key numeracy demands of work in the H&SC sector and those skills which vocational teachers highlight as causing difficulties to learners. ETF[2] identify the key benefits for integrating maths into a vocational curriculum as:

- **Real World Relevance:** A vocational H&SC course involves practical skills directly applicable to the sector. Integrating maths into the course helps learners understand real-world applications of mathematical concepts.
- **Problem-solving Skills:** Maths teaches critical thinking and problem-solving. By incorporating mathematical tasks relevant to the vocational context, learners learn to analyse situations, make informed decisions, and solve problems they may encounter in the workplace.
- **Workplace Readiness:** Jobs in H&SC require employees to be able to lead basic maths tasks such as measurement, calculation, budgeting, and data analysis. Embedding maths in a vocational curriculum ensures that learners are prepared for the quantitative aspects of their future jobs.
- **Communication and Documentation:** Learners in vocational programmes benefit from learning how to express measurements, quantities, and technical specifications accurately, promoting clear communication in the workplace.
- **Quality Assurance:** In vocational fields such as H&SC, precision is crucial. A solid foundation in maths helps learners maintain quality standards, whether medical procedures, or other vocational tasks.

How is the intervention meant to work?

The intervention targets teachers of adult learners working towards a H&SC Level 2 qualification. The aim is to support the teachers to develop new teaching practices aligned to the intervention approach. This will be achieved by teachers engaging with a comprehensive package of pre-training (professional development of 10 hours

[2] In their summary report of the intervention

duration) that explains the approach and its rationale and working with the scheme of work and accompanying 12 x 1.5-hour lessons to deliver this to their learners.

The lessons cover the most important mathematical concepts of the H&SC course, meeting the aims of the Functional Skills Level 1 in Maths curriculum while also meeting the aims of the H&SC course. The intention is to provide exemplars that can be adapted and used by H&SC teachers, to enable these teachers to embed maths into their vocational teaching effectively. Lessons can be adapted to fit within a current H&SC scheme and content can be added prior or post-delivery of each lesson. The use of a maths glossary is encouraged to support learners to learn and retain relevant maths vocabulary. Each lesson contains a suggested glossary.

The intervention is designed to be delivered by teachers in face-to-face teaching of adult H&SC Level 2 classes. In some cases, H&SC courses may be online and the intervention can be delivered in this mode. Teachers will understand the principles and approaches of the intervention and embed them within their practice, not simply delivering from a script. Ideally, they will start the intervention at the outset of the H&SC course supported by ongoing training and reflective practice led by expert practitioners (around two hours per each content area). Teachers will undergo this programme of professional development to ensure understanding of the intervention and maximise fidelity to it.

The intervention is adaptable to courses of different lengths and delivery modes. It can be adapted to fit within most adult Level 2 H&SC courses. It will provide exemplars that can be adapted and used by H&SC teachers, to enable these teachers to embed maths into their vocational teaching effectively. Content can be added prior or post-delivery of each lesson.

ETF recognises that two-hour classes are the common format in adult education, which would allow 30 minutes in each lesson for differentiated individual or small group work to meet the needs of different learners. The intervention can be embedded into Certificate and Diploma courses with respective guided learning hours of 180 or 360 guided learning hours. Due to the elevated levels of maths anxiety faced by adults, the Embedded Maths curriculum will provide a supportive and engaging environment to overcome their barriers to learning.

The key causal pathways for Embedded Maths involve the following tenets:

- Remission/time must be provided and received for teachers to have adequate time to fully engage with the intervention.
- Training and support will lead to changes in teachers' practice aligned to the intervention approach.

- Exposure to embedded and vocationally relevant maths with opportunities to apply this, will lead to positive changes in learners' willingness and ability in maths, and their attitudes towards maths in general.
- If teachers improve learners' belief that they can do maths through the embedded approaches, and convey meaningful H&SC applications of maths, levels of adult maths will improve.

The outputs and outcomes planned from taking part are split into beneficial effects for both teachers and adult learners involved in the intervention.

Outputs

- Teachers engage with CPD and the expert support and increase their knowledge of maths and how to incorporate into their own practice. This will be measured through self-report data in primary data collection as part of the IPE.
- Teachers change their approach to teaching in ways that align with the intervention training. This will be measured through self-report data in primary data collection as part of the IPE.
- Learners engage in lessons and practice maths related tasks and activities so there are no detrimental effects on course completion and qualification attainment from taking part. Learners have high engagement with the H&SC course measured by attendance, collected via providers. Learners demonstrate an understanding of maths concepts and applications which derives from understanding real-world usage in H&SC contexts measured through self-report data in primary data collection as part of the IPE.

Outcomes

- Teachers improve their maths subject knowledge and are confident to teach maths in the H&SC curriculum. Teachers change their approach to delivery, teaching the curriculum through a maths lens, exposing the learners to a range of vocationally relevant maths approaches. Teachers promote a positive maths mindset. This will be measured through self-report data in the IPE primary data collection.
- Learners can identify maths in the H&SC curriculum and workplace. Learners use appropriate maths skills and knowledge to complete vocationally related maths tasks, including problem solving. This will be measured through self-reported data in the IPE primary data collection.
- Improvement in learners' mindset and attitudes towards maths. They have improved vocationally relevant maths competence. Learners can apply

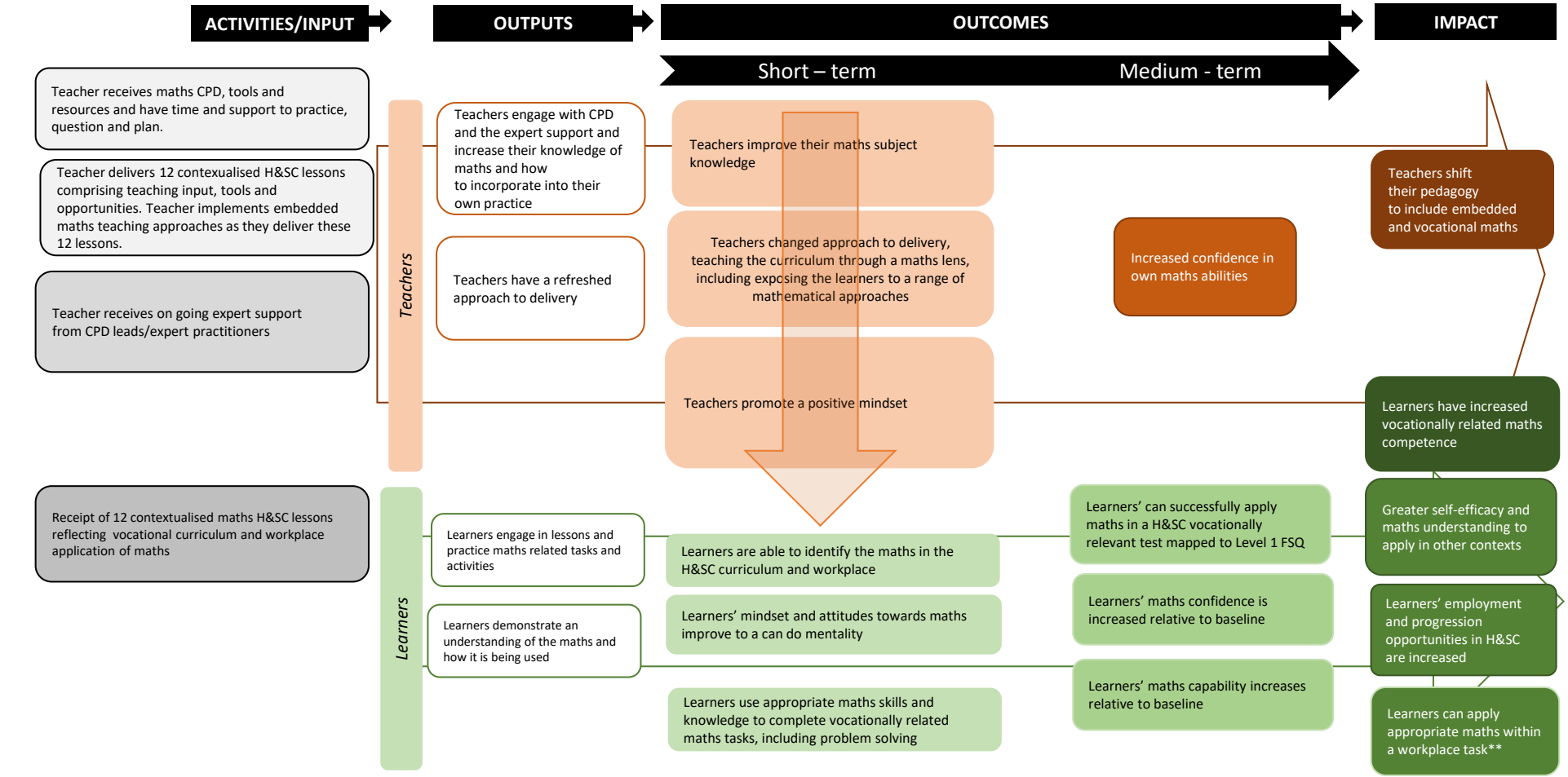
appropriate maths within a workplace task. This will be measured through self-reported data in the IPE primary data collection and through pre/post maths testing..

Impacts

- Longer term, teachers' confidence in their own maths ability is increased and they shift to teaching approaches that embed maths in the vocational curriculum. This will be measured through self-reported intentions in the IPE primary data collection.
- Longer term, learners have increased vocationally relevant maths confidence and competence, increased general self-efficacy and can apply maths within the workplace context. Alongside, they see increased employment and progression in the H&SC sector. This will be measured through self-reported intentions in the in the IPE primary data collection.

The logic model underpinning the intervention is below.

Maths by Stealth intervention overview – the intervention is a series of 12 x 1.5 hour contexualised Health and Social Care lessons which cover the most important aspects of the Functional Skills Level 1 curriculum. The lessons will contain vocationally relevant maths content which can be embedded into a H&SC Level 2 course and will mirror the requirements of the course and its workplace application. Central to the approach is to expose the maths as integral to the course so that teachers and learners understand the relevance and importance of it. Note - this intervention will be delivered by the H&SC teachers.



Who will take part?

- Level 2 H&SC learners. As this pilot embeds maths into H&SC courses it will be mandatory for learners in the providers that take part. Entry requirements for these courses vary, and learners participate in initial assessments to ensure they can thrive in their courses. The learner profile and starting points will vary across provision types and classes.

- The teachers of these classes, who will be trained to deliver the approach.

Who implements the intervention?

- The product has been developed by ETF. Providers will be recruited by Etio, which manages provider contracts for the Multiply Education Trials, and teachers will be trained by ETF. These providers/teachers will then deliver the intervention in their Level 2 H&SC courses.

What materials does the intervention use?

- The materials used to deliver the intervention cover Embedding Maths within existing curricula of H&SC Level 2 qualifications. ETF will provide the training package which will involve lesson plans, schemes of work, training materials, flipped learning and training and ongoing support to teachers. The latter will be provided via online, reflective meetings to ensure quality of delivery and content in collaboration with ETF.

What procedure(s) does the intervention follow?

- Teachers will receive training on how to deliver Embedded Maths classes prior to the start of the 2024-2025 academic year.
  - Each teacher will be released (1) to attend training prior to the delivery of the intervention (10 hours) and (2) to attend on-going lesson study sessions throughout the duration of the intervention (around two hours per workshop).
  - Teachers will engage in the lesson study sessions which will involve small groups collaborating with an expert trainer to focus on how their teaching practices can better support learner understanding using an embedded maths approach. The detailed lessons will be analysed post session and teachers will apply their reflections and learning from each lesson in their own teaching of the next lesson. This cycle of reflection will continue for the duration of the intervention. These sessions will be delivered by expert CPD trainers.

- 1.5 hours will be assigned to the delivery of Embedded Maths in the H&SC curriculum on a weekly basis (frequency may vary depending on education provider) for 12 weeks. Delivery will begin at the start of the academic year.

What is the mode of delivery?

- The delivery is course based and so will reflect usual teaching modes. The assumption is that most courses will be face-to-face but some may be delivered online for various reasons associated with learner inclusion.

Where does delivery take place?

- Learners engage with the intervention within their adult education Level 2 H&SC classes.

- The settings for delivery will primarily involve adult education and FE colleges across England. Around 12 providers of H&SC courses for adults (aged 19+) have indicated interest to take part.

When does delivery take place and what dose should recipients experience?

- Teachers must attend all pre-intervention training sessions (100%) and at least 80% of lesson study sessions. To support this, the maximum number of participants for delivery of these pre-intervention training sessions is 12 online and 20 for face-to-face.
- Learners in these providers will engage with the intervention on a weekly basis (typically) and for a dose of 1.5 hours per week across 12 weeks (or 12 sessions). It is expected that attendance at 80% of sessions will be sufficient for learner outcomes to emerge. Frequency of classes and intensity of dosage will depend on providers' educational schedule. It is likely for some dosage will be lower per week for and delivered for a total of 24 weeks.

- The intervention will begin in September 2024 and will last until Christmas or Summer depending on the duration of the H&SC course, which will typically either be one or two semesters. The total number of hours delivered in class will be 18 irrespective of amount of calendar time taken to deliver.

Should the intervention be tailored in any way?

- The intervention has been designed to be flexible, so that it can be adapted to different settings without unduly altering or diluting the intervention design. For instance, the intervention is designed for 18-hours, and a provider could follow the 12-week 1.5 hour/week schedule or spread this across 24 weeks depending on their scheduled curriculum.

- Customisation of the delivery model is not a feature of the delivery plan. Teachers must adhere to the content prescribed by the product developer and should generally not deviate from this. Adjustments to the content should be minimised, with the aim of delivering the entire content without exception or alteration. Any adjustments will be documented by teachers and shared with the evaluation.

How well planned is the intervention?

- The intervention is well planned to ensure that the teachers are provided with necessary materials, training and ongoing support throughout the pilot from ETF to ensure the quality is maintained and effectively standardised.

What is different compared to usual practice?

- This approach differs from normal practice as learners are given the opportunity within their H&SC lessons to enhance and reinforce their maths skills in naturally occurring, relevant work-related contexts, as opposed to being signposted to ‘pure’ maths with limited vocational relevance and no opportunity to explore maths in a vocational context.

Implementation and Process Evaluation

The Implementation and Process Evaluation (IPE) will provide insights into the causal pathway for Embedded Maths and the feasibility of Embedding Maths and maths testing within the H&SC course context.

Implementation feasibility

The IPE will assess the feasibility of the intervention and the research that would be required to understand learner outcomes. Specifically it will:

- Deliver evidence on how Embedded Maths is received by teachers/providers – willingness to sign up, willingness to engage with CPD, and willingness to teach maths concepts. This will include assessing the feasibility of introducing a maths test into courses (including willingness of teachers/providers to support this).
- Where adopted, insight into how the intervention is delivered and integrated into Level 2 H&SC courses, the extent to which it is delivered consistently and with fidelity across providers/teachers, and how it differs from usual practice. Where/if maths tests are adopted, learner responses to these.
- Explore teacher and learner experiences of vocationally relevant maths embedded into the vocational curriculum; and what worked well and less well.
- Capture short and intermediate outcomes for learners and teachers, which are expected to result from the intervention.
- Understand any effect on course completion, qualification attainment and progression into numeracy provision.
- Investigate how outcomes emerge and are perceived by learners and teachers, including unanticipated outcomes and difference made.

Outcomes

Measures of increased general self-efficacy, and maths confidence will be evaluated as self-report measures in the surveys using standardised measures for Multiply and effect on numeracy skills will be examined via pre/post testing.

The intervention is expected to affect other outcomes for learners, and to have an effect on teachers, which will also be explored.

- Learners: short-term will be willing to engage with a H&SC course that covers maths concepts and practice for this work; through the course they will be able to identify maths concepts needed in the performance of H&SC work; their mindset and attitudes will become more positive towards maths, leading to a 'can do' self-perception; learners will be able to use appropriate maths skills and knowledge to problem solve maths tasks relevant to H&SC work. Through this mid-term learners will increase in maths confidence and capability and will be able to apply maths in vocationally relevant maths tasks (mid-term). An assumption is that introducing the intervention will not affect rates of course completion and qualification attainment. It may encourage learners to want to engage in further maths courses.

- Teachers: in the short term, will improve their knowledge on how maths is relevant to the H&SC curriculum and work; will build confidence in teaching vocationally relevant maths and be able to introduce learners to a range of mathematical approaches; will promote a positive maths mindset; their confidence in their own maths ability will increase midterm; and they will be persuaded of the benefits of embedding maths in their teaching longer term.

The IPE will draw on the Multiply common measures and outcome framework and question banks to assess these short and mid-term outcomes as well as bespoke measures so specific effects are captured.

Research design

The research will necessarily capture data from learners and teachers. Given the focus on feasibility we are assessing views iteratively to help us identify if we can pilot maths testing in the pilot IPE. In summary, we intend to lead:

- Telephone calls to teachers to invite them to introduce a maths test into the H&SC curriculum at the start and end of their courses.
  - Teacher responses to the feasibility of introducing a maths test will determine whether we can understand learners' progress with maths, using a pre/post maths test. Where we can do this, the evaluation team will furnish teachers with the tests or lead visits to the provider if this is preferred.
  - Where learners take part they will receive a shopping voucher worth £30. Learners will be invited to take the test at two time points – before and after their courses and may opt-in to either or both tests.
- Desk research on Level 2 H&SC curricula to understand more about how maths features within usual practice.
- Baseline and endline surveys of learners.

- Qualitative interviews with learners.
- Qualitative interviews with teachers.
- Exploratory quantitative investigation of pilot learners' likelihood of completing their courses and obtaining their qualifications compared to learners taking part in H&SC courses without the intervention in the same academic year. It will also assess any greater likelihood of pilot learners attaining of FSQ1 compared to learners in BAU courses and any greater likelihood they have to progress in maths or other learning.

We will also use and analyse sources of management information covering attendance of teachers at training sessions and learners' attendance at course sessions. The latter would be discussed in endline interviews with teachers, where we will ask them to draw contrasts for their previous delivery of H&SC courses to understand how the intervention might have affected learner engagement and course completion.

Learners will be invited to participate in a baseline and endline survey which will measure confidence in maths and application of maths skills, as well as gather information for the IPE about delivery, engagement and satisfaction.

Where teachers agree to maths testing, learners will also be invited to participate in these (1) at their first session and (2) at the end of course delivery. The research will track pre/post test scores as well as learner attrition between pre/post points. We will also wish to track whether taking part in a test has an effect on course engagement and completion (for example, observing whether drop-out rates increase on what teachers expect). Learners can take part in either tests and will receive a shopping voucher as a thank you.

We will invite a range of learners and all teachers to take part in qualitative interviews which will focus on experiences of the intervention and whether and how it is achieving the planned short and mid-term outcomes. The qualitative research interviews will use a purposive sampling strategy, aiming for diversity of contexts, institutions and learner subgroups taking part. This element of research will focus on building detailed understanding that addresses the IPE RQs as well as illustrates and explains factors that may be driving outcomes.

- With teachers it will be particularly important to gather information on the effect of embedding maths in their curriculum, how far the intervention affected their own maths confidence as well as their confidence and competence to embed maths in the curriculum, and any signs of sustained changes to teaching practice resulting from taking part.

- With learners the evaluation will focus on responses to maths test/idea of a maths test being introduced, as well as responses to the maths course content and how this affected their engagement and course outcomes. Learners taking part in interviews will receive a shopping voucher as a thank you.

As part of the recruitment to the pilot, participants will receive detailed information to enable them to make a fully informed decision about taking part. Information will cover the learner surveys and qualitative research as well as information about the pilot intervention and its purpose. Where learners do not wish to be part of the pilot, they can opt out and continue on the course. Learners taking part however will be able to opt out of any element of primary data collection.

Exploratory quantitative research

This analysis will simply compare the outcomes of learners engaged with the pilot with those who are not, within the same cohort and academic year. The comparison will be drawn with adult learners taking H&SC courses at Level 2 whether as part of a mixed age teaching group or adult only classes with those in the Embedded Maths courses. The analysis will not draw on identifiable data, data collection will be passive so sufficient consent for research is contained in the standard enrolment form for courses.

The analysis will use logistic regression, controlling for covariates to find out if there is any significant association between taking part in the pilot and (a) H&SC course completion (b) H&SC qualification attainment (pass/fail) (c) FSQ Level 1 course completion.

As no matching is involved, this approach will not provide an impact estimate but only provide indication of any significant association between receiving the intervention and outcomes.

Research Questions

We have identified eight key research questions to be addressed through the IPE, and these are set out below.

1. **Will teachers and providers adopt (i) Embedded Maths in H&SC courses; and (ii) maths testing within their courses?**

   The purpose of this question is to establish whether it is feasible for the intervention to be introduced within H&SC courses and whether it is possible to test for any effect on the maths confidence and capability of learners and teachers, and, numeracy skills of learners.

2. **Has the intervention been delivered with fidelity (that is, in line with the intervention guidance)?**

The purpose of this question is to explore the key assumptions identified in the theory of change, to support interpretation of the findings of the impact evaluation. Research will examine and document the extent of training and support delivered to and taken up by teachers, as well as the teaching they then delivered to learners, and the extent to which this reflected intervention intentions.

a. How much of the pre-delivery Embedded Maths training do teachers attend?

b. To what extent do teachers access the ongoing support throughout delivery of the intervention?

c. To what extent do teachers implement the Embedded Maths content and activities in their teaching?

d. Do teachers adapt the approaches and activities? What adaptations are made? Why? How far do these deviate from the prescribed curriculum?

e. How feasible is it for teachers to implement the intervention as intended? Where this does not happen, what are the reasons for this? (The effects of teachers' initial and eventual maths confidence may be an interacting factor that will be explored as part of this).

3. **How do teachers experience delivering the intervention?**

This question will generate evidence on teachers' experiences of delivering the intervention, and on the enablers and barriers of the intervention being effective, such as their own maths confidence and capability and their understanding of the relevance of maths to H&SC jobs. It also covers any perceived outcomes the intervention has for teachers.

a. To what extent do teachers understand the rationale for the intervention? To what extent do they agree with this?

b. How do teachers feel about being asked to deliver Embedded Maths in H&SC? What is the level of buy-in among teachers, what affects buy-in?

c. How do teachers integrate Embedded Maths into the Level 2 H&SC curricula and their pre-existing session plans?

d. How do teachers feel about the integration of Embedded Maths content and activities into their Level 2 H&SC courses? How well does the format work?

e. How easy or difficult is it for teachers to deliver Embedded Maths, and integrate it into the existing curriculum and course hours?

f. Are any of the maths content areas easier or harder to deliver than others?

g. To what extent is delivery substantially different to teachers' usual practices?

h. What, if anything, do teachers feel they gain from the experience of delivering the intervention? How do these outcomes emerge and evolve? (such as a shift in pedagogy to more contextualised, andragogic principles, change in mindset towards own and learners' maths capabilities)

i. To what extent do perceived outcomes vary by the characteristics of the teacher, for instance years of experience, prior maths confidence/ capability?

j. To what extent are perceived outcomes influenced by institutional context and the degree to which the intervention and pilot receive strategic support?

k. How, if at all, could the intervention be further developed or improved?

4. **What are teachers' experiences of the training and support provided to deliver the intervention?**

The purpose of this question is to gather evidence on the accessibility and effectiveness of the training, tools and resources, as well as the ongoing expert support from CPD expert practitioners. This research question will also provide evidence about what outcomes, if any, the intervention has for teachers.

a. To what extent do teachers feel the training, tools, resources and ongoing expert support enable them to deliver the intervention effectively? What could be improved?

b. How useful are each of the support measures? What worked well and less well? What could be improved?

c. What, if anything, do teachers gain from completing the training? (such as knowledge and confidence in applying vocationally relevant maths in their teaching; maths confidence)

d. Do teachers believe Embedded Maths can or should be translated for other vocational subjects? Why/ why not?

5. **What are learners' experiences of the intervention?**

The purpose of this question is to gather evidence on learners' experiences of receiving Embedded Maths content and activities in the Level 2 H&SC courses. It will

also focus on the mechanisms behind the intervention, and the enablers and barriers to the intervention being effective.

a. What motivates learners to start the Level 2 H&SC course? What do they hope to gain?

b. How engaged are learners with the course? How engaged are they with the Embedded Maths content, sessions and activities?

c. To what extent are learners aware of and understand maths in the H&SC curriculum and workplace? How are they using maths?

d. How easy or difficult is it to use appropriate maths skills and knowledge to complete vocationally related maths tasks, including problem solving?

e. What do learners think works well and less well about the course? What could be improved?

f. Do learners think it is acceptable to introduce maths testing into their H&SC courses? If maths testing is introduced, do they take part in both pre and post maths tests?

6. **What outcomes does the intervention have for learners?**

The purpose of this question is to gather evidence on perceived outcomes, and the mechanisms behind the achievement, or lack of achievement, of these outcomes.

a. What, if anything, do learners feel they gain from the Embedded Maths content and activities? (confidence, positive attitudes, willingness/ skills to problem solve, understanding of how maths applies to health and social care jobs, self-efficacy, employment and employment progression).

b. Does Embedded Maths create any interest in taking up a maths course?

c. Does Embedded Maths lead to other unplanned/ unanticipated outcomes?

d. How does Embedded Maths specifically, affect learner outcomes including numeracy confidence and competence, completion of the H&SC course and progression into maths provision?

e. What elements are most useful, and are perceived to make the most difference?

f. To what extent do learner outcomes vary by individual characteristics?

7. **What are the enablers and barriers to learner engagement and participation in the intervention?**

The purpose of this question is to gather evidence on enablers and barriers to the intervention being effective. Enablers and barriers could relate to: learning provider characteristics and actions, teacher attitudes/actions, course content, course delivery, teacher turnover, learner attendance. We will also explore the effect of any testing that is taken forward.

8. **What lessons may be learned from future delivery of the intervention for wider rollout?**

The purpose of this question is to identify lessons learned relating to future delivery and potential wider rollout of the intervention.

a. Is it plausible to believe the intervention can be rolled out with fidelity on a larger scale?

b. What, if anything, should be updated or changed for future delivery or wider rollout?

Table 1: Analytic framework for the IPE

Research question	Source for this measure (bracketed measures indicate secondary sources)
1. Will teachers and providers adopt (i) Embedded Maths in H&SC courses; and (ii) maths testing within their courses.	Testing fieldwork Interviews with teachers
2. Has the intervention been delivered with fidelity (that is, in line with the intervention guidance)?	Interviews with teachers (Interviews with learners) (Learner surveys)
3. How did teachers experience delivering the intervention?	Interviews with teachers
4. What are teachers' experiences of the training and support provided to deliver the intervention?	Interviews with teachers Management information on teacher attendance (Interviews with learners)
5. What are learners' experiences of the intervention?	Interviews with learners Learner surveys Management information on learner attendance

Research question	Source for this measure (bracketed measures indicate secondary sources)
6. What outcomes does the intervention have for learners?	Interviews with teachers Interviews with learners Learner surveys
7. What enablers and barriers are there to learner engagement and participation in the intervention?	Interviews with teachers Interviews with learners
8. What lessons have been learned for future delivery of the intervention?	Interviews with teachers Interviews with learners Learner surveys

Data collection

Pre/post maths competence assessment: where teachers agree and learners consent, our aim is to lead pre/post testing of maths competence using a tool commissioned by the Department for the Multiply trials. This will allow us to understand the feasibility of using such a test in any scale up of the intervention as well as to understand the direction and scale of effect that might be observed. Learners will be offered an incentive for taking part in each test (a £30 shopping voucher). This is in recognition that testing is a non-standard activity in their course and may require them to stay after course hours in order to complete it.

Learner survey: Ipsos UK will lead the learners surveys covering the treatment group to collect data for a pre/post understanding of learner experience and outcomes (exploring self-reported maths skills, and maths confidence and general self-efficacy) and IPE. The survey will take place once before the course (ideally) or within a week of the courses starting, and once at the end, and all learners in the pilot will be invited to take part at both time points.

This survey will include questions to collect evidence for the IPE about:

a. Learners' overall satisfaction with the course (RQ5)

b. Learners' motivations for taking the course (RQ5)

c. Outcomes learners perceive the course as having had on them, including on attitudes, willingness to attempt maths, understanding of mathematical concepts in health and social care, and self-efficacy (RQ6)

d. Awareness and understanding of the vocational relevance of maths to Health and Social Care, and their recall of embedded maths activities as part of the course (RQ1, RQ2, RQ5, RQ6)

e. Suggested improvements to the course (RQ8)

The questions on confidence and self-reported maths skills will be asked in both surveys. Question b will be asked in the first survey, and the other questions will be asked in the second survey only.

The survey will be administered online. Learners will be invited by text and email to complete this. Learning providers will collect and share learner email addresses and phone numbers with Ipsos at recruitment stage. Where learning providers do not supply their contact details, we will use the contact details that appear in the ILR.

The email will contain a link unique to each learner, which will allow Ipsos to match survey responses to learners and match pre- and post-course responses from the same individual. Learners will be able to complete the survey on a mobile phone or other device at a time to suit them (the survey will be open for two weeks each time).

Learner interviews: Learners will be recruited to the qualitative research (depth interviews) by means of a recontact question in the first wave of the survey.

We will purposively sample and recruit a range of learners to ensure we can gather evidence on the experiences of learners with a range of characteristics and experiences that might affect how they experience the intervention and testing (if they participated in this). In particular, we would want to get a mix of learners in terms of: gender, age, ethnicity, LLDD/health conditions, ESOL, region, employment status, caring responsibilities as well as their confidence, maths skills, motivations for taking the course and choosing the course provider. The four last characteristics will be identified in the first primary survey. The remaining characteristics will be identified in ILR data and we will confirm them with learners as part of the recruitment process. We will interview around 30 learners in pilot courses.

Interviews will be conducted remotely by the IES team, by telephone or video call as the participant prefers. They will last around 30-45 minutes. Learners will be offered an incentive for taking part (a £30 shopping voucher). The reasons for this are:

- To allow us to recruit a range of learners, including those who may have busy lives or be more reluctant to take part in research (perhaps because they had a less positive experience on their course). Incentives will allow us to do this more quickly and may save costs overall when recruitment time and broken appointments are taken into account.
- Related to the above, to avoid the sample being skewed towards the views and experiences of learners who are most intrinsically motivated to take part in research.

- As per SRA ethics guidance, to acknowledge and appreciate the time and effort given by qualitative research participants (beyond that of other participants) to contribute to the research. A £30 voucher incentive is what we would typically use for qualitative telephone interviews of this length, including with individuals on low incomes.

Researchers are trained to safeguard participants and we will manage any disclosures of harm or safeguarding concerns in line with the disclosure protocol agreed for the Multiply trials and pilots.

Teacher interviews: We will interview teachers taking part in the pilot towards the end of the delivery period as they can offer insight into the CPD training and delivering the intervention as well as the effect of testing (if used). There are likely to be around 10 teachers in the pilot but all 12 if they wish to be involved. We will contact all these teachers to capture their opinions and experiences.

Teachers will be able to opt out of the qualitative research. We will ask ETF to provide us with a list of those taking the training (minus opt-outs) and follow up after the training to contact these teachers and recruit them for research. Teachers who are willing to take part and are selected to participate in the IPE will be interviewed towards the end of the H&SC course.

Interviews will be conducted remotely by IES, by telephone or video call as the teacher prefers. They will last around 45 minutes. No incentive will be offered as the teachers will complete the interview in their professional capacity, in working hours.

Curricula analysis: We have allocated a small amount of time to lead desk research into Level 2 H&SC curricula available to understand the role of maths. This will provide support into findings on 'business as usual' gathered from treatment and control group teachers.

Management information: The intervention design expects that teachers and learners will attend specific proportions of sessions for the planned outcomes to emerge. Dose measures are therefore important, and we will aim to collect learner attendance records from teachers (who will be briefed that this is an essential element of signing up to the pilot) as well as from the intervention training team on teachers' uptake of training and ongoing support.

Analysis of the ILR: This quantitative analysis will see to explore how receiving the intervention affects the dimensions of: H&SC course completion; H&SC qualification attainment; attainment of FSQ1 and progression in learning (to numeracy or other courses) by comparing learners taking part in the pilot, to adult learners across England recorded in eligible H&SC courses (including those in mixed ability classes and classes which enrol small numbers of learners). The analysis will assess for

correlations between the pilot and these factors (completion, attainment and progression) relative to adults experiencing BAU H&SC courses.

Data analysis

We will analyse the **survey data** using descriptive statistics. We will report any differences between subgroups where these are statistically significant at the 95% level. Those we will consider will include age; gender (male, female, other/prefer not to say); ethnicity (white and ethnic minorities); ESOL; LLDD/SEND/health status (as a combined category); employment status (employed/working and not employed/working), and learning provider type (depending on the providers involved we might separate FEC and other providers). To avoid response identification for those in small subgroups, we will suppress cell counts that are five or lower when analysing by diversity and inclusion characteristics.

The **ILR analysis** will draw on adult learners in H&SC courses across England (but not any personal data) and lead logistic regressions to understand any association that can be observed between those taking part in Embedded Maths H&SC courses and those on standard (BAU) H&SC courses on course completion, qualification attainment and FSQ1 progression in learning.

This analysis will be conducted using the form:

$$Y_i = \Lambda(\beta_0 + \beta_1 T_i + \beta_2 X_i + \varepsilon_i)$$

Where $\Lambda(.)$ is a logistic link function, Y_i is the binary outcome for participant i, X_i a vector of relevant individual-level characteristics, T_i is the treatment effect at the individual level. Significance of estimated effects will be evaluated at the 5% level threshold.

We will code **qualitative data** thematically using the research questions as the deductive framing, with inductive codes beneath these or added as main categories should the data have generated unanticipated insights into other key themes. We will use Atlas.ti for coding the data based on the research questions and take an iterative process, involving refining themes and sub-themes as a more in-depth understanding of the data is developed.

Our overall approach to **synthesising the findings** will be based on the theory of change. We will take each element in turn, including the assumptions, enablers and barriers relating to the links between each step, and consider the evidence for each element having been realised in practice. Qualitative and quantitative evidence from the evaluation will provide an indication of the feasibility of implementing the intervention and measures for assessing its effects as well as the outcomes that could be observed. Qualitative evidence from teachers and learners will provide

evidence on the mechanisms set out in the theory of change as well as enablers, barriers and assumptions.

Ethics and registration

Potential ethical issues for this pilot

Informed consent: It is important that learners taking part in the pilot understand that they are doing so, and that their participation is voluntary, in that they can opt out at any time if they wish. The points of consent will involve Individualised Learner Record (ILR) data access, access to results from the Health and Social Care maths attainment test (if used), access to attendance data and surveys and interview completion.

Participating providers will give learners information about the pilot. This will take the form of the participant information sheet and privacy notice shown in Annex 1. Learning providers will be asked to ensure that the information set out in the first three pages of the information sheet has been communicated to all learners at the point of registration, and that any learner taking part in the pilot understands this information and has been given the opportunity to ask questions about it. The remainder of the information sheet, and the privacy notice, are there for learners to refer to if they wish and to help answer learners' questions at recruitment stage.

The use of learning providers as 'gatekeepers' to the research is an issue for consideration for ethical review. Etio will need to support learning providers to manage the recruitment process so that, on the one hand, learners are not under pressure to take part and feel empowered to opt out if they choose; and on the other, that learners are not discouraged from taking part and are given appropriate reassurances about any concerns they may have.

The research will involve data linking, in that learning providers will share data from learners with the evaluation team, who will then use this to look up additional details of these learners in the ILR. This means that there is a risk that the evaluation team will access more data about learners than learners realise, including special category data. The data the evaluation team will access is set out in the privacy notice that learners are provided with. Learning providers will need to ensure learners' attention is drawn to this and they have opportunities to ask questions and gain assurances on the rationale for the use of these data.

The survey and qualitative research with learners will ask them about their confidence in maths and the outcomes the course has had for them. **This has potential to upset learners if they do not feel confident or as though they have made progress or had positive outcomes from the course**. However, we believe the risks of this are not significantly higher than those encountered in everyday life. We will emphasise that learners do not need to answer any questions they do not want to.

Where providers allow, learners will be invited to take part in pre/post maths testing. Learners will be able to opt out of this at each stage and still take part in their courses.

Learners taking part in the qualitative research and maths assessments for the IPE will be offered a £30 shopping voucher incentive to take part on each occasion. This amount is in line with the amount we use on other studies, including with low-income groups. There is a risk that learners may therefore feel financially pressured into taking part when approached. However, reducing or removing the incentive could also have ethical implications since it is offered to acknowledge participants' important contribution to the research, and helps to encourage participation from groups that could be otherwise under-represented. In order to minimise the risk of coercion, we will emphasise the voluntary nature of participation at both recruitment stage and commencement of the interview; advise participants that even if they are consenting to take part in the research generally, they do not have to answer specific individual questions if they do not want to (receipt of incentive will also not be dependent on having answered specific individual questions, but rather on general participation and contribution towards the research); and if a participant stops an interview part-way through, they should still receive the full incentive.

We will need to consider accessibility and inclusion so that learners who wish to take part in the IPE research are able to. This will include consideration of potential barriers related to disability/health, language and literacy, and digital access. For example:

- Providing information in written and video formats.
- Ensuring that the information is drafted in clear and simple terms and that learning providers are able to explain it to learners in their own words;
- Offering an option for learners to take part in the survey over the phone rather than completing it online;
- Designing the online survey to be mobile-first and include features such as the ability to change font size and background colour, screen-reader compatibility, larger radio buttons, keyboard navigation, and labelled next and back buttons.

The Ethics Panel of the Multiply consortium will assess the pilot, offering counsel and direction to consortium partners regarding any ethical matters. The panel will be tasked with assigning a RAG rating to the pilot, categorising it as high, medium, or low risk in terms of ethical considerations. The ultimate approval of the Pilot Protocol will rest with the Multiply Technical Steering Group (TSG). The TSG will receive the Ethics Panel's report and information on how consortium members have addressed the recommendations.

Pilot registration

The pilot protocol is published on the website of the Principal Investigator, IES.

Publication and dissemination

- A final report, synthesising the IPE data, will be drafted and be suitable for publication. Following comments from the Department and any peer reviewers, it will be finalised for publication for March 2026.
- The Department will publish the report and consortium members will highlight publication through their own websites.
- The IES PI will draft a blog for publication by IES to highlight key findings and lessons from the pilot.

Data protection

- Describe any data protection considerations, such as what personal data will be collected and how this will be processed.
- Include a data protection statement relevant to the project. This will include all procedures that will be used to ensure data quality, anonymity and confidentiality OR supply the privacy notice for the pilot as an appendix. This will draw on the standardised Multiply template that has been developed.
  - Please see appendices
- Specify your legal basis for processing personal data, with reference to the General Data Protection Regulation (GDPR) Article 6 and/ or Data Protection Act 2018.
- Specify your legal basis for processing any special data with reference to GDPR Article 9 and/ or Data Protection Act 2018.
- Provide a clear rationale for the legal bases selected for personal and special data, with reference to your organisational policies and the design of the specific evaluation project. If relying on legitimate interests, clearly specify what specific interests your organisation has in conducting the evaluation. These may include commercial interests, individual interests or broader societal benefits – please specify. (See ICO guidance for more information.)
- Describe your approach to demonstrating GDPR compliance, including, but not limited to, how you will protect individual data subjects' rights, purposes for data processing, all parties with access to data (and reasons), retention periods.
- Specify data processing roles (controller, any processors) during the evaluation up to the point of data being deleted from all locations by the evaluator and/ or delivery team.
  - We will adopt the rationale and GDPR protocols agreed through the contract for the Multiply Trials and Pilots.

Personnel

- Becci Newton, Principal Investigator and Project Director, IES
- Emily Kramers, Research Fellow and Project Manager, IES
- Kyla Ellis, Research Officer and Deputy Project Manager, IES.

Risks

Table 7: Key risks and mitigations

Risk	Likelihood (H/M/L)	Impact (H/M/L)	Mitigations
Pilot recruits insufficient number of providers	Medium	Low	As a Pilot IPE there is not a specific number of providers/settings required although between five and 15 would provide a good diversity of contexts. Five providers would represent a sixth of the eligible providers operating in the previous academic year and this is suggested as the minimum number required. We will work with Etio to ensure the process focuses on EAST principles (sign up is easy, attractive, social, timely). We will work with 'early adopter' providers to refine persuasive messages on taking part.
Provider/teacher attrition	Medium	Medium	Some level of attrition will occur at the provider level and falling below five providers taking part would limit the diversity insights that can be gained into feasibility, but the research can continue with those that remain to continue to monitor feasibility, experience and outcomes. We would seek information on the reasons for drop-out in case these relate to the intervention or pilot evaluation.
High level of learner opt-out from taking	Low/Medium	Medium	Prospect of a vocationally relevant maths content and testing may be off-putting to

part in the pilot and testing			learners and a reason to not sign up to take part. Information will stress that the content and test will focus on concepts taught in their courses and be highly related to the H&SC curriculum and work. Opportunity to opt out of the pilot and any testing. As a pilot, lessons about the effect of the intervention can be gained despite lower than hoped numbers of learners. Insights may be less informed by learners' diverse contexts.
Risk of low levels of participation in the learner survey, meaning that it is not possible to report outcomes relating to changes in confidence and that there is lack of evidence for the IPE	Low	Medium	We have agreed to use an opt-out approach to maximise sample size attainment. We will design briefings for teachers and information for learners that is persuasive on the reasons to take part and for teachers, how to manage questions learners have about this.
Scheduling and remission issues affect whether teachers receive sufficient training	Medium	High	We will collaborate with providers and Etio to ensure strategic 'buy-in' at the provider level to ensure adequate training is provided at a consistent level of quality.
Variation in duration of courses between providers	High	Low	This will reflect institutional practices for delivery of H&SC Level 2 and the intervention has been designed to allow for adaptability to cover 15 or 30 week durations. The pilot can track both modes with endline testing adapted to the end date of courses.
Risk that learning providers make so	Medium	Low	We will emphasise to learning providers and teachers at

many adaptations to the intervention that it varies significantly between providers.			provider/teacher recruitment stage and again as part of the training that adaptations to course content should only be made when essential. Extensive adaption could indicate the intervention is not feasible for delivery in H&SC courses and this would be fully explored so that lessons can be drawn.

Timeline

Table 8: Detailed timetable

Date	Activity	Staff responsible/ leading
01/05/24-02/09/24	Protocol development and sign-off for publication	IES
01/05/24 - 15/05/24	Ethical review	Consortium Ethics Panel
01/05/24 - 31/08/24	Provider recruitment	ETIO/ETF
15/05/24 - 31/08/24	Teacher training Cohort start dates: 20 June; 9 July; mop-up September	ETIO/ETF
01/09/24 - 31/1/25	Pilot starts (courses of any duration (15 or 30 weeks) may start in September 2024. 15 week courses may also start in January 2025)	N/A
01/09/24 - 31/1/25	Primary baseline survey fieldwork	Ipsos UK
01/09/24 - 31/1/25	Primary baseline maths testing fieldwork	Ipsos UK
01/11/24 - 31/5/25	IPE fieldwork	IES
Variable (Jan or July 2025)	Primary endline survey fieldwork will coincide with course end date	Ipsos UK
Variable (Jan or July 2025)	Endline maths testing will coincide with course end date	Ipsos UK
Summer 25	Data analysis	IES
Autumn 25	Reporting	IES
Winter 25	Peer review by evaluation consortium and DfE review	N/A
Winter 25/Spring 26	Revisions	IES

Date	Activity	Staff responsible/ leading
Spring 26	Finalised report	IES

References

Blunkett, D. (2000). *Skills for life: The national strategy for improving adult literacy and numeracy skills.* London: Department for Education and Employment .

Borm, G. F., Fransen, J., & Lemmens, W. A. (2007). A simple sample size formula for analysis of covariance in randomized clinical trials. *Journal of clinical epidemiology, 60*(12), 1234-1238.

Campbell, M., Grimshaw, J., Steen, N., & Changing Professional Practice in Europe Group (EU. (2000). Sample size calculations for cluster randomised trials. *Journal of health services research & policy, 5*(1), 12-16.

Casey, H., Cara, O., Eldred, J., Grief, S., Hodge, R., Ivanic, R., . . . McNeil, B. (2006). *"You wouldn't expect a maths teacher to teach plastering…." Embedding literacy, language and numeracy in post-16 vocational programmes–the impact on learning and achievement.* National Research and Development Centre.

Gelman, A., & Hill, J. (2006). *Data analysis using regression and multilevel/hierarchical models.* Cambridge university press.

Hedges, L. V., & Hedberg, E. C. (2007). Intraclass correlation values for planning group-randomized trials in education. *Educational Evaluation and Policy Analysis, 29*(1), 60-87.

Hale D., Patalay P., Fitzgerald-Yau N., Hargreaves D., Bond L., Görzig A. (2014). School-level variation in health outcomes in adolescence: Analysis of three longitudinal studies in England. Prevention Science;15(4):600–610.

OECD (2020), Raising the Basic Skills of Workers in England, United Kingdom, OECD Skills Studies, OECD Publishing, Paris, https://doi.org/10.1787/4ff42de8-en.

Ryan, M., & Fitzmaurice, O. (2017) Behind the numbers. The preliminary findings of a mixed methods study investigating the existence of mathematics anxiety among mature students. Adults Learning Mathematics: An International Journal, 12(1), 49-58.

White I, Royston P, Wood A. (2011). Multiple imputation using chained equations: issues and guidance for practice. Stat Med;30:377–399

Appendices

Appendix 1: Participant information sheet

1 Information leaflet

Congratulations on signing up to your Health and Social Care course. It is important to understand how useful the course is for you and other learners taking part. The government Department for Education is conducting research to evaluate how effective the teaching methods used on the course are. As part of this, we would like to collect some information about you. Please read this leaflet carefully to decide whether you agree to this.

You can find out more about this research and how your data will be used by accessing the following video: insert weblink / QR code for video

What is the research about?

The research is about understanding how effective the teaching methods used on the Health and Social Care course are.

This research is being conducted by IES and Ipsos UK, known as The Research Team. on behalf of the Department for Education and will help them better understand how to support people on Health and Social Care courses.

Why have I been invited to take part in the research?

You have been invited to take part in this research because you signed up for a Health and Social Care course.

Do I have to take part in the research?

Your responses are valuable, but you do not have to take part if you don't want to. If you decide not to take part in the research, you can still take part in your Health and Social Care course.

What should I do if I want to take part in the research?

You do not need to do anything. If we don't hear from you, you will automatically be enrolled in the research.

Your learning organisation will share your information (name, date of birth, postcode and contact details) with The Research Team. This will mean The Research Team can look up your education records and invite you to take part in research.

What should I do if I don't want to take part in the research?

Please tell your learning organisation by DD Month YYYY:

- If you do not want your learning organisation to share information about you with The Research Team to enable them to access your education record.

- If you do not want your learning organisation to share your contact details with The Research Team to invite you to take part in surveys or longer discussions.

You can tell the person who gave you this information sheet, or you can email The Research Team directly at: educationtrials@ipsos.com.

If you do not let your learning organisation or The Research Team know, you will be included in the research.

What will happen in the research?

There are four parts to the research. You can choose which of these (if any) you would like to take part in:

9. Your learning organisation will record your name, date of birth and postcode. They will share this information with Ipsos who will use it to look up information from your education records. More information on this is provided in the accompanying Privacy Notice, which you can find at the end of this document.

10. Your learning organisation will share your contact details with Ipsos, who will invite you to complete a short survey (no more than 15 minutes long) to capture information about you, why you signed up to the course and how you feel about maths. This will happen twice - once at the start of your Health and Social Care course, and once at the end.

11. At the end of the survey, you will be asked if you would be happy to be contacted by The Research Team and invited to participate in a longer discussion with a researcher (up to 45 minutes) about your experience of the course. If you agree to this, and are selected to take part, the interview will be arranged over the phone at a time to suit you. If you speak to a researcher, you will be given a £30 high street shopping voucher to say thank you for your time.

12. Your learning organisation may invite you to take part in an assessment of your maths skills. This will take around 45 minutes of your time. You will receive the invitation twice – once at the start of

your course and once at the end. You can choose whether to do the test each time it is offered. If you do, we will understand any progress you make in maths. You will receive a £30 shopping voucher for each test you take part in.

Does it cost anything to take part?

No, it is free to take part in this research.

What are the benefits of taking part?

The research will give you the opportunity to share your experiences of taking part in the Health and Social Care course and how effective the teaching you received was. Your feedback will be combined with that from other learners across England and summarised in a report. You will not be named in the report, and it will not be possible to identify you within this. This will help other people in the future who take part in Health and Social Care courses. You will be able to read the findings in a report published by the Department for Education on the gov.uk website in March 2026.

Who is doing the research?

The Research Team, IES and Ipsos, are carrying out this research and will work with your learning organisation to collect information about you and share invitations to take part in the surveys. IES is a small, not-for-profit research organisation and Ipsos is a large research company.

The Research Team have been asked to do this research by the government Department for Education.

What if I change my mind about taking part in the research?

If you change your mind and decide that you do not want to take part, you can let your teacher, tutor or someone else within your learning organisation know. You can also email The Research Team directly at: educationtrials@ipsos.com.

If you change your mind about taking part the research, The Research Team won't use your information and they will stop contacting you. You do not need to give a reason.

No matter what, you will still be able to take part in the Health and Social Care course.

I have some data and confidentiality questions…

Why am I being told about the research?

The learning organisation where you signed up for the Health and Social Care course has been chosen to take part in the research. They have agreed to share this information leaflet with people who sign up to the Health and Social Care course.

If I take part in the research, what information will you collect about me?

If you agree to take part in the research, your learning organisation will share some information about you with IES and Ipsos. This will be your name, date of birth, postcode and contact details. They will also share information about your attendance on the course. This is so that The Research Team can look up your education record and invite you to take part in further research. More information on this is included in accompanying Privacy Notice.

They will not share any other information about you.

What will happen to my information and what I tell you in the research?

Your learning organisation, The Research Team will treat your information as confidential and anonymous, and keep it securely stored.

The Research Team will use your answers to the research along with answers from other learners to write a report. This means that nobody will be able to identify you in any results. The report will be shared with the Department for Education and published on the www.gov.uk website in March 2026.

You can find out more about how your information will be used in the Privacy Notice for this research.

How can I ask a question about the research?

If you have any questions about the research, you can contact The Research Team by email at embeddedmaths@employment-studies.co.uk. This email is monitored, and you will receive a response in one week.

Who do I contact if I have a concern or complaint about the research?

If you have any concerns or complaints about the research, please contact the IES Project Director, **Becci Newton** at:

Email: Becci.newton@employment-studies.co.uk

Post: City Gate, 185 Dyke Road, Brighton, BN3 1TL

If you'd like to find out more information on those involved with this research:

- You can read more about IES here: http://www.employment-studies.co.uk
- And more about the Department for Education here: https://www.gov.uk/government/organisations/department-for-education

Thank you for taking the time to read this information leaflet. We hope you agree to take part in the research.

2 Privacy notice

This research and your personal data

23-010408-01 Multiply Education Research Trials: Maths in Health and Social Care

This privacy notice explains how **The Research Team** use personal information in the Multiply Education Research Trials. This includes information provided to us, or information that we may collect about you.

The research is being conducted by IES and Ipsos UK, **The Research Team,** on behalf of the Department for Education (DfE).

When we collect and use information about you, we need to follow the law. The main laws are the Data Protection Act (DPA) and the UK General Data Protection Regulation (GDPR).

What is our legal basis for processing your personal data?

- The Department for Education is the Data Controller for your personal data. We must have a reason to process or collect your personal data. This is called a “lawful basis”.
- Our lawful basis to process your data is ‘public task’, which is when we need your personal data to do our work, to provide or fund education.
- The Research Team will act as data processors of any data collected from you as part of the research, on behalf of DfE. We have a contract in place with the DfE to process the data on their behalf and in accordance with their instructions. This means that The Research Team cannot legally do anything with your personal data unless DfE have instructed them to do it.

What personal data has The Research Team received for this research?

- The Research Team have your personal data because they are conducting research on behalf of the Department for Education.

- As part of this, your learning organisation has shared a limited amount of your personal data with The Research Team so that we can access your education record and contact you in relation to this research. DfE's privacy notice can be reviewed here: DfE Privacy Notice.

- The personal data that your learning organisation has shared with The Research Team for this research is your: name, date of birth, postcode and contact details (phone number, email address and postal address).

How will The Research Team use my personal data?

- Firstly, taking part in this research is entirely voluntary and any answers are given with your consent.

- The Research Team will use your personal data and responses solely for research purposes, on behalf of Department for Education:

  - They will use your details provided by your learning organisation to look up your education record.

  - They will use your details provided by your learning organisation to invite you to take part in the research activities, including surveys and interviews.

  - They will use any information you provide in surveys or interviews to produce anonymous research findings.

  - They will use your test results to understand the progress with maths made by learners taking this course.

- The Research Team will keep your personal data and responses in strict confidence in accordance with this Privacy Notice. Only a selected group of researchers at The Research Team will be able to see the information you provide. The Research Team can assure you that you will NOT be identifiable in any published results.

How will The Research Team ensure my personal information is secure?

- The Research Team take their information security responsibilities seriously and apply various precautions to ensure your information is protected from loss, theft or misuse. Security precautions include appropriate physical security of offices and controlled and limited access to computer systems.
- The Research Team have regular internal and external audits of their information security controls and working practices and both are accredited to the International Standard for Information Security, ISO 27001.

How long will The Research Team retain your personal data and identifiable responses?

- The Research Team will only retain your data in a way that can identify you for as long as is necessary to support the research project and findings. In practice, this means that once The Research Team have satisfactorily reported the anonymous research findings, they will securely remove your personal, identifying data from their systems.
- For this project The Research Team will securely remove your personal data from their systems by June 2026 after the Multiply Education Research Trials reports have been published.

Your rights

You have rights about how and why your information is collected and used.

- The right to see the personal information we have about you, and that The Research Team has about you within the limited period that they hold it – this is called 'right of access'.
- The right to ask us to change any information you think is not accurate or complete – this is called 'right to rectification'.
- The right to ask us to delete your personal information – this is called 'right to erasure'.
- The right to ask us to stop using your information – this is called 'right to restriction of processing'. Providing responses to this

research is entirely voluntary and you have the right to opt out of further data collection at any time.

- If you want to access, or correct your data, or opt out of further data collection, please contact The Research Team using the details below. Whichever organisation you contact we will ensure the other knows to remove your data from its files.
- You have the right to lodge a complaint with the UK's Information Commissioner's Office (ICO), if you have concerns on how The Research Team have processed your personal data. You can find details about how to contact the Information Commissioner's Office at https://ico.org.uk/global/contact-us/ or by sending an email to: casework@ico.org.uk.

Where will your personal data be held & processed?

All your personal data used and collected for this research will be stored and processed in the United Kingdom.

How can I contact the Department for Education about this research and/or my personal data?

If you have a question, or feel your data has been mishandled, you can contact DfE by:

using our secure DfE contact form

or writing to:
Emma Wharram
Data Protection Officer
Department for Education (B2.28)
7 & 8 Wellington Place
Wellington Street
Leeds
LS1 4AW

How can I contact The Research Team about this research and/or my personal data?

Email: Embeddedmaths@employment-studies.co.uk

Post: Multiply: Maths in Social Care, IES, City Gate, 185 Dyke Road, Brighton, BN3 1TL

How can I contact Ipsos UK about this research and/or my personal data?

Email: Catherine.Bolton@ipsos.com with “Multiply Education Research Trials 23-010408-01” in the email subject line

Post:

Catherine Bolton
Data Protection Officer
Multiply Education Research Trials, 23-010408-01
Ipsos UK
3 Thomas More Steet
London
E1W 1YW

Appendix 3: Maths confidence question adopted for Multiply

ASK ALL / SINGLE CODE / RANDOMISE STATEMENTS B-G

QNUMCONF How confident do you feel about doing the following things?

READ OUT, SINGLE CODE PER STATEMENT. RANDOMISE ORDER OF STATEMENTS B TO G

a. Using numbers in everyday life
b. Checking your change is right when you have bought something
c. Working out the best deals when shopping
d. IF HAVE PARENTAL RESPONSIBILITIES Helping children with homework or talking about maths / numbers with children
e. Understanding interest rates on bank statements
f. Keeping track of your bank account balance
g. IF WORKING Working with numbers as part of a job

1. Very confident
2. Fairly confident
3. Neither confident nor not confident
4. Not very confident
5. Not at all confident
6. Not relevant to me

For more information

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https://skillsforlife.campaign.gov.uk/courses/multiply/

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