

EXTERNAL EVALUATION OF MEI'S POST-16

GCSE AND FUNCTIONAL SKILLS

QUALIFICATIONS IN MATHEMATICS

PROFESSIONAL DEVELOPMENT PROGRAMME

Final Report, March 2025

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1 EXECUTIVE SUMMARY

Sheffield Institute of Education Research and Knowledge Exchange (SIRKE) at Sheffield Hallam University were commissioned to evaluate the Mathematics in Education and Industry (MEI) Post-16 GCSE and Functional Skills Qualifications in Mathematics Continuing Professional Development (CPD) programme. The evaluation has adapted along with the programme. Originally we planned to evaluate the Teaching Functional Skills Maths Programme, and conduct 12 case studies highlighting the value of the broader programme. As the programme progressed, it became clear that of all the different elements of the programme, the CPD Menu was the most popular, and so this report mostly covers that element through a survey and interviews.

Feedback on the programme has been incredibly positive, and a selection of areas have been particularly notable. The first is the mode of delivery. Although many elements of the programme were designed to be online, the most popular has been in-person delivery at a post-16 provider. Much of the feedback about the mode of delivery has focused on the ability to engage with team members, and for managers, an opportunity to better develop a collaborative culture through shared training. The second, related, benefit has been for managers to be able to work with CPD experts to design the most appropriate CPD, from the menu, for their teams. MEI have been able to adapt these elements where needed, whilst maintaining the core of the content.

The third key area which has contributed to impact, has been the approach to provide a range of different techniques for explaining the same topics. Phrases like bar modelling and manipulatives, that promote physical props and drawn out instructions, have been common in the interviews. This has been coupled with the fourth area, which is a specificity for post-16 staff teaching learners who have previously struggled with maths. Staff have found that the resources and training are relevant to their learners, unlike much of the training that they felt was more suited to secondary school teachers. Although some were initially reticent about using physical props with over 16s, and in some case over 18s, the relevance for the particular age ranges made them feel more confident. Many interviewees reported having good experiences in using these techniques with young people and adults alike on GCSE and Functional Skills course. One of the reasons for that success seems to be that those designing the CPD have direct experience of teaching post-16 maths, and a clear understanding of what is and what isn't appropriate. Teachers reported seeing bar models on workings of learners in mock exams, and students saying they finally understood certain elements after many years of pretending to understand at school. The final success factor for this is not just the experience of the staff delivering the programme, but also their ability to engage and enthuse the teachers they are training. This was mentioned frequently in interviews, focus groups, and on the survey.

Although some of the other programmes had less take-up, there was still demand for online programmes, particularly amongst newer managers for the Leaders of Maths programme. A programme that covered the content but maybe ran every 2 or 3 years for newer managers of maths teams in college may yet find a bigger audience. There was positive feedback on the bursaries for attending the conference, and particular engagement with the post-16 sessions at the conference. In future, funding and/or subsidies for the elements of the CPD Menu that allow for in-person in-house delivery to colleges, and attendance at the MEI conference for one or two staff would align with where we found the highest satisfaction and impact among teachers and managers in post-16 maths during this evaluation.

2 INTRODUCTION AND METHODOLOGY

This project aims to independently evaluate the DfE-funded MEI programme of CPD for post-16 GCSE resit and Functional Skills teachers. The MEI post-16 CPD programme has changed focus over the course of the contract so far, and as a result our evaluation approach has shifted. Initially, we were due to evaluate the Teaching Functional Skills Maths programme as a main element of the evaluation, with a survey and focus groups. We reviewed the pilot of this programme in summer 2023 through a survey, and an interview in autumn 2023. The limited numbers on the pilot made it difficult to organise focus groups, so we resolved to move much of the primary research to the following year of evaluation.

The original contract anticipated that the three main programmes – focused on Functional Skills maths, GCSE resits, and Leadership of maths respectively, would be the most popular, with other support available through the CPD menu where staff from MEI would deliver in-person or online, and online modules supporting subject knowledge. Over the first year, it became clear that the CPD menu, particularly through in-person delivery was most popular, and so we revised the evaluation plan for the main programme.

For the second year of our evaluation – April 2024 to March 2025, we focused instead on the CPD menu. In order to do this, we revised and repurposed the original survey, and conducted some in-person focus groups, two at a college provider, and three at MEI conference. We also conducted three interviews in early 2025, with individuals who have completed the survey, being mindful of the additional burden on participants' time.

Our evaluation, outside of specific programmes, included the development of 12 case studies over 2 years, which can be found as an appendix to this report. For these case studies, we interviewed individuals from a selection suggested to us by MEI who participated in at least one, usually two or three of the programmes, and could provide useful feedback. The information from these case studies has been included in the analysis for this report.

Our evaluation seeks to identify the success of the relevant programmes in terms of reach, satisfaction of participants, and learning, as well as any changes to practice as a result. It will also seek to establish any additional outcomes or impacts of the programmes on participants, colleagues of participants, and learners. Through the evaluation of the specific programmes, we will also identify any potential improvements or changes that could be made to increase the effectiveness and the impact of future programmes.

3 Theory of Change

The first part of the project was to develop the Theory of Change for the whole MEI post-16 CPD programme. This programme has the following objectives:

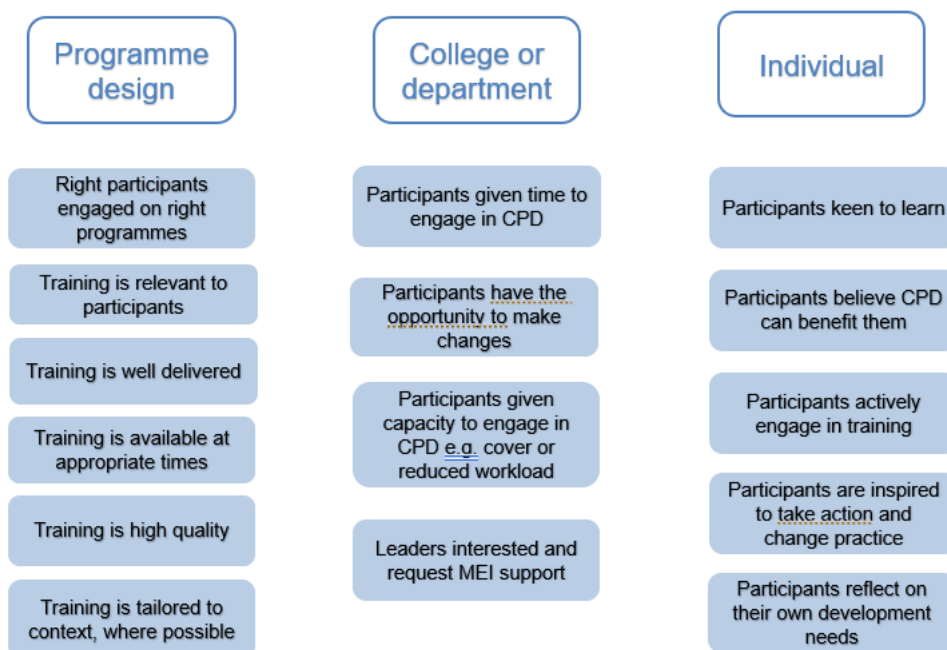
1. Successfully develop CPD programme for teachers of 16-19 GCSE/FSQ resit teachers.
2. Increase the reach of targeted CPD accessed by 16-19 GCSE/FSQ resit teachers.
3. Evaluate and refine CPD programme for teachers of 16-19 GCSE/FSQ resit teachers to ensure activities **meet participant need**.

The programme has the following components:

- 3 key courses – **Teaching GCSE, Teaching Functional Skills (FS), Leaders of Maths**. Each course has 3 options for delivery: live online = 10 sessions in evenings; blended = same content delivered in-house to one college/provider by MEI staff; on demand = 10 sessions as online content. These courses are designed for aspiring as well as current maths teachers.
- **On demand subject knowledge**. These cover several areas of maths from entry 1 to Level 2. A non-judgemental sequence of maths to help teach each area. The content has been specifically written for this grant. They are designed for anyone needing support including teachers and learning support staff. They are delivered online as on demand content.
- **FE Maths CPD menu**. These is a suite of relevant courses MEI has offered in the past as well as any new programme. They can be delivered online or in person (at college/provider) by MEI staff so can be tailored for the college. In person delivery is either 90 or 180 minute sessions so college/provider can build their own CPD.
- **MEI Conference**. This is a two day event focusing on maths teaching at all levels with workshops and keynote speakers. There are 30 FE bursaries for FE maths teachers, who have to produce a written reflection afterwards. The bursary is designed to promote the professionalism of FE teachers.

The mechanisms for successful delivery of the programme are shown in Figure 1 below.

Figure 1



The intermediate outcomes are shown in Figure 2, and the longer term outcomes in Figure 3.

Figure 2

Intermediate outcomes

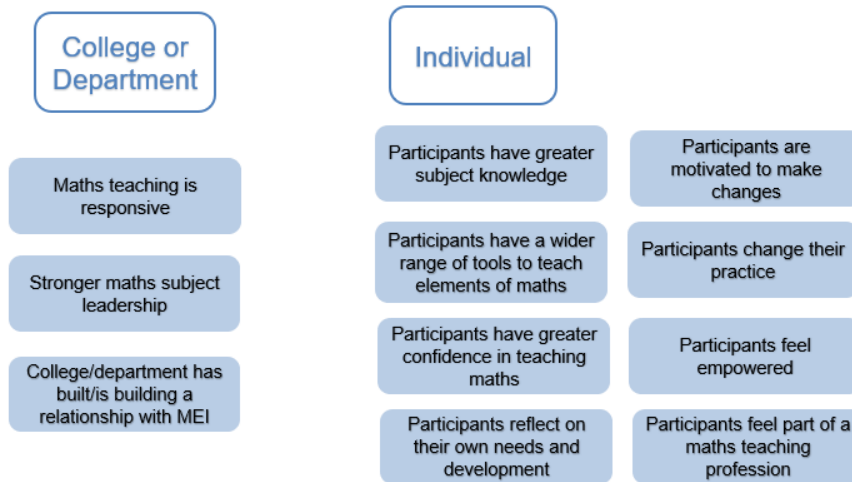
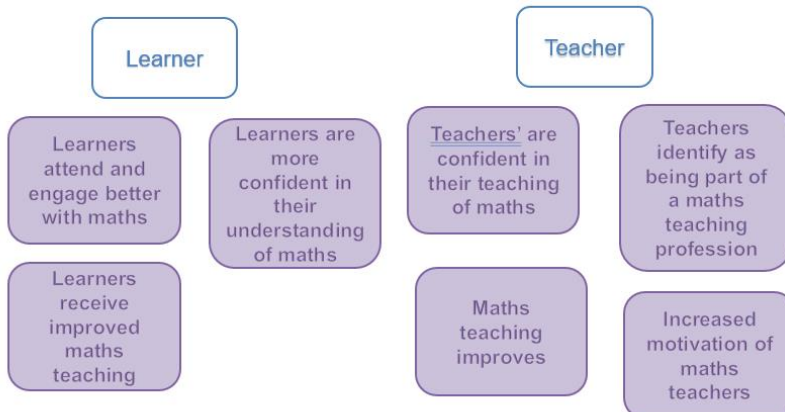


Figure 3

Longer term outcomes



Each programme had specific targets for years 1 and 2, to be revised and adapted later in the contract. The overall outputs of the project were intended to be:

- 20 colleges participate and 5000 students are impacted in year 1 across all programmes.
- 60 colleges participate and 10,5000 students are impacted by the end of year 2 (cumulative target) again across all programmes.
- 50% of participants have not received CPD from MEI in the past 2 years.
- 2 annual conferences are delivered with 30 bursaries accessed per year.

Considering each type of programme, a total of 120 participants were due to take part in a live online version of one of the three main programmes – the Leaders of Maths, Teaching Functional Skills Maths, and Teaching GCSE Maths resits. Additionally, 270 individuals were due to take part across the three programmes in an on-demand version of the 3 programmes, with 90 on each, while 120 individuals were due to take part in a blended version, 40 on each of the 3 programmes. After year 1 of operation, it was clear that although the programmes were valued by those who participated in them, changes were made to the targets to reflect that other elements of the programme were in higher demand. In particular, the CPD menu programme was in high demand, although originally intended to offer a range of in-person delivery for maths teams in colleges and other post-16 providers was due to reach 100 participants in year 1 and the same in year 2 of operation. A programme of on-demand subject knowledge was also developed, which was intended to reach 50 individuals across 2 courses in the first year, and 120 individuals over the full 5 elements in the second year. There was also a bursary programme to enable staff from FE providers to attend the MEI conferences, with 30 bursaries in each of the 2 years. Below, we set out the overall reach of the programmes using management information from MEI.

4 REACH

As set out above, there were five main programmes making up the MEI post-16 maths CPD programme that is being evaluated here. These were in the form of three programmes specifically for individuals: the Leaders of Maths programme; the Teaching Functional Skills Maths programme, and the Teaching GCSE Maths Resit programme. Then, an FE CPD Menu was offered to providers on the basis of a mix of 90 and 180 minute sessions that would be delivered in-person by the MEI team for up to a whole team, typically to the maths department. Lastly, online on-demand subject knowledge courses were developed in 5 topic areas, that could be done by an individual or by a whole team. All figures below set out the programmes delivered between the beginning of the evaluation in March 2023 and the end of January 2025. The MEI post-16 CPD programme ran until the end of March 2025.

4.1 INDIVIDUAL PROGRAMMES

The Leaders of Maths programme was only delivered in year 2 for both modes of delivery. For the independent delivery, where individuals could work through the material online at their own pace, 6 people from 6 different colleges participated. For the live online delivery, delivered as a cohort with a facilitator, 8 people from 8 different colleges participated. This resulted in a total of 14 people across 14 colleges that participated in the LOM programme.

Table 1: Participants on the Leaders of Maths programme

Programme	Mode of Delivery	Programme Year ¹	Number of Participants	Number of Colleges
Leaders of Maths	Independent	2	6	6
	Live Online	2	8	8

The Teaching Functional Skills Maths programme was delivered across multiple years. For the independent mode of delivery, 8 people from 7 different colleges participated in year 2 and 7 people from 4 colleges participated in year 3. For the live online mode of delivery, 14 people from 12 different colleges participated in year 1, and 7 people from 7 colleges participated in year 2. This resulted in a total of 36 people across 30 colleges that participated in the Teaching Functional Skills Maths programme.

Table 2: Participants on the Teaching Functional Skills Maths programme

Programme	Mode of Delivery	Programme Year	Number of Participants	Number of Colleges
Teaching Functional Skills Maths	Independent	1	-	-
		2	8	7
		3	7	4
	Live Online	1	14	12
		2	7	7
		3	-	-

¹ Year 1 = September 1st, 2022 – August 31st, 2023, Year 2 = September 1st, 2023 – August 31st, 2024, Year 3 = September 1st, 2024 – February 2025.

The Teaching GCSE Maths resit was also delivered across multiple years. For the independent mode of delivery, 11 people from 9 colleges participated in year 2, and 12 people from 9 colleges participated in year 3. For the live online mode of delivery, 10 people from 9 colleges participated in year 2. This resulted in a total of 33 people across 27 colleges that participated in the Teaching GCSE Maths resit programme.

Table 3: Participants on the Teaching GCSE Maths resit programme

Programme	Mode of Delivery	Programme Year	Number of Participants	Number of Colleges
Teaching GCSE Maths resit	Independent	1	-	-
		2	11	9
		3	12	9
	Live Online	1	-	-
		2	10	9
		3	-	-

4.2 CPD MENU

The MEI post-16 CPD Menu was delivered to high numbers of individuals and colleges. By March 2025, the whole MEI post-16 CPD suite of programmes were due to have reached 60 colleges in total, and the CPD Menu alone reached 64 different colleges. 158 individual events took place with 1696 attendances by individuals. Of the 158 events, 47 events were delivered at colleges that stated they were new to MEI-delivered CPD, while the remaining 111 events were delivered to colleges who were not new to MEI CPD. However, during the course of the programmes, colleges that were new to MEI in year 1 who then requested an additional programme, were later deemed to not be new to MEI, making it difficult to define new to MEI. Similarly, the attendances likely included duplicate individuals, as CPD from the menu was often delivered to a whole department.

The CPD menu had several different options, with 29 different options being selected as the first CPD to be delivered at a provider. Many of the colleges requested more than one option, with the highest number of events for one college being 8. Half of colleges (50.6%) of colleges chose 1 option, 38% chose two options, 8.9% chose 3 options and 2.5% chose 4 or more options.

4.3 ON DEMAND SUBJECT KNOWLEDGE

The On Demand Subject Knowledge programme had five separate courses that were delivered across multiple years. These online courses were designed to help teachers boost their own subject knowledge with the delivery designed so they could do so without telling colleagues. Alternatively, it was anticipated that some teachers might review the programme then deliver to their colleagues using the materials. This makes it difficult to see whether the final figures on the number of participants reflects the actual number of participants or only the number who registered for the course.

Programme	Course	Programme Year	Number of Participants	Number of Colleges
On Demand Subject Knowledge	Algebra	1	4	2
		2	10	4
		3	-	-
	Geometry	1	4	3
		2	11	4
		3	-	-
	Number	1	4	3
		2	18	6
		3	-	-
	Ratio & Proportion	1	9	9
		2	20	6
		3	-	-
	Statistics & Probability	1	6	4
		2	9	6
		3	-	-
	Totals		95	47

In total, as shown in the table, 95 individuals from 47 colleges registered for an On Demand Subject Knowledge course, including duplicates of individuals and colleges.

4.4 BURSARY FOR MEI CONFERENCE

For the Bursary programme, 32 people from 26 different colleges attended the conference in year 1. In year, this increased to 41 participants from 31 colleges.

Programme	Mode of Delivery	Programme Year	Number of Participants	Number of Colleges
Bursary	Conference	1	32	26
		2	41	31

4.5 OVERALL PARTICIPATION

Overall, there were approximately 1919 attendances from 121 colleges who participated across the six programmes making up the overall MEI post-16 CPD, with 1696 attendances coming solely from the CPD Menu, and 223 from the remaining programmes. However, it should be noted some participants may have attended multiple programmes, so the 1919 figure represents total attendances, rather than total individual people. Furthermore, in the data used for this analysis, there were variations with regards to the naming of some colleges along with merges and different conventions for colleges within college groups. So, when calculating the 'total number of colleges' we therefore had to assume colleges with similar names were indeed the same college, however, it cannot be guaranteed that these categorisations were correct.

5 EVALUATION OF TEACHING FUNCTIONAL SKILLS MATHS

An online survey was distributed to individuals who had started the TFSM programme as soon as the programme finished, in July 2023 by the SIRKE team. From the management information report, we understand that although 16 individuals started the programme, only 14 individuals completed the programme. The SIRKE team was sent a list of 22 contacts who had originally signed up to the TFSM programme, and this is the group we emailed with the survey. A reminder was sent by MEI. In total, 10 individuals completed the survey and all responses are anonymous. This is nearly half of the original sample we contacted, and if only those who completed the programme responded to the survey, then this would be the majority of participants. We also anticipated conducting 2 focus groups with this group. However, the number of participants and their willingness to engage made this prohibitive, although we did interview one participant. The results from that interview are included below.

5.1 FINDINGS

This sub-section sets out the findings from the survey. Given the small sample and number of participants, responses are reported in numbers rather than percentages.

On the backgrounds of those participating, only 2 out of 10 respondents had participated in an MEI programme before or were aware of a colleague who had participated. The management information indicates that 55% of all those engaged in the MEI post-16 CPD programmes had not participated in MEI programmes before. This suggests that the TFSM programme may have a greater proportion of those new to MEI than the other post-16 CPD programmes. TFSM is a new programme, and a distinct offer, where most of the previously available post-16 CPD from the Education and Training Foundation and others was focused on GCSE resits. This suggests that TFSM is a particularly good way to reach out to those with less prior engagement with MEI.

From those who responded to the survey only 5 of 10 were Maths teachers, with 5 selecting 'other'. 7 of the 10 said they were currently or about to start teaching FS maths, suggesting that the programme is generally reaching its intended audience.

In terms of motivation, all 10 respondents said they chose to participate to "develop their own knowledge in teaching maths" while 6 out of 10 said they chose to participate to "develop personal maths skills". No respondents chose to participate because "they recently took on new responsibilities for teaching maths" or because "their manager asked them to participate".

On quality and content of the programme, most respondents agree or strongly agree with the positive statements about MEI content and delivery. The only outlier is the statement "I received adequate remission and support from my organisation to participate" in which 8 of the 9 respondents said strongly disagree, disagree, or neutral. The open text responses on what people particularly valued from the session all name something different or value the diversity of approaches presented, so this suggests that participants are learning a range of different techniques from the programme. There were mixed views on improvements, with only 5 of 10 making suggestions, and varying between preferring face-to-face, preferring fewer breakout sessions, a request to record, and for the programme to be shorter.

In terms of whether the programme would increase their knowledge of teaching Functional Skills maths, 8 agreed and 2 strongly agreed. On whether the programme would increase their confidence in teaching Functional Skills maths, 2 were neutral, 5 agreed and 3 strongly agreed. Given only 6 of the 10 respondents wanted the programme to help build their own maths knowledge, while all wanted the programme to develop their own skills in teaching Functional Skills maths, these results suggest that the programme is meeting its objectives.

In terms of whether the programme was likely to improve their skills in teaching Functional Skills maths and improve the quality of their practice in teaching Functional Skills maths, for both questions 7 respondents agreed and 3 strongly agreed. In the open questions, as above, the diversity of approaches was particularly welcomed, and the most common change mentioned in terms of making a change to practice. In future, 5 of the 7 open responses mentioned wanting to share practice with colleagues or other FS teachers/lecturers. One individual had already shared what they had learnt with their colleagues, and the other 9 said they intended to share their learning. When asked how they intended to share, most referenced sharing at team meetings including planning sessions or at CPD time.

The most frequent barrier to making change was not having enough time or capacity – this was selected by 7 out of 10 respondents, while another 3 mentioned the timing of the programme meant they didn't have time to change their practice until next academic year. One also noted a lack of support from senior leaders/managers.

In terms of impact, 8 of the respondents felt the programme would have a positive impact on the quality of Functional Skills maths teaching that learners receive at your provider in 2023/24, with 1 respondent saying it would have a very positive impact, and 1 saying no impact. When asked about whether they would recommend either the programme or MEI programmes more generally, in both questions, 5 said they were likely to recommend them, and 5 said they were very likely to recommend them. 8 felt they were well-informed about other MEI programmes.

These findings were confirmed by the interview we conducted, with general satisfaction with the programme, and use of the techniques afterwards, particularly manipulatives. The only improvement suggested by the interviewee was to reduce the amount of reflection in the last session of the programme, replacing it with more techniques. In general, though, the programme was well-received, with a particular value placed on the diversity of approaches discussed. The programme seems to have engaged individuals who had not had much, if any, contact with MEI before, and all respondents found the programme useful and believe it will have a positive effect on their practice.

The barriers were mostly around timing and capacity to engage. It should be noted that the timing of the TFSM programme will be earlier in the academic year 23/24 which helps to resolve some of the barriers identified. There is of course little that MEI can change about the workload, time and capacity of individuals in their colleges.

The vast majority (9 of 10) respondents felt the programme would have a positive or very positive impact on the quality of Functional Skills maths teaching at their college, and all would recommend MEI programmes to their colleagues.

The results here should be treated with caution as a sample of a small programme cohort, however all the indicators from this survey are that: the programme has attracted the right participants; it meets the needs of participants; participants learn about different ways to teach Functional Skills and build both their knowledge and, where appropriate, their confidence; participants feel the programme will make a difference to the quality of teaching of Functional Skills in their college; and that participants are keen to share the learning with their colleagues and recommend MEI programmes.

6 EVALUATION OF THE CPD MENU

As noted above, we switched to evaluating the CPD menu in Spring 2024 and revised the original evaluation plan. In order to maximise the responses to the survey and reduce the burden on participants, we included the internal MEI survey questions in the external evaluation survey. We sent the anonymised data on those specific questions to MEI to enable reporting to DfE.

The external evaluation survey we report on here was open from June 2024 to the end of January 2025. We had 391 responses to the survey² during this time, however, 38 responses were removed from the analysis because they did not progress beyond the initial ‘about you’ section. This left a total of 353 responses. It should be noted that participants were not required to answer every question, so the total response per question varies throughout the report.

The table below shows the proportion of staff in different teaching roles who completed the survey. As expected, most staff were Maths Teachers, with the Head of the Maths Department and Trainee Maths Teachers also responding to the survey, as they would be involved in the CPD as well. For those who selected the ‘other’ option, we invited them to provide more detail. There was a range of participants who were learning support assistants, some participants were Maths coaches or specialists, and some were tutors. There was a small number of participants who said they teach other subjects such as Chemistry or Engineering but either teach or provide cover for their Maths teacher when needed.

Table 4: Survey responses - Type of teacher

What kind of teacher are you?	Number of responses - N	Percentage - %
Maths Teacher	275	77.9
Trainee Maths Teacher	21	5.9
Vocational/subject teacher	1	0.3
Head of Maths Department	24	6.8
Do not teach	7	2
Other	25	7.1
Totals	353	100

We also asked participants to indicate how many years they have been teaching Maths. The table below shows that there was a relatively even spread of teaching experience among participants, ranging from people who had less than 1 years' experience through to people who were more experienced with 11 or more years of experience. For those who said they had 11+ years of teaching experience, we asked them to specify how many years which resulted in a range from 11 to 45 years of experience.

Table 5: Survey responses - length of time teaching

Years teaching	Number of responses -N	Percentage - %
Less than 1	34	9.6
1	17	4.8
2	21	5.9
3	29	8.2
4	15	4.2

² Note: we did not include the 38 respondents who only completed the ‘about you’ section of the survey in the survey analysis

5	16	4.5
6	6	1.7
7	14	4
8	9	2.5
9	20	5.7
10	29	8.2
11+	125	35.4
N/A	18	5.1
Total	353	100

We also conducted 5 focus groups – 2 at a post-16 provider where practitioners had experienced the CPD menu in June 2024, and 3 at the MEI conference in July 2024, where most of the focus group participants had experienced the CPD menu. Finally, we completed 3 interviews in January and February 2025 with individuals who participated in CPD from the menu and had completed the survey. Case study respondents had also participated in or instigated CPD menu programmes from MEI, and so we have included information from these interviews in the analysis in this section.

It should be noted that the CPD menu has a range of courses available, which are selected by the MEI team in discussion with the provider prior to delivery, and if necessary, tailored to the particular context of the provider and team. So, although all the survey participants and most of the focus group participants had experienced some delivery of the CPD menu, the content they would have received varies.

The sections below set out the relevant survey and qualitative research data relevant to a series of themes that make up the evaluation of the CPD Menu programme.

6.1 AWARENESS OF MEI

6.1.1 Survey

Respondents were asked to indicate if they have previously participated in any post-16 professional development offered by MEI. Of the 351 survey respondents, 51.9% (N=182) stated they had previously engaged with MEI before while 48.1% (N=169) of respondents were engaging with MEI for the first time.

Table 6: Survey responses - Awareness of MEI

	N	%
Yes	182	51.9
No	169	48.1
Total	351	100

Respondents who had previously participated in MEI professional development were invited to disclose what activity they had participated in. There were a range of activities disclosed such as mastery training, MEI conferences, manipulative sessions, problem solving and teaching to the top.

6.1.2 Interviews and focus groups

The vast majority of participants in interviews, focus groups and case studies were aware of MEI, or at least some of the MEI team before engaging with the MEI programme. Some had previously worked with members of the team, either in the same college, or through work they had done with Centre for Excellence in Maths programme. Some had heard about MEI from their professional networks, including following members of the MEI Team on social media. Due to the overlap in personnel between MEI and the National Centre of Excellence in Maths, some research participants associated MEI directly with mastery and Maths Hubs, particularly where they had previously worked in schools.

6.2 MOTIVATION

6.2.1 Survey

Respondents were asked to indicate what they were hoping to get out of the MEI post-16 maths professional development session they participated in. Please note, respondents were provided with a list of options to choose from and could select more than option.

Table 7: Survey responses - Motivation for participating

What were you hoping to get out of the MEI post-16 maths professional development session? (tick all that apply)	N	%
To develop my personal maths skills	157	44.5
To develop my own knowledge in teaching maths	279	79
I have recently taken on/am about to take on new responsibilities for teaching maths	50	14.2
To support my future career progression	111	31.4
My manager (or equivalent) asked me to participate in this programme	143	40.5
This was the only development programme available to me	15	4.2

The table above shows that respondents attended the MEI session for a range of reasons. The most common reason given (79%, N=279) was because they wanted to develop their own knowledge in teaching maths. Other reasons for attending included to further develop their personal maths skills (44.55% (N=157), attending because their manager (or equivalent) asked them to participate in the programme 40.5% (N=143) and attending to help their future career progression (31.4%, N=111). A smaller number of respondents indicated they attended the session because they have recently taken on, or are about to take on, new responsibilities for teaching maths (14.2%, N=50) and a very small number of respondents indicated this was the only development programme available to them (4.2%, N=15).

6.2.2 Interviews and focus groups

Common themes emerged from the data in relation to managers' and teachers' motivations for engaging with the MEI programme. These included developing teaching skills, learning about new approaches and reigniting their enthusiasm for teaching maths.

Managers

A key motivation for managers was to take advantage of the opportunity to engage in some maths specific CPD as in general CPD is not maths specific:

"it's normally just mandatory stuff. There's nothing to do with maths"

"It's lovely to see FE getting a bit of getting ... in the spotlight a bit more in being supported"

Managers who had previously worked with members of the MEI team in other contexts were keen to engage with the MEI programme because of the enthusiasm and expertise of the MEI staff, all of whom had backgrounds in teaching FE maths which meant that programme content was relevant and immediately applicable to their teaching contexts:

"one of the main reasons I wanted to get onto this (was) 'cause I know how enthusiastic she is and geeky about maths"

"(It's) always relevant and always FE specific and understanding the challenges of FE learners".

The opportunity to network with other FE maths teachers was also cited as a motivation to engage with the MEI programme:

"I think it's a great opportunity to network with the people. it goes across the full sector".

Furthermore, participants valued the opportunity to network with maths teachers from across the education sector, including secondary and primary, feeling this gave them a better understanding of the challenges their resit maths students faced within the context of their educational history, so that they could more effectively support their students when they transitioned from school to FE:

"It was just interesting to hear (about) the challenges through primary school and the challenges through secondary school, where they're not ... getting those extra resources, ... not receiving that extra help or time to get them to where they need to be within their maths journey. And then they end up on our doorstep and ... we need to unpick that and find what we can do to support them and get them up to the standard of maths that the government wants them to be at".

One manager described how meeting other maths teachers with similar challenges had made him feel more positive about his work:

"it's great to talk to all the people (who) are all in the same boat as you ... To be honest, 'cause (sic) ... it's a tough old job".

Another manager echoed this feeling, adding that having people deliver maths CPD who had experience of teaching it in FE helped counter a sense of isolation:

"So, it's that experience and you're not alone you know."

Managers were also keen to develop their teaching skills and get new ideas for teaching maths, both for themselves and for their teams:

"... supporting the teachers in terms of improving their teaching and being better. I mean, ... you're always looking to improve"

"It's really nice to get some extra ideas and help ... and actually be able to push myself a little bit further with my management skills".

Teachers

FE teachers reported that improving their teaching skills had been a key motivation for engaging with the MEI programme:

"Interestingly, for some, this was about gaining the confidence to try new approaches:

“I wanted more ideas of different ways we can teach, and I think I wanted. Almost to be given permission to try some different things”

Teachers were aware of emerging approaches for teaching maths and wanted to learn more about them so that they could develop the skills and knowledge to implement them in their practice:

“there’s a lot of talk about manipulatives there’s and it’s something we don’t do enough of”

One teacher, who did not have a maths background, said they wanted to develop their maths skills so that they would feel more like a maths teacher:

“The biggest motivation for myself was to kind of upskill it is not coming from a specific maths background, that chance to kind of pick up some kind of maths related teaching strategies, different ideas and activities that we can then use in the classroom. It’s to kind of make feel like a bit more right (sic). Like, I am actually a maths teacher”.

Similar to the managers, there was also a feeling amongst teachers that the MEI programme filled a gap in the area of maths CPD. This was particularly the case amongst those teaching functional skills maths:

“(It) doesn’t feel like we speak about functional skills enough”

“it sometimes seems it feels like we don’t cover functional skills specifically enough”.

Again, reinforcing data from interviews with managers, the enthusiasm of the MEI team was an important motivator:

“She’s enthusiastic. She makes it interesting. It’s fun”.

6.3 EXPERIENCE OF THE PROGRAMME

6.3.1 Survey

Respondents were asked to reflect on the *content* and *delivery* of the MEI session they attended. They were provided with a number of statements and asked to indicate the extent to which they agreed or disagreed with each statement.

Table 8: Survey responses - Experience of the programme

	Number of responses	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Content	N	%	%	%	%	%
The objectives of the session/s were clear	349	4	1.1	3.2	35.5	56.2
The content was relevant to me	348	4	0.3	2.9	35.3	57.5
I had clear actions I could take forward	347	4.6	0.3	6.1	40.9	48.1
I could see how I could apply the content to my practice	346	4.6	0.6	4.6	41.6	48.6
The training materials were high quality	347	3.2	0.9	6.6	40.3	49

The session met my expectations	340	3.5	0	6.5	43.5	46.5
Delivery						
The content was well-delivered	346	2.6	0.6	2.3	31.2	63.3
I received adequate remission and support from my organisation to participate	345	2.9	2	8.7	35.4	51
The content was tailored to my needs	344	2.3	1.5	11	42.2	43

As shown in the table above, the majority of respondents either *agreed* or *strongly agreed* with each of the statements. With regards to the content of the MEI session, the data shows that most respondents found the objectives of the session clear, they felt the content was relevant to them and they could see how to apply the content in their practice. The majority of respondents also felt the training materials were of a high standard and that they left the MEI session with clear actions that they could take forward into their own practice. Lastly, approximately 90% of respondents indicated that the session met their expectations.

A similar pattern emerges with respondents’ reflections on the delivery of the MEI session with the majority of respondents agreeing or strongly agreeing that the content was well-delivered, that the content was tailored to their own needs and that they received adequate remission and support from their organisation to participate in the session.

It should be noted that there were a very small number of respondents who selected the strongly disagree or disagree options, however, MEI colleagues fed back to the evaluation team during the first couple of weeks when the survey was live that a small handful of respondents misread the Likert scale, indicating they disagreed or strongly disagreed with some statements, when they actually meant to select agree or strongly agree. Unfortunately, the evaluation team were unable to identify and remove these individual respondents from the analysis.

6.3.2 Interviews and focus groups

The relevance of the programme and its applicability to their classroom teaching was greatly appreciated by participants:

“It’s been stuff that we’ve been using in class.”

Participants also felt that the way the sessions were structured had avoided information overload:

“just the right amount of ideas so that you’re not overloaded ... enough new stuff to try without going away feeling bamboozled or where do I even start?”

Scaffolding session content enabled them to gain an understanding of how to implement certain approaches and why:

“(she) just breaks everything down ... You understand what the aims are. Why they’re doing it, why they’re doing each thing that helps you sort of make it more valuable to your students.”

A key aspect of delivery that many participants were very positive about was that the CPD menu was tailored to their needs and as with the participant quoted above, this enhanced their understanding and enabled them to adapt the content for their specific teaching context.

"...the CPD, they provide, it's tailored, it's individualised for all the colleges, different departments and actually brings more sense"

As well as this, participants also felt that having a greater understanding of session content and activities enabled them to more effectively adapt their teaching practice to meet the needs of their learners:

"You can see that these activities can be slightly modified...What [MEI] want and are trying to do is actually apply it for us as well for our type of learners...it's great"

One participant explained how the MEI resources had helped them do this:

"And some of the resources that we received from the session were looking at ways to tailor questions to allow the learners that maybe needed a bit of scaffolding to bridge that gap and produce one question but allow it to be tailored to meet the needs of different learners. So, it could be just different levels of difficulty."

The sessions had not only been useful for gaining ideas about teaching approaches, but also for getting practical ideas on using specific resources in the classroom:

"I really enjoyed it. I've taken away some really practical things. I've used my beads quite a lot."

For one participant this had been particularly useful when teaching older students and had given them the confidence to experiment with concrete resources with this group:

"Knowing how to do that well and how to have the confidence to do it as well, does that make sense? Because you can feel sometimes like you're kind of belittling them and you don't want to belittle them, but they literally don't have that concept. And you sat there thinking, 'well, they don't know how to do that. I don't want you to think I'm treating you like a child by getting the blocks out and things like that. But actually you don't understand that. And actually, if I put the box in front of you. it might just be what you need to actually see that kind of that physical relationship'. So that that's the bit that really interested me".

A key factor emerging from the interviews and focus groups was recognition that the MEI programme was specifically for FE staff delivering not only GCSE maths resit, but also Functional Skills resit programmes and delivered by previous teachers of this programmes in FE. This meant that the programme was relevant and fostered a sense amongst participants that the MEI team understood both them and their learners:

"Relevance of content was useful ... quite a lot of the staff development that we go on is all related to secondary schools and we are very, very different. So, the Mei programmes for CPD actually relate to our sector, they relate, and they understand what our students are like ... and they can really give us like hands on experience and those kind of examples where actually in fact you can tell that they've been in our in our shoes. So, it really helps our staff."

One manager described how not only was the programme content relevant, but the fact that it was fully funded made their team feel valued:

"it's been it's been relevant. It's been up to date. And I think it's made our team, feel quite valued that that actually this training, you know, I mean ultimately government funded isn't it?"

Another manager also commented on the fact that the programme was funded and reflected that with current funding constraints this had been very important in enabling their college to engage with it.

“At the end of the day, ... when things are getting more and more expensive, we do look to try and see ... where we can budget our best and the fact that MEI have had all their their grants and funding to allow us to do it for free and to give us the opportunity to go on the Conference for free as well ... allows more opportunity for us to be able to get there”.

Additionally, having access to the resources on the MEI website enabled participants to revisit material. This was particularly useful for refreshing their learning from the CPD sessions and getting more ideas for their teaching as their skills and knowledge developed:

“I think it was really, really good and the resources provided, we've got the Padlets still and we can always go back and say, oh, I forgot about this thing, let's try this again. There are things that you forget, you've tried that, that, that and then you think, oh, there was something else here. So, we I regularly go back to the Padlets we used. And I'm like oh, let's try this now because there's so much information.”

One participant described how explicit modelling of approaches by MEI trainers had helped him understand how he could apply these in his teaching and how they could be transferred across different topics and lessons:

“It's things like ... double number lines, bar modelling, all of these sorts of concepts that you might have thought about using, but actually having them properly structured into lessons and actually interwoven into different areas and showing showing how transferable they are”.

As mentioned above in motivations for engaging with the programme, participants found the sessions valuable, not least because they enjoyed them and got the opportunity to try out new approaches in the sessions. CPD can often be a way to help motivate staff and retain them in teaching, and motivating staff seems to be a particular benefit of the MEI training, as set out by two different participants:

“it's always very hands on, gets all the team involved, everyone's happy to be getting involved and that's really nice that they bring all these resources that you can actually have a go with because that's sometimes what you lack in CPD is the ability to have a go and test it out in that CPD. So that's really nice.”

“everything was really engaging. It was active and it got everybody talking. And it was the first time that I'd actually looked at my team and they all seemed happy to be there.”

The enthusiasm of all the MEI teachers was another element of the programme that made it enjoyable and engaging:

“they're very engaging ... they're all so passionate ... It's really good. Yeah, I really enjoy it”.

6.4 BENEFITS OF THE CPD

6.4.1 Survey

Respondents were asked to indicate the extent to which they think the MEI professional development session has affected their knowledge and confidence in teaching maths.

Table 9: Survey responses - Benefits of CPD

	Number of responses	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
It has increased my knowledge of how to teach maths	345	1.7	0.9	11.3	50.7	35.4
It has increased my confidence in teaching maths	336	1.8	1.2	22	44.3	30.7
Other	164	1.2	0.6	26.8	36.6	34.8

The majority of respondents either agreed or strongly agreed with the statement the MEI session increased their knowledge of how to teach maths (86.1%). Some respondents gave a neutral score (11.3%), which suggests that this small number of respondents felt their knowledge had neither increased nor decreased. The remaining 2.6% of respondents said they either disagree or strongly disagree. The majority of respondents also agreed or strongly agreed that the MEI session increased their confidence in teaching maths. Again, a smaller number of respondents gave a neutral score (22%), or disagreed or strongly disagreed that their confidence had increased (3%).

Respondents could also tick an additional *other* box and further specify how they think MEI has affected their knowledge and confidence in teaching maths. One respondent explained how MEI had helped to break things down for them to understand, another respondent said it had refreshed their knowledge on how best to teach maths, one respondent felt more confident in trying new techniques to unlock students understanding of maths.

6.4.2 Interviews and focus groups

Participants in both the interviews and focus groups identified multiple benefits from participating in the programme. One of these was working together with other maths teachers and sharing ideas about teaching, which then generated new ideas for teaching:

“The collaboration is absolutely brilliant and just bouncing ideas off other ... teachers from other colleges and looking at how they would deliver something or how they structure their lessons compared to what you do, you can really sort of tweak things your end and make things slightly different”.

Bringing different teams together for CPD with MEI gave individuals the opportunity to reconnect with maths colleagues they did not often see because they all worked on different sites:

“The fact that we get to meet up with other people in our teams and we don't see because we're on different sites, different places. So it's really good to get together”.

One participant reported feeling more confident to experiment with new techniques:

“Confidence to try something different. Yeah. And to move ... away from ... what I've been teaching, the way that I've been teaching over the years”.

Another participant echoed this sentiment, but stated they had also gained a sense of empowerment to experiment with different resources:

"I do feel more confident about using different things now, so I do get my beads out and I do get other things out and I've been using ratio tables"

"They're really empowering. And then the beads of wonder as we call them when I get them out".

One manager had noticed that their team had become more confident following CPD with MEI, particularly for those who were new team members:

"One of the big benefits is we have some quite new members of the team. So, it is good for them to kind of get some new ideas, to then try it, and it boosting their confidence to be able to obviously try things out in the classroom that are in a slightly different method of delivery compared to what they're used to".

This manager also noted that they now felt more confident in their role, as the MEI team tailored CPD to the specific needs of FE organizations, ensuring its relevance. Additionally, the support provided beyond the programme further strengthened their confidence that they would be able to meet the long-term CPD needs of their team:

"I know now ... if I needed anything, I'd got any questions, I can just drop (Emma) a message and she'd respond and help and point me in the right direction where I needed it. So really kind of boosted my confidence to be able to actually take what my team say, find some training for them, and build something that is useful for all of us".

Participants felt that all aspects of the sessions had been highly beneficial, both in terms of sharing ideas for teaching and this conferred a sense of being 'seen' within a group:

"It's a combination of things ... Honestly, ... it's not one thing, ... like the fact that ... we're all seeing it from the same hymn sheet. I like the fact that ... everyone brings something to the table and ... for every little session we do, I always think ... that's something I'm going to try ... it could be a little thing. It could be a phrase that someone uses. It could be a resource. It just could be something that".

Having CPD specifically for FE teachers at national level was also seen as beneficial for sharing ideas and developing practice:

"A session being run for specifically for FE teachers and just brainstorming something and thinking how you can do something differently and finding out how, how it's how things are taught in different parts of the country compared to how you're doing it. And as I say, you always pick up ideas. I'm a real magpie".

"One of the most important is just collaborating and just sitting around the table with teachers from different parts of the country".

"Having targeted sessions for FE in particular has been lovely. It's been really nice"

One participant was particularly enthusiastic about the programme focusing specifically on CPD for FE teachers:

"But the fact that those sessions are being run for functional skills teachers in an FE setting, I just think that's absolutely bloody brilliant. I really do".

In addition to increased confidence, participants said that they had gained more skills and knowledge and that this had increased their confidence and also enabled them to make their teaching more effective:

“Obviously now we know deep understanding why we're doing it, how it all links together, how it can bring in other areas and aspects helps us to understand it more, makes more confident in the classroom”.

Being more confident in themselves as teachers had helped them focus on developing the confidence of their learners:

“let's think about the skills. Let's ... give them confidence to actually attack that question”

Moreover, the programme had given them ideas of how to achieve this:

“We tend to think that the learners aren't capable of stuff when in actual fact they're more than capable. So, the training's getting me to [think] how can I get them to think more and to try more questions? So, I've now given them more challenging things, which hopefully will then have a better outcome for the students”.

This included helping learners think about how they could apply their learning about maths more broadly, and see its relevance in all aspects of life:

“So, they've been using the skills that they've learned, which is really good because they usually see it pigeonholed, don't they”

“Them using maths skills in other areas because it shows them that they know that maths can be used in all areas of your life”.

6.5 OUTCOMES OF THE CPD ON PARTICIPANTS

6.5.1 Survey

Respondents were next asked to indicate what impact (if any) they believe the MEI post-16 maths professional development will have on the quality of post-16 maths teaching that learners receive at their provider in 2024/25.

Table 10: Survey responses - Impact of CPD on participants

Number of responses	Very negative impact	Negative impact	No impact	Positive impact	Very positive impact
336	0	0	3.6	58.3	38.1

Almost all of the 336 respondents suggested that the MEI session will have either a positive or very positive impact on the teaching that their learners will receive (96.4%). No respondents felt the MEI session would have a negative or very negative impact, and only 3.6% of respondents said no impact would result from the MEI session they attended.

6.5.2 Interviews and focus groups

In the focus groups, when asked for examples of how the programme might make a difference to their teaching, some of the participants focused on how to make maths fun for learners who may conceive of themselves as struggling with maths. One said:

“I want things that are not, maybe the traditional ways of teaching, but you can still use the non- traditional methods to bring out the maths and bring it alive and have fun and enjoy it.”

The managers we spoke to often talked about the ability to tailor the CPD so that it met the needs of their teams. For example, one said:

“I started at the college here two years ago, so it was basically my observations at that time; what I thought staff needed. So we started with in terms of that like planning for learning was the first thing because it wasn't great. So we had to start there and then just from, you know, lesson observations and that kind of thing, looking at the questioning makes responsive ditching like, you know, you do an initial assessment to check prior knowledge, but how you are using that information matters. If you just do it because you have to do it and not do anything with that, then you know you're not adapting your teaching based on that information then. So it was really about that.”

These managers typically reported that their staff were more confident in explaining topics in different ways and trying to ensure that learners had the support they needed. The culture of the team was important as well, with managers who had arranged the CPD being clear that they wanted staff to try the techniques and then feedback within the team. Staff we spoke to appreciated cultures in teams where they were able to share, and the CPD Menu programme gave them an opportunity to come together to learn and build on that learning together after the CPD was over.

6.6 IMPACT ON PRACTICE

6.6.1 Survey

Respondents were asked to indicate the extent to which they think the MEI professional development is likely to affect their skills and practice in the future.

Table 11: Survey responses - Impact of CPD on practice

	Number of responses	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
It will improve my skills in teaching maths	339	1.2	0.3	14.2	49.9	34.5
It will improve the quality of my practice in teaching maths	337	0.9	0.3	11.3	51	36.5
Other	171	1.2	0	26.3	37.4	35.1

The majority of respondents either agreed or strongly agreed with the statement that MEI will improve their skills in teaching maths (84.4%). Some respondents gave a neutral score (14.2%), which suggests that a small number of respondents felt their skills in teaching maths would neither increase nor decrease as a result of attending the MEI professional development. In addition to improving their skills in teaching maths, the majority of respondents also either agreed or strongly agreed with the statement that MEI will

improve the quality of their practice in teaching maths (87.5%). Again, a small number of respondents gave a neutral score (11.3%). Respondents could also tick an additional *other* box and further specify how they think MEI will affect their skills and practice in the future. One respondent highlighted that it will improve their planning, another respondent mentioned it has provided methods for supporting and motivating students, and another respondent said it has helped them to reflect on their teaching.

Respondents were asked to indicate what (if any) changes do they intend to make as a result of participating in the MEI professional development. A range of reasons were provided, for example, one respondent spoke about how MEI professional development will help them to continue to research methods to make maths learning more approachable for students. Another respondent highlighted how they will start to check-in with their teams and create a space for them to feedback and share good practice on how they have implemented specific topics. Many respondents provided more specific examples such as integrating more physical activities into their teaching practice or implementing more interactive practices. Some respondent indicated that MEI has helped them to explore other techniques such as ratio tables, manipulatives and modelling.

6.6.2 Interviews and focus groups

A key theme was the freedom to take risks in the classroom and learn from them. This kind of professionalism and ability to reflect and adapt as necessary, talking with other team members, was seen as a key motivator from the programme. Three examples set out the difference for them and their team:

“Probably the biggest thing for us is it's not being afraid to now take risks.”

[My team feel] “empowered to do something. I think it's massive”.

“I think it does make you feel more confident. It certainly makes me feel more confident to go back to colleagues and perhaps challenge where some colleagues aren't as interested in trying new things, and whatever. A lot of what we hear is backed up by research and you know these methods work, these ways are what we need to be doing. So, I think it gives that sort of level of confidence”.

Many participants mentioned changing their teaching approach to provide a more positive atmosphere for young people. One said:

“...trying to get the learners to look at maths in a different way. So having a starter activity that's not pure maths but having that problem solving link in there. I go with some little cards and they're all to do with like ‘what number am I?’ or something like that, ... on the desk ... so it's that interaction as soon as they get in and how to keep that positive environment”.

Sharing with colleagues was also important, as noted above. Staff in teams where they were encouraged to share were excited to come back from MEI conference and share learning, as well as discussing the learning from the CPD Menu sessions with their colleagues. This gave them confidence in trying out the approaches, as they would be able to share the results with no judgement. One staff member said:

“You come away from these conferences and CPD sessions that MEI run and you just want to share the ideas you've got. You just want to say well listen, this worked. I've seen this and I and I can see how you can adapt this and how you can use it in different sessions - give it a try. People are very much like that you know, people will try things out - they will sort of like look at it and think OK, I'll run with that and see if it works in my lesson... We're quite lucky people – [we] aren't shy of trying something new.”

6.7 IMPACT ON LEARNERS

6.7.1 Interviews and focus groups

In an interview, one participant talked particularly about the techniques she'd learnt during the CPD had become her go-to way of explaining ratios to young people who were struggling. She said:

"I would say in terms of my knowledge and skills of the maths fine, but [the CPD was useful for] the how to teach it and things like the ratio tables, bar models, those sorts of ideas. I use those all the time now. So whenever I'm teaching ratios, it's a bar model. You know, it's my first bit of feedback to a student who can't do a ratio problem. It's like draw a model and we just had a practise paper and you know, it's encouraging to see quite a lot of them are using it and have been able to answer much more complex questions than they probably would have been able to without that."

Making the content relevant to learners and their vocational areas was particularly important to staff in colleges, as maths learners are often more enthused by their vocational area than by their maths lessons. One teacher said:

"When you when you can make it relevant so something like ratio, for example, when I'm teaching ratio I big up ratio when I'm with the hair and beauty students relating it to things like peroxide to colouring and but sort of stuff and being in in in the conference sessions that I have attended. When I when that sort of thing's been discussed."

Other teachers felt that having a range of ways to explain topics to learners was a key benefit of the CPD sessions. One said:

"That's the problem. You get to a certain topic. Oh, I never understood ratio. I never understood fractions. I never understood this. And you just got to try it a different way. If I didn't understand it at school. And you're teaching it exactly the same way they would have been taught it at school, the chances are you're going to end up with the same with the same outcomes..."

So the great thing about the [CPD] is that it's just different ways of trying it, and you know it might not work for all students. Some students might say, well, I don't understand that, it's completely lost me. But other students might look at it for the first time and think, well, I really understand that double number line. Oh, I get how you're solving that equation. That difficult equation using the bar model. I've never seen it displayed like that before and just showing them a different pictorial or different way of trying to solve a problem. It's not a panacea. It doesn't work for everybody. But at the same time, you know, people do get it."

Others had similar experiences:

"Trying to sort of like bring to the table that's a different way of trying to explain something and like I say, for some students it just suddenly clicks. Oh, I've never seen it like that before. I get it now. You know, it's good."

"I mean, I do get students saying to me, you know, after a lesson I never understood that. And I've got that today. I'd say it happens normally about once a week when I normally get somebody saying that to me."

For some staff, the key impact from the CPD was having the confidence in the techniques and different ways of explaining topics, to go into more depth with learners on specific questions so they understand it better.

“So what I've been doing is if we've got a main topic we're going to talk about, [then] my starter lasts for as long as it needs to last. I don't really time or anything, but I'll put a question up and then [say] right, what do you think the question is and even if it's not the question I'm like, no, we could talk about that. That's what we could come back to and I'm just getting so they're all a bit quieter and they all sort of like know what's coming. And then now we're gonna talk about it and we'll look into the thing we might need to do that, and they're asking a few more questions. So I think it's working.”

6.8 FEEDBACK ON MEI

6.8.1 Survey

Respondents were asked to indicate the extent to which they are likely to recommend MEI to their colleagues in the future and the extent to which they are likely to participate in another MEI professional development activity again in the future.

Table 12: Survey responses - Views of MEI after CPD

	Number of responses	Very unlikely	Unlikely	Neutral	Likely	Very likely
How likely are you to recommend the MEI post-16 maths professional development to your colleagues in the future?	339	1.5	0.3	8.6	40.1	49.5
How likely are you to participate in another MEI post-16 maths professional development in the future?	336	1.2	1.1	4.5	39.3	53.9

As show in the table above, it is clear that the majority of respondents who attended MEI are either likely or very likely to recommend it to their colleagues (89.6%) and to also participate in another MEI activity in the future (93.2%).

6.8.2 Interview and focus groups

One of the key reasons for the enjoyment was notably the specific staff that were delivering the programme, as well as the content. There were several positive comments in both the survey, and the focus groups. One example of this from the focus group was:

“When it comes to MEI, I think these are the experts really, they have met my needs straightforwardly. It's like they have been in my mind really before I have met them. It's amazing.”

The primary research has been full of positive stories of changing teaching approaches, increasing confidence in teaching maths, and working on finding different ways to motivate learners. The CPD menu has a range of courses on different techniques, and these are clearly valued. One course on the CPD menu is specifically for governors, and whilst not a main part of this evaluation, one participant gave a useful example of why this course might also be beneficial. They said:

[MEI] “came and delivered a session to our governors about the maths landscape. And as a result of that ... they've all got better understanding of what's going on ... relating to maths. One of the governors actually asked if she could come and visit a maths classroom, and now she's our real champion”.

7 CONCLUSIONS

This all suggests that the CPD menu programme, with its ability to tailor the sessions to the college or provider, in discussion typically with the Head of Maths, is a valuable resource for the post-16 sector. There are very high levels of satisfaction, but notably also clear examples of how the learning from the programme is being put into practice. Participants, including managers, particularly value the knowledge and experience of delivering post-16 maths that the team at MEI are able to bring to their training, and the explicit funding by DfE is recognised as an indicator of the importance of maths in Further Education. Support for those teaching GCSE resits was considered difficult to find, and so participants were particularly keen to locate both a programme tailored to post-16 teachers, but also one of high quality, in the MEI offer.

The numbers on the CPD Menu programme show that there is strong demand, and many of the managers we spoke to had already planned to or had invited MEI back to run more sessions from the CPD Menu. They find it valuable not just for the individual support, but as part of their own plan for their teams sharing practice and being collaborative. These kinds of programmes, similar to those run as part of Science Learning Centres, empower managers working with CPD experts to design programmes that best meet the needs of their staff.

The changing nature of the programmes, and the adaptability of MEI, highlight that demand is predominantly for team-based in-person CPD where managers can help shape what is delivered. All those who we spoke to who had participated in one of three individual programmes had found them helpful and had particularly valued the network created for them, especially on Leaders of Maths. However, finding sufficient numbers to run regular cohorts appears not to be feasible. Potentially running these kinds of programmes once every 2 or 3 years, particularly for leaders and managers, might help generate greater demand.

APPENDIX

Case study 1

Context:

Ben is the curriculum manager for maths at a large Further Education (FE) college in the south of England. Ben manages two of the five campuses and works together with the curriculum manager of the other three to co-ordinate continuing professional development (CPD) across their respective teams. He has been in post for 18 months. Ben's first degree is in music, but early on in his teaching career he taught functional skills and GCSE maths before moving into a leadership role.

So far, the college has engaged with the CPD programme, and MEI have delivered in-person training directly to the teams they line-manage.

Motivation for engaging with the MEI programme

Ben had previous experience of professional collaboration with MEI through CFEM or local projects between colleges. He was invited to be part of an advisory group for MEI's proposal for funding and Ben subsequently decided to use the programme in his college. This was the first time MEI had delivered to this college.

Ben attended the MEI conference. A key factor in his attendance at the conference was the offer of a fully funded place:

"Emma offered me that I just bit her hand off for it. Yes, yes, I am going regardless of what anyone says."

He chose to attend sessions that had discussions around FE maths, in order to inform FE maths, and felt the conference was "a really good experience".

The college have also engaged with two CPD programmes which had been adapted for their specific needs. One was online, focusing on mastery and the other was in-person, looking at different models and representations staff could use in their practice. The mastery session was particularly well-received by staff:

"Across our provision ... the staff reported that out of all the CPD that was delivered that week, [mastery] was the best session that they went to".

Impact of the programme

For Ben, on an organisational level, a key benefit of the programme was the opportunity for staff to discuss approaches to delivering maths:

"It's a luxury to be able to sit around and discuss pedagogical reasoning within our own areas. Actually to sit in a meeting and go 'right, what are we doing and what are we going to teach and how are we teaching it and why we're teaching it?' It's really healthy and is really beneficial to our team".

The fact that the MEI team were all experienced FE maths practitioners was a key factor in the relevance and high quality of the CPD programme:

"... this is this isn't good because I'm saying it's good, it's good because it's tried and tested by a lot of other people. It's quality assured, it's relevant. It's from people who to all intents and purposes are still in the classroom to an extent, maybe not at the coalface every day, but they are still developing

resources that can be used within a classroom, and they try and test them in classrooms”.

On a personal level, Ben felt the programme gave him “breathing space” to reconnect with his teacher-self and reflect on his teaching practice:

“You know what? You are still a teacher, and this is how you do it. ... This is what I have been doing. This is what I should be doing. This is what I could be doing”.

He also valued being part of a community where he could discuss the changing FE landscape and the challenges that presented for maths teaching with others. and gain a sense of perspective on it. what I'm doing and reflect on the things I have been doing.

Whilst he couldn't identify anything he'd learned or tried as a direct result of the MEI programme, he felt the knowledge and expertise that the programme offered, together with the funding, was highly beneficial:

“What the the programme offers is knowledge and expertise. I've been able to tap into in the past. It's just now, it's significantly more easy (sic) for me to tap into that knowledge, not just for me, but for everybody else, and that that is the key.”

“If it wasn't fully funded, I would really struggle to get the team in and I would end up having to deliver this by myself and wouldn't deliver it as well.”

The programme had already started having an impact on staff's practice and, such as using new resources. Staff also felt more confident about embedding elements of maths in their practice and had started using aspects such as bar models or ratio tables in class:

“So, a lot of the things that we're doing this year are not necessarily around teaching, teaching specific skills, but looking at like for example, how do you find a fractional amount but also encompassing how do we how do we teach a skill to solve a problem by linking this particular process and that particular process which then form a bridge between different ideas”.

Staff were “amazed at how much, how many learners just eventually picked it up and started rolling with [maths]” when they used approaches learnt from CDP with MEI and found that mastery had developed and altered the learners' way of thinking, with some slowly developing higher order thinking skills.

Conclusion

Overall, Ben was extremely positive about the CPD programme and the impact it was already having on staff and learners. The available funding had been instrumental in enabling the college to access the training and had been essential for Ben to attend the MEI conference. He was very open to working with them in future.

Case study 2

Context:

Anna has been working as a GCSE maths teacher in a larger FE college for five years and has recently been promoted to English and maths manager at the college. The college has high numbers of students who are resitting their GCSE maths or taking a functional skills maths qualification.

Motivation for engaging with the MEI programme

Anna attended the MEI conference and MEI have also delivered two CPD sessions to the college. The college chose MEI after looking at their CPD programme offer, with the aim of introducing staff to new approaches because:

“Some teachers ... stick to what they know. So, the only way sometimes to introduce something is to do CPD when they actually try it, and then because they've tried it they can see. Oh, I actually like it”.

Anna selected the MEI programme from a range of programmes on LinkedIn, both because she was already following someone from MEI on LinkedIn and because she liked the programme, and she also knew some of the trainers from MEI through the National Centres for Excellence in Maths (NCEM) initiative.

Impact of the programme

Anna found the conference “really, really useful” and disseminated some of the sessions to her team as CPD. In particular, she valued the opportunity to network with other maths practitioners:

“Groups so it's working (in) groups and and I really like that because it's always the whole group chipping in the findings like you, the ideas discussion and this creates this opportunity for, for people to actually view the insights of the other”.

The multiple tasks within the digital session significantly facilitated this:

“...when we were doing it, every group was researching like different platforms on different things and then we were sharing (sic) and you can try so many things at the same time and and that's amazing and also because then you give a feedback (sic) and ideas on Padlet as well. So many things happening”.

She felt that this was a very powerful tool for changing practice:

“The fact that people actually start to talk about their own practice, and they try to like even question it and change things. And I think this is the, it's really, it's really (sic) always also done in engaging way”.

Anna observed that the MEI programme had brought about a shift in her own practice, and also in the practice of other staff at the college who had attended CPD sessions she had run to disseminate her learning. Staff who previously “would never think that you can use that method there” could see the wider benefits of embedding maths in other subjects using the approaches learnt from MEI. They felt this would also have a positive impact on the students who “will master this method and it will help them with so many topics”.

Conclusion

Anna was very enthusiastic about the MEI programme and the impact it was already having on her, other staff and their students. She was hoping that more staff would be able to attend the MEI conference and

believed the programme would have a “massive impact” on practice in the long-term. She said she would “definitely” engage with MEI programmes in future.

“I think it's just a start of the journey really”.

Case study 3

Context:

Sophie is the quality teaching, learning and assessment innovator for maths at a large further education (FE) college in the midlands. Within this role, she oversees cross-college maths provision, including functional skills, GCSE, A-Level and apprenticeships. She has had more than ten years' experience in various FE colleges, teaching and managing maths.

Motivation for engaging with the MEI programme

Sophie's college is in receipt of a bursary for the programme, and there is also another practitioner from the college who is involved in the maths mastery programme.

Sophie's interest in the MEI programme stemmed both from her previous work with the National Centre for Excellence in Teaching Maths (NCTM), and the fact that the programme offered subject specific maths continuing professional development (CPD) for maths teachers, rather than generic training. She had previously been involved in the CFM project for centres for excellence in maths, which had finished and so when the MEI programme was launched, "it just seemed like a natural fit". Although she had considered two other providers, Sophie's prior knowledge of MEI, and the maths mastery CPD within their programme played a role in her decision to engage with MEI:

"MEI is always someone I would have been quite happy to work with. I think they have a very good reputation."

"I've had positive encounters with MEI before. I think they know what they're doing. They're very passionate about maths education."

Due to the bursary, two members of staff at the college attended the MEI conference. The college are also accessing several sessions of in-person CPD delivered by MEI. One CPD session has also been delivered to the college (in-person) by MEI, which was "great, because it is subject specialist and it's taught by somebody who is well respected."

Impact of the programme

Sophie felt that while she could have delivered similar CPD sessions, the fact that they were delivered by an external organisation, gave them "slightly more gravitas to the staff". This was also motivating for the maths staff, who recognise that their learners are often not choosing to do maths:

"I think this kind of CPD lets them hold their head up a little bit higher."

The opportunity to network with other maths teachers was also greatly appreciated, as "it's very easy for FE math teachers to feel quite isolated." Through the MEI programme staff realised that "they're not alone and (it) gives them their mojo back. It's too easy for them to go flat."

Although it is too early to see any long-term impact on achievement, Sophie observed that the maths mastery programme has been very successful so far, resulting in some changes to maths teaching in the college, which has also had a positive impact on the learners:

"[the learners] are saying it's better than last year. They're getting the method more."

Conclusion

Overall, Sophie was extremely positive about all aspects of the programme, particularly the maths mastery element:

"[mastery] is the right approach for FE. It's been tailored to FE. It's been designed specifically with the reslt learner in mind, and they are a very distinct cohort."

She was considering doing the MEI competition and said she was very likely to engage with MEI programmes in future:

"I think it's a really well-structured programme. The only thing I do wish is that more people could avail themselves of it."

Case study 4

Context:

Arianne is the Programme Manager for maths at a large vocational college in England. Having taught secondary maths for three years, she joined the college five years ago and has managed the team of ten maths practitioners for the past four years. Maths provision at the college includes functional skills, GCSE, core maths and A-level. Since the pandemic, the college has seen an increase in resit students, whose numbers “keep growing” (Arianne). Many of the students resitting GCSE maths lack confidence and motivation, which presents a challenge for the maths practitioners to find new approaches that engage them and support them to succeed.

As part of her role, Arianne organises continuing professional development (CPD) for the maths team, which takes place for three hours every Friday afternoon. This includes training that is planned and delivered by her, as well as professional development provided by external trainers, such as that offered by Exam Boards and MEI. Whilst Arianne delivers most of the training, she understands the importance of engaging external trainers because “it’s nice to have somebody external coming in because, you know, my team is probably sick of my voice sometimes”. Lack of funding to pay for external training has previously been a barrier: “being an FE college we don’t have money to pay people to come in”, so the fully funded MEI programme has been “like a dream come true”.

Motivation for engaging with the MEI programme

Arianne already knew one member of the MEI team through professional networking events before the MEI CPD programme offer started. This, together with the available funding to access the MEI programme were key factors in Arianne’s decision to engage with the MEI programme. MEI have delivered three bespoke in-house sessions to the maths team at the college: understanding and using the Awarding Body mark scheme; ‘Making maths fun’; and ‘Using reflective feedback’. In addition, Arianne attended the MEI conference last year and was extremely enthusiastic about her experience, citing both the presentations she attended, but most particularly the opportunity to network with other maths practitioners from across the country:

“Oh my God, that was amazing experience (sic)! I mean, hundreds of maths practitioners from all different settings, getting together and discussing issues, celebrating good things. ... that was one of the highlights of my last year”.

The flexibility of the programme in terms of the delivery modes (in-person, online and hybrid) was seen to be a great strength of the MEI programme:

“You can’t go wrong with any of those (delivery modes) because depending on what the needs of the team are, there is availability for that as well.”

Arianne had experienced all three modes, and although her personal preference was for in-person, in general she had found the delivery of all three modes “absolutely amazing.”

Another strength was MEI’s capacity to be flexible around session content, adapting existing training and designing bespoke training according to need:

“If there wasn’t a topic I needed, they would do this session just for my team. ... even though they’ve got a package designed, MEI still will go out of their way.”

“Just knowing that there is somebody there that I can message and go, have you got anybody on your team that could potentially come in two weeks and do this session?”

Impact of the programme

Arianne felt one of the benefits of the MEI programme was that it helped maths practitioners develop confidence, in particular those who did not have a background in maths:

“So, in my view, it enables staff to kind of feel comfortable within their roles ... having someone coming in and saying, you know, ‘it doesn’t really matter that you’re not from an education background as long as we do this all together and this is what I know will help.’”

The bespoke sessions meant the training was relevant and it enabled the college to target specific issues they are facing following the pandemic such as lack of exams and “skyrocketing” maths anxiety:

“Through those MEI CPD sessions, things like ... engaging the disengaged, that then gives us a way forward with those learners”.

In addition to increased confidence and improved teaching skills at individual level, the MEI CPD at the college had also made them stronger as a team. This in turn was having a positive impact on the students:

“The way the delivery’s happening within the department, the cohesive team that we are, the supportive team that we are, has an impact on everything that our students are doing and that wouldn’t be possible without having those external people coming in and doing those sessions”.

Feeling supported and part of a wider community was an important outcome of the conference. For Arianne, the conference gave her a wider perspective on the current challenges around maths provision, which left her feeling less isolated and more hopeful:

“I mean, from management perspective and seeing other colleges essentially struggling with the same thing we’re struggling with. That gives you a little bit more hope ... sometimes you can feel like you’re in a little silo, on your own, ... but then you get people coming from quite far away from us, saying they’ve got exactly the same issues as we do.”

Arianne also felt the programme had supported her in her role as a manager. She felt having MEI deliver CPD underlined the significance of the training to the team, particularly when they were “not really taking it on board” from her.

Whilst it was too early to identify any specific shifts in thinking or practice at team level, Arianne reported that “everybody will have taken something different from each session”. There were, however, two concrete examples of change resulting from the MEI programme. One member of staff was doing the maths challenge for the first time, and following the Reflective Feedback session, some staff had “taken how to use time management within the (given) feedback part of [their] role”, resulting in more concise feedback to students.

Conclusion

Overall, Arianne was extremely positive about all aspects of the programme, particularly the bespoke in-person CPD and the conference. She was already planning further CPD sessions with MEI and had engaged them to deliver at a national maths event she was organising. It was very clear just how invaluable she had found it to date:

“I wish this programme runs for a long while (sic) ... and we can always relate to that and rely on it”.

Case study 5

Context:

Paulette is an English, maths and ICT tutor at a private training provider in England. She has been teaching Functional Skills qualifications in English, maths and ICT since 2005 in Further Education providers. At that time, these qualifications were called 'Key Skills'. Her current employer offers a range of different programmes, including study programmes for 16-18 learners, apprenticeships, and adult education funded by the Adult Education Budget (AEB). For apprentices and adult learners, the provider offers Functional Skills qualifications, while learners on 16-18 study programmes are expected to resit GCSE maths and English. Those on study programmes at the training provider often have additional needs or poor mental health or caring responsibilities.

For the past two years, Paulette has been teaching GCSE maths as well as the Functional Skills qualifications. Although her background is in English, she has taken on all the GCSE maths delivery at her training provider. She is part of a small team of 5 individuals, including her manager, who deliver all the English, maths and ICT qualifications offered by the training provider. More recently, there has been less call for ICT, so although it is offered, the team mostly focus on English and maths, from entry level 2 up to GCSE level.

Motivation for engaging with the MEI programme

Paulette had never been on an MEI programme before and had heard of MEI but wasn't clear about the courses they offer. Her manager had previously been on an MEI course and suggested this one to her. Paulette had taken a teaching GCSE maths CPD programme run by the Education and Training Foundation (ETF) which she had enjoyed, and so she was keen to find another relevant course that focused specifically on manipulatives:

"Within that [ETF] course they did maybe one session with manipulatives and how to use them. I wanted to investigate that more because the idea seemed great and I've got all the tools, but generally no idea of how to deliver it. So that was my big motivation for going on to the MEI [Teaching GCSE maths resits] course because they had sessions around that."

Her main motivation in taking a course more generally was to better support the learners on study programmes with their GCSE resits:

"Our students are study programme learners for whatever reason, and they've spent 11 years in education, not very successfully, because they've probably not fully engaged with it. So, my motivation is to find something different from what they've already done. It's to find another method, another way of getting through to them and hopefully helping them to actually achieve the maths GCSE...it's just looking for a variety of different methods where I can how I can deliver it. Also, it's my second year delivering GCSE so I'm new to it. I'm not stuck in an old regime, I'm just open to all ideas. Whatever you know is going to help them to achieve."

The timing of the programme, in the evenings, and the nature of teaching at a provider training provider meant that Paulette undertook the course in her own time. She said that although her line manager had suggested the course "it was totally up to me if I wanted to attend because obviously it was out of working hours, so it was a commitment that I'd have to make. And I was quite happy to do that because I want the information".

Impact of the programme

In general, Paulette was particularly focused on learning a variety of ways to use manipulatives and different practical applications of these method, so she could use them with her learners:

“The main benefit for me has been using manipulatives. Bar Modelling's opened a whole different world to me now.”

She felt that, for learners who had previously had poor experiences of school, the best way to counteract that was to teach them a variety of methods so they could pick the one they preferred and felt most confident with. She felt the course did this very well and provided her with information about lots of different resources, and crucially also how to use them.

Confidence with using existing resources was also a key benefit for Paulette, as she had only started teaching GCSE maths in the past two years.

“So this year I started with the scheme of work from the National Centres for Excellence with Pearson and Edexcel. I started delivering that and they were talking about arrays and bar models beforehand. But then after the training course now it comes up on the PowerPoint and it's like, oh, I know exactly what I'm doing with this. My confidence has built so much through the course. I know how to explain it. I know how to answer questions that are being fired at me by the students.”

The way the course was structured, Paulette had been able to use the knowledge from the course immediately.

“It was after each session there was something new that I could use in in my lessons. And it's not only just in my lessons, but to share with my colleagues as well.”

In terms of future impact, Paulette felt the key difference would be being able to plan the use of the manipulatives she learnt on the programme.

“The things that will change for me is the introduction of manipulatives will be right from the start of the year... the teaching method will change right from the start of the year.”

There were a range of other examples of techniques that Paulette had picked up in the course and was considering how to use. For example, she said:

“...another thing from the course was giving them the time to work through it, explore it. So that's something else that's going to actually change because I'm probably way too quick to ask, have you thought about this? Have you thought about that rather than just leaving it to them? Leave them alone for 10 minutes and let them get on with it. Let them explore it for themselves. And then come back to me and tell me what they've found. Which I found was a really good tool because obviously they're going to remember that. Whereas if I'm just spouting off, they're not going to remember that.”

Conclusion

Overall, Paulette was very positive about the Teaching GCSE Maths Resit course. She was so pleased with the use of manipulatives in her classroom in helping learners understand the GCSE content more effectively, she has already asked MEI to return to deliver a CPD session on manipulatives for her team of 5, and invited vocational tutors who will next year be asked to deliver some maths as well.

Case study 6

Context:

Maureen is the Manager of Maths and English at a subject specialist Further Education (FE) college. She has a background in retail management from 20 years ago and started teaching English and maths when she worked on programmes to support job seekers after leaving retail. She started at her current college in 2012, initially focusing on additional learner support, then began teaching Functional Skills English and then maths. She has been managing maths and English at the college for just under a decade.

Her college has a range of learners, and recently an increase in those needing to take Functional Skills as they had not achieved a Grade 3 at GCSE. However, as the college has a subject specialism, some learners come with very high levels of prior attainment in English and maths, as well as the subject specialism. She has a small team of English and maths teachers and is responsible for helping their development and performance.

Motivation for engaging with the MEI programme

Maureen's college had previously been involved with Centre for Excellence in Maths programme run by the Education and Training Foundation, and they had received support from the local Maths Hub, which is partly run by MEI. The college had also received some training by MEI from the CPD Menu in the summer specifically about using different kinds of techniques. That had been organised by Maureen's manager.

She was sent information and discovered the MEI Leaders of Maths programme through an email. She was keen to find something that enabled her to develop more in maths, as she has more experience in teaching English. It was also important to find a programme which was for leaders and managers of maths. Maureen mentioned that it was easier to find professional development related to maths than to English for post-16 education.

Impact of the programme

Maureen found the course really useful overall. She enjoyed the delivery of the programme, the timing of the sessions in the evenings was convenient, and she felt the presenters were very good. In an ideal world, she would have preferred that the course be accredited, but she understood why that would have been difficult. She summed up her experience as follows:

"it did leave me with quite a lot of stuff to go away and think about and to either implement or develop further or even just reassurance that I'm on the right track."

Alongside a general increase in confidence, there were two main changes in practice for Maureen as a result of being on the programme. The first related particularly to interacting with senior management. She said:

"I think it's given me more confidence to raise some of the issues [and] ask some of the questions [of senior managers] ...[also to] know that what I'm saying is right with sort of senior management. So that's useful."

Maureen felt that the role of an English and maths manager in an FE college was "lonely" and so it was helpful to be able to share problems with peers and appreciate the work she was already doing. She mentioned keeping in contact with a couple of other managers from the course, and that she felt she would be able to go to them with any issues or for advice, in the same way that they would be comfortable approaching her. She found the breakout groups in the course helpful to create a space for discussion and this was aided by most of the other participants also attending all the sessions.

The second key learning from the programme was about leading the maths and English team in a slightly different way:

“I mean, one of the things was creating a vision and I haven't actually thought about [that]... we have the college vision, but actually thinking about having one for maths and English was a different [idea]...So I'm going to [create a vision].”

Given the timing of the programme, which finished in March, and the interview which took place in April, creating a vision was an intended change that would be done once the GCSE exams were completed.

Overall, the course had given Maureen more confidence to manage and teach maths effectively. She said:

“I feel like I'm back on it and, you know, back in the game on the maths now...I know the right questions to ask the team... [for example] have you included this [or that]. So I think it will impact on the learners because I think some of the methods will be more useful and some of the activities [will be] something a bit different or freshen it up and lighten it up a bit, and I can check that that's happening.”

Maureen also mentioned being able to share some of the teaching elements of the professional development with her team, as well as being able to provide colleagues with a better understanding of what is likely to be happening in a maths lesson for peer observations.

Conclusion

Maureen really enjoyed the Leaders of Maths programme, and it helped her become more confident in teaching and leading maths. Having previously had MEI deliver some courses from the CPD menu last summer helped the college build a relationship with MEI, and with the closest college, as the development was delivered to both together. She values the opportunity to undertake the development and is keen for her staff to attend one of the live online programmes in future.

Case study 7

Context:

Amy is head of maths at a vocational FE college in the north-east of England. Amy has been working in the FE sector for 11 years, five of which as a manager. She has taught maths across curriculum areas in “pretty much in every department you can think of” to a wide range of vocational students from Entry level 2 to GCSE resits and functional skills maths. She also taught digital skills before moving into a management role.

Motivation for engaging with the MEI programme

Amy found out about MEI through a CFEM network she was a member of, where she met one of the MEI presenters, who told her about the MEI programme. She has participated in a wide range of MEI CPD programmes, including in-house half-day sessions (including planning for learning, responsive teaching and questioning), which she invited other colleges from the area to attend, online events (teaching functional skills) and the MEI summer conference. Her choice of in-house sessions was informed by her perceptions of what staff needed based on lesson observations. She was the only person from her college to attend the conference but plans for more staff from her team to attend next year. Whilst she attended so many sessions she was unable to remember them all, she greatly enjoyed all the sessions, and one that particularly stood out for her was the decorating cupcakes session. She was very enthusiastic about the conference as a whole:

“it was really good. I found it really, really good. I think it was the best conference I attended ever”.

Impact of the programme

Like others, Amy has found the networking opportunities afforded by the MEI programme and conference very beneficial. This included networking with maths colleagues from the secondary sector.

“the networking was really good, It was really good to talk to other people teaching, you know, the same subject, but in a different setting. It's really good to talk to, you know, so that we all have pretty much similar issues, isn't it? And it's just trying different things”.

She has also made contacts with colleagues from the HE sector through MEI, and her college is currently engaging in research with a local university.

At the conference, she attended a lot of different sessions, all of which she found “engaging”. She particularly enjoyed the interaction with colleagues and the ensuing discussions which created “a buzz in the room”.

She finds the Padlets very useful for revisiting session content and helping her remember content:

“So I regularly go back to the Padlets we used. And I'm like oh, let's try this now because there's so much information. You know, it's like, oh, you pick something you think oh this is what I really like to try but then you forget about other things”.

In common with other participants, Amy appreciated that the MEI presenters came from an FE background and felt this gave them credibility with her staff and generated a sense of belonging and community:

“they're all experienced, you know teachers, they all taught in Fe. So is that experience and you're not alone you know.”

Amy has noticed a shift in mindset in her team since engaging with the MEI programme. Staff are “motivated to keep going (and) try different things” and they like to share their learning with colleagues after attending an MEI session. CPD to roll out learning from MEI to other curriculum areas is planned for this year. Amy has also noticed increased confidence in staff and students, most of whom are “quite low ability” in maths. Staff are confident to try new things and students are realising that maths can be fun. As a result, this year they are taking part in the FE Maths Challenge:

“They started the FE Maths challenge, and I think it gives the students that confidence that you know I can do this maths can be fun. We actually had so much fun last year. I can't believe I still can't believe it”.

Teachers are using different, more hands-on approaches and as a result, students are engaging more and attendance at maths classes has increased by 6.4% compared with 2023-24 academic year:

“We had loads of like games make more hands-on activities and they like that. It's not like just sitting the classroom with a piece of paper in front of you. So, I think that's what really encouraged that engagement from students”.

Additionally, staff are incorporating a wider range of activities to vary classroom dynamics, including independent and group work activities so that students are being supported to develop their study skills and to become autonomous learners. The wide range of resources provided by MEI have been invaluable for this. There have also been changes to the curriculum as a result of engaging with the MEI programme. These include sequencing and chunking curriculum content effectively to promote learning. Student monitoring processes suggest that student outcomes are improving, and Amy is excited about the pending GCSE results from the November 2024 resit cohort.

Conclusion

Amy's enthusiasm for the MEI programme and its impact on staff and students at her college was striking. She liked that the MEI team were passionate about maths and appreciated the fact that they came from an FE background, which meant they fully understood the challenges of teaching maths in FE:

“It's just knowing that they've been there. They've tried different things. Maybe they've tried, you know, things that you haven't thought about yet”.

But for her, a real strength of the programme was the wraparound support provided by the MEI team, above and beyond the professional development activities:

“I think at anytime I needed anything, advice or anything they were there, they were straight away getting back to me”.

Case study 8

Context:

Andrew works in a large further education (FE) college in the north-east of England. He started his career in FE teaching hairdressing, where he noticed the low levels of maths many hairdressing students had. Recognising that maths is a significant element of the hairdressing curriculum, Andrew started developing resources to support the maths department, who were supporting hairdressing students. From there, he started teaching more maths himself, from functional skills and entry 1 to level 1. He was subsequently promoted to Head of English and maths, and then to Director of Quality before taking up his current role as Curriculum Manager.

As part of his role, Andrew organises continuing professional development (CPD) for his team. This includes cascading learning to the wider team, following his own engagement with CPD activities, and recommending courses which he feels would enhance their practice.

Motivation for engaging with the MEI programme

Andrew already knew one member of the MEI team, having worked closely with them in a previous role at a college where they both worked. This prompted him to seek out MEI for CPD opportunities, as he knew his former colleague was designing and delivering the MEI maths programme. To date, he has attended the MEI conference at Keele University, which he said had been “excellent ... brilliant”, the regional summer conference at Durham 6th Form Centre and a face-to-face CPD event with another FE college on problem-solving in maths. MEI also delivered in-house CPD to Andrew’s college.

Impact of the programme

Talking about the conference, Andrew greatly appreciated that the conference took place over three days because this meant that “you actually had kind of downtime after the desk speakers to actually catch up with people on a more personal level”. This was particularly beneficial because it offered “a great opportunity to network with people ... across the full sector ... who are working at the same level as you”. This included colleagues from awarding bodies, as well as maths teachers from other settings and sectors. He particularly enjoyed meeting primary school colleagues as he felt this offered him an insight into where FE students’ issues with maths begin, which he believes is vital for effectively supporting them with maths during their studies in FE:

“I always think it’s so important to see the backstory of how they’ve actually reached the destination they’ve got to. Because, you know, sometimes it’s like, you know, you can’t really fix the problem at the very end of it.”

His only criticism of the conference was that there were “too many good speakers, so you’ve really got to ... scrutinise and pick wisely”.

As a result of attending the conferences over the past two years, Andrew has developed professional networks where members have supported each other during off-site visits. He and his team have formed a community of practice with contacts made at the conferences whereby curriculum managers and colleagues from other parts of the country have joined his team meetings online to share good practice and find solutions to common problems. He has also disseminated learning from the conference during a two-day CPD event in the maths department where curriculum managers he’d met at the conference were also invited, to “re-imagine the curriculum” and maths learning more generally. He plans to extend this into a college-wide event over the next two years and in particular wants more engagement from vocational areas with a focus on developing “the real world maths element”.

Andrew had found all the MEI programmes he has so far participated in very useful and relevant and said that his team shared this view following the in-house CPD MEI delivered at his college. In particular, the FE background of the facilitator had engendered high levels of empathy and engagement with his team, because they had felt that the event was delivered by “somebody who would understand their curriculum needs and demands and particularly understands the needs of the students as well”. He said that this was especially important for breaking down barriers with GCSE resit students “because at the end of the day, the [students are] on a resit course because they didn't pass at school”.

Andrew said that MEI had had a “massive impact” on his confidence, and that following the in-house CPD delivered by MEI, his team were more resilient because they could see the “bigger picture” and understand that the challenges they faced, were experienced by maths teachers at a national level. The CPD had also developed their confidence so that they were now “able to understand and take the risks to develop their own strategies as well”. One example of this is taking a group of automotive students into the kitchen to teach them “real-world maths” through cookery. Another example is taking hairdressing students into construction to do bricklaying in order to learn about measurement area ratio.

As a result of these changes to the maths curriculum Andrew said that student attendance and target grades had begun to improve. Using feedback techniques suggested by MEI, more students were feeding back on maths lessons, and the feedback showed that students are enjoying maths much more, remembered lessons and were learning more:

“I know what area looks like. I know what measurement. I know width, height, because I actually did it in a practical setting”

Students were also more engaged as staff implemented a more active learning approach and planning “bite sized nuggets and chunks within the lesson to keep (the) students engaged”.

Conclusion

Overall, Andrew was extremely positive about all aspects of the programme. He especially liked that MEI were “very student centric and they're very teacher focussed as well”. He regularly uses resources from the MEI website for his own and his team's CPD, such as how to contextualise lessons, and found the MEI team very responsive on the rare occasion when he had had technical issues accessing these. Increased networking in particular, stood out as a personal benefit of the programme for him, though, because ...

“as a manager, sometimes it can feel a little bit lonely, so it's nice to actually go somewhere and actually engage with the managers as well and find out ... that problem isn't just my problem as well”.

Case study 9

Context:

Jacob works in a large further education (FE) college in the north of England. He started working at the college seven years ago in a support role as a teaching assistant. He is now in a full teaching role at the college, since gaining his teaching qualification five years ago. He teaches level two GCSE Foundation maths to a range of students across the college.

Motivation for engaging with the MEI programme

Jacob has participated in an in-house MEI CPD programme and attended the MEI summer conference. The college are hoping to have another MEI in-house CPD session in future. Jacob was the only teacher from his college to attend the conference. The team found out about MEI CPD and available funding direct from MEI, and Jacob elected to attend the conference, while other colleagues chose the Trailblazer event. Jacob attended the following conference sessions:

- Secondary and post 16 maths teacher recruitment and retention issues.
- Making problem solving skills explicit.
- Using AI within maths
- The right curriculum for programme 16 students
- Standing on the shoulders of giants

Impact of the programme

Talking about the conference, Jacob found it very beneficial to meet maths teachers from other sectors, as previously he had only attended conferences specifically for the FE sector:

“It was really interesting to go along and hear different aspects of the master journey for, for our learners from primary school secondary, all the way up to do some university professors there as well that we spoke to.”

“It was eye opening to hear all those different aspects and different opinions from various teachers across the spectrum.”

Jacob found the maths problem session particularly useful and has now introduced explicit problem-solving into the curriculum, as he feels this will help students break down maths questions in their exams. As a result of attending the conference, Jacob said he feels “confident to try something different ... and to move ... away from ... what (he’s) been teaching over the years”. He said that his approach is now more about how students will use maths in their lives, rather than a “monkey, say, monkey do exercise”.

Jacob said one of the conference sessions increased his awareness of the teacher recruitment and retention crisis and strategies for addressing this, such as through professional development or financial incentives have become a focus of his discussions with management at his college.

The conference also increased his understanding of dyscalculia. In particular learning about the challenges of dyscalculic children in primary school has given him a better understanding of the challenges they face throughout their school years and how to support them with those challenges when they come to FE. Additionally, through ‘The right curriculum for post-16 students’ he has realised the

negative impact of comparing FE resit students to year 11 students when setting grade boundaries and this has prompted him to consider alternative, more suitable assessment tools for his students.

Conclusion

Jacob was very positive about his experience at the conference, feeling it was

“probably the best conference that I've been to ... and it was the most interesting and beautiful content delivery. And yeah, just a general atmosphere of the conference is really, really, really good”.

Like others, he liked the wide choice of sessions and found the opportunities for networking particularly beneficial:

“there's just lots of networking activities, net networking opportunities, meeting people that were facing the same challenges as us and sharing those experiences within their sessions”.

He became aware that many colleagues face similar challenges to him, and felt that networking helps because through a network “you've got other people ... that you can bounce ideas off ... for common challenges that you face”.

Case study 10

Context:

Shane is an experienced maths teacher at a general FE college in England. Shane originally trained to be a secondary school maths teacher and worked in schools for 11 years. He then started teaching in an FE College in 2019, and has mostly taught maths GCSE resit classes and Functional Skills maths both for 16–18-year-olds and for adults. He has also taught some engineering maths to apprentices and taught some economics in the past. Shane was an accountant before he retrained as a maths teacher, so has significant maths subject expertise.

Shane attended the MEI conference on a bursary as part of the post-16 CPD programme. Shane's college also engaged with MEI as part of the NCETM and MEI-delivered Maths Hubs programme which focuses on maths mastery. He is particularly interested in this topic and is due to be one of the local Maths Mastery for FE specialists in the coming academic year. His college was part of the Centre for Excellence in Maths programme funded by the Education and Training Foundation and partly delivered by MEI and the University of Nottingham. Although these programmes are out of scope from this evaluation, as it focuses specifically on the MEI post-16 CPD programme, this case study highlights the added value from the perspective of an individual maths teacher.

Motivation for engaging with the MEI programme

As the college was previously involved in the Centre for Excellence in Maths programme, the Head of Maths was keen to maintain momentum and encourage teachers in the department to participate in development activities. One of these was the MEI conference, and in total 4 maths teachers were able to attend the conference from the college. This meant that both the college and Shane had the opportunity to come together to share practice.

One of the key drivers for getting involved was the availability of the MEI programmes where FE-options are limited. Shane said:

“...basically you get a little bit forgotten about in FE and it's a different style of teaching from somebody that's worked in a secondary school to somebody working in FE. It's a totally different culture and dynamic in the classroom and any help and assistance that people can have in terms of teaching for those sorts of students, for all sorts of learners, will definitely be beneficial.”

The culture of the maths team of teachers was such that opportunities to develop and then share practice were welcomed. Shane described the situation with his head of department:

“[they are] very, very keen on CPD and supporting the teachers in terms of improving their teaching and being better. I mean... I've been teaching for about 16 years now. And you [are] always looking to improve. You're never the finished article. So, any ideas, any suggestions, anything new that's coming out, you know, we've got quite ... a proactive team.”

As a result, there have been a range of opportunities to undertake CPD, and the ability to attend a programme which was specifically for FE teachers was a clear benefit. Shane described the experience of finding a session at the MEI conference that was being run for FE teachers:

“The fact that those sessions are being run for functional skills teachers in an FE setting, I just think that's absolutely bloody brilliant. I really do. I think it's fantastic...A session being run for specifically for FE teachers and just brainstorming something and thinking how you can do something differently and finding out how, how it's how things are taught in different parts of the country compared to how you're doing it.”

Impact of the programme

One of the aspects of the programme that was particularly beneficial was the tailoring to vocational students. This made it possible for FE teachers to consider how to contextualise maths for their own learners. Shane describes the situation:

“I'm just thinking about getting students to think mathematically and thinking about sort of real-life maths. I've been to sessions of MEI before [about] how you can make maths relevant to function, to fun, you know, to vocational students. So, try to put a hair and beauty [perspective] on it or a construction [perspective] on it or a healthcare [perspective] on it or whatever it might be trying to make the maths relevant where possible. Obviously, you've got to be a little bit careful. You can't shoehorn maths in where it doesn't fit, you know, trying to solve a quadratic equation in the hair and beauty lesson...but it's different [to maths at school].”

One of the key impacts for Shane was being able to attend CPD then return to his colleagues and share the learning. Whilst appreciating there will be different ways to use the learning, being able to discuss it with colleagues and see how others might use it, was of value. The culture of the team, led by Shane's manager enabled this. He described the benefits:

“You come away from these conferences and CPD sessions that MEI run and you just want to share the ideas you've got. You just want to say well listen, this worked. I've seen this and I can see how you can adapt this and how you can use it in different sessions - give it a try. People are very much like that you know, people will try things out - they will sort of like look at it and think OK, I'll run with that and see if it works in my lesson...We're quite lucky people – [we] aren't shy of trying something new.”

Conclusion

Overall, Shane was happy with the CPD from MEI, particularly where it provided him with new ideas and techniques that were specifically tailored for FE teachers. The real benefit to him was the ability to take this learning back to his college and share it with colleagues, who could then add value to it through testing the approaches and feeding back.

“Whenever we've got any good ideas, we tend to share them with the rest of the team. That's how we work in our organisation. I think it builds people's confidence up. I mean, I'd like to consider myself a pretty experienced maths teacher. I've taught all the way up to A level and all the way down to key stage 3, key stage four, key stage five, engineering, maths. We've got other people in the team that have got different strengths. You know, they're better suited to functional skills teaching and getting down with the kids and maybe a little bit [better at] building relationships, but maybe mathematically they might be a little bit shaky on some of the higher tier topics. So, one thing we do [is] we just share.”

This kind of approach, coupled with the MEI programmes that highlight specific techniques, makes it easier for maths teams in colleges to work together to find out what works best for their learners.

Case study 11

Context:

Nikki is an experienced FE teacher who took on the leadership of the maths team two years ago. Prior to that, she held management roles in the sports department, where she began as a lecturer in an FE college. Although she was mainly a sports lecturer, she did teach some maths classes, from entry levels to GCSE resits, so was able to draw on her own experiences of teaching maths in management. She attended the MEI conference with a colleague when she took over maths leadership and has since both asked MEI to come and deliver some of the CPD menu to her team and joined the Leaders of Maths programme herself. The delivery to the team was discussed in advance with Emma to ensure it met the needs of her team and took place over a full day.

Motivation for engaging with the MEI programme

Nikki's motivation was primarily to upskill herself, as she moved from a sports department to leading the maths team at the college. She described her motivation to get started with MEI, attending the conference:

“the biggest motivation for myself was to kind of upskill. [For me,] not coming from a specific maths background, [it is] that chance to kind of pick up some maths related teaching strategies, different ideas and activities that we can then use into the classroom. It's to kind of make feel like a bit more right. Like, I am actually a maths teacher.”

The motivation for her team was to bring them together to have some specific CPD about maths in FE. She said:

“For the team, it's very difficult to find CPD that is maths specific and FE specific as well. Obviously [the] majority of us are delivering GCSEs [so] quite a lot of the staff development that we go on is all related to secondary schools and we are very, very different. So, the MEI programmes for CPD actually relate to our sector, they relate and they understand what our students are like and they can really give us like hands on experience and those kind of examples where you can tell that they've been in our shoes. So, it really helps our staff Be able to pull it together and relate it better.”

This kind of demand for CPD for post-16 maths which is specific to FE was heard in many of the interviews, and was considered a particular strength for Nikki when considering CPD for her team.

The motivation for Nikki to take part in the Leaders of Maths programme was primarily about the opportunity to have some leadership training for her relatively new role managing the maths team. For that training to be in the context of maths was particularly important to Nikki, as she still felt new in post, and being able to interact with other managers of maths teams was a valuable opportunity.

Impact of the programme

Like others, Nikki found that the full-day CPD menu programme in particular was “very personalised to what we needed at the college at the time, which was nice”. This kind of tailoring and discussions with MEI meant that Nikki felt the whole team benefitted from the CPD and were able to put it into practice easily, following the CPD session. As she described:

“The programmes [were] all around engaging the resilience of the learners, looking at maths through problem solving. And I can see a real difference in the team. They were given lots of ideas to go and use and try out in lessons which they then did. She [Emma] gave us some really

good resources as well to help us try to transition into using what we've done in the CPD so we weren't having to go back and make these resources. They were there for us to go straight in and try and learn to really enjoy the problem solving."

A key benefit of the training was that, along with Nikki being relatively new in post, around half the maths team were also new to the college. So, part of the training was designed to encourage the team to come together and learn, as well as build confidence and try things out, while sharing their experiences. Nikki said:

"one of the big benefits is we have some quite new members of the team, so it is good for them to get some new ideas to then try it and it boosting their confidence to be able to try things out in the classroom that are in a slightly different method of delivery compared to what they're used to. So, definitely some confidence boosting for the team."

There were also benefits of the management training, that helped Nikki think more strategically about her team and how to deliver for maths learners at the college. She described this:

"So it's made me really think a little bit deeper in terms of what am I doing, how is what I'm doing impacting them to kind of balance out our department because even though we are quite a large department because we've gone through a few changes, we've now got 50% kind of new teachers on board. So it's kind of that - looking at right, what can I do to help build them up and that course is really helping me look at how to use like a bit more of like a mentoring scheme with each other as well."

The timing and delivery of the Leaders of Maths programme was also good for Nikki because it meant she had a space outside of work to think about the bigger picture of her team, rather than focusing on the day-to-day challenges.

Conclusion

Overall, the ability to start with MEI conference, then from that work with MEI to deliver a full day's training to the team, and also have the opportunity to undertake leadership training online, has been really valuable to Nikki. Speaking about the management programme specifically, she said:

"I think long term, especially for me, I think it's definitely going to build my confidence up as a manager to be able to face difficult situations."

The added value of the combination of programmes, for an individual who wasn't aware of MEI before applying to attend the conference at the suggestion of a colleague, has helped a new manager to become comfortable in her role. The ability to tailor training for a maths team has created learning and brought the team together.

Case study 12

Context:

Layla is a newer manager in FE, with a background in primary teaching. Having spent 22 years teaching in primary schools with a specialism in maths, and having become a Deputy Headteacher, Layla has now been working in FE for 4 years. She started on an interim basis, and is now Head of the Maths Department, where she has been in post just over a year. Layla had participated in maths mastery with the local Maths Hub while in primary education, and has recently become aware of MEI, partly through other colleagues at the college.

Motivation for engaging with the MEI programme

Layla attended the MEI conference, and having seen a particular presentation about post-16 maths, spoke to MEI staff and asked them to come and deliver to her team. She found it particularly valuable to be able to tailor the session, as she had a clear of what she was looking for. She said:

“in terms of the CPD that we have delivered in college that I organised, I think that was very easy to make it exactly what I wanted it to be because some of the session was something that was delivered at the conference anyway.”

Layla had found in FE that a lot of learners came either missing some fundamental maths from primary school or couldn't understand some of those fundamentals. She was keen to reduce the cognitive load from learners, and felt that by focusing on this area in the CPD, she would help the teachers to focus on the fundamentals with the learners. This would enable the learners to pick up smaller marks and avoid making mistakes in the exam, but also have a strong foundation of maths from which to build up to both achieving the exam, and knowing more functional maths for their lives.

Impact of the programme

One of the key elements of Layla's management style was to develop some consistency of teaching across the team, and helping staff to work together on teaching and topics was a good way of enabling this kind of consistency. This is how she described the role of the CPD in that:

“it's helped to look at things from a consistent point of view because obviously you know going out individually on CPD and you gain your own knowledge and skills, don't you? But that often isn't shared. And there's a time factor within that. So, I think having the time to actually look at things together gives you that sort of time to be looking at reflecting on things [and] having that those consistent messages. It spells confidence as a team, doesn't it? Because then I know our staff will go to one another, you know? Have you tried this? Have you tried that? Did it work? That kind of thing. So I think it does help to develop consistency and also staff knowledge and confidence.”

This kind of confidence in staff, and promoting collaboration was important not just so they work well together, but also for the benefit of learners. Layla explained how she was starting to see some of the techniques in learners' work:

“in terms of outcomes, I think looking at the multiplicative reasoning and how you can make those links has definitely made a difference. And now I wouldn't say [we're] fully embedded as much as I'd like it to be at the moment, but, we do get students and I see on exam papers now that they're starting to use some of those models and images. So you know, that's nice because it's coming through. You know, when you get those moments of, Oh my goodness, that's so easy when you do it that way. And when we talk about that in meetings, some staff have really embraced it and

really used it across all different topic areas. And they all talk about that. And then, you know, all the staff are like, oh, yeah, I thought about it in that way.”

Layla remarked during the interview that she felt these kinds of approaches were easier for lower level learners, those below a grade 3 at GCSE, as they had fewer ideas of how they ‘should’ be doing something and found it easier to switch to something new that they understood. Conversely, some of the learners on a Grade 3 had a series of processes that they remembered from school and used, but didn’t fully understand. This would often lead to them making mistakes, but it was difficult to go back and re-learn a different way of doing something due to their preconceptions. So part of the teaching of these learners was to persuade them to adopt a new approach, as well as teaching that new approach. Layla felt that the depth of knowledge amongst the staff delivering the training about post-16 maths meant they understood and developed the training in that vein, rather than having to refocus something that was more appropriate for secondary school learners.

Conclusion

Layla was very positive about the training, and about the conference. She was pleased to be able to find the kind of training she was keen for her staff to receive, and to be able to shape the training alongside experts. She found the conference interesting, and felt that it gave her space from normal work to think about different elements of maths teaching in FE and how to best support her team.