Teacher CPD – which 'type' is most appropriate for you? An evaluation of MEI's wide-ranging CPD provision.

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Introduction

Mathematics in Education and Industry (MEI) is an independent charity, committed to improving mathematics education. MEI has historically been known for its work in 14-19 curriculum development. However, MEI has also built a reputation for providing an extensive range of high quality professional development for teachers, with it delivering in excess of 5000 teacher days of CPD each year.

This paper gives a brief background to the relevance of CPD and the related literature, before considering the various types of CPD provision MEI undertakes. Though various analyses have been done into single types of provision offered by MEI, this paper will bring the previous research together. This will allow the overarching research question of – which 'type' of CPD is most appropriate for particular teachers – to be discussed.

Background

The research report 'Evaluating the impact of CPD', DfES (2005), had one of its key recommendations being that: "Greater differentiation of provision is needed in CPD to ensure the needs of all staff are adequately met. " The study had built on previous analysis into 'Teachers' perceptions of CPD', DfES (2003). A decade on and this recommendation remains salient.

More specifically in respect of STEM, a strong appetite for the continuing relevance of CPD was recently shown in the report 'Empowering teachers: success for learners', by the Advisory Committee on Mathematics Education, ACME (2013). The report noted that:

> "The professional development needs of teachers evolve throughout their careers so responsive, on-going planning is required to maintain teacher learning and optimise student outcomes."

A CPD framework for mathematics education is discussed in the RECME report, Back et al (2009). One recommendation from this report dealt with 'types' of CPD, namely to: "encourage teachers to take advantage of a range of different kinds of CPD relevant to their particular interests at different stages in their career." A further recommendation was in respect of choosing CPD for the wider benefits, i.e. to: "support teachers in choosing CPD appropriate for both their individual development and the collective development of the school/college."

With significant reform to GCSEs and A levels taking place between 2015 and 2019, UCAS (2015), this current period stands out as one of the most important in a generation to invest in staff learning to build upon, if not just maintain, student outcomes in the classroom. Determining which type of CPD could be of benefit is a key part of this.

Research into MEI's wide-ranging CPD provision

Annually MEI delivers in excess of 5000 teacher days of CPD. The CPD 'offer' is wide-ranging, including: year-long courses (often in conjunction with universities), online courses with sessions spread over several weeks, 1-, 2- and 4-day courses, and sessions at a large annual conference. These courses may consist of subject knowledge, pedagogy, use of technology and/or targeting skills to develop future leaders of professional development.

Various analyses have been done into single types of provision offered by MEI in previous research carried out, see Lee and Knights (2015), Lee et al (2013), Tripconey et al (2013), de Pomerai and Tripconey (2011) and Lee et al (in press). Here, they are considered together to provide guidance on the various 'types' of CPD.

Reflections on types of CPD provision offered by MEI

Beginning this section on reflections on types of CPD provision offered by MEI, it seems appropriate to start with the underlying principles that govern MEI's CPD provision, as noted in Lee et al (in press):

> "In all its courses, MEI believes it is important to promote mathematical thinking, present mathematics in an interconnected way, provide resources that promote mathematical learning, and support teachers in embedding new ideas in their classrooms."

This philosophical view is important as even though individual CPD courses have particular aims and goals associated with them, the wider principles should always underpin the development.

When considering a CPD course perhaps the main aspect teachers' review prior to 'sign-up' is the content of the course; other areas of interest might include the length, the format, the location and the cost.

MEI courses may contain one, or more, of the many different facets that make up teaching and learning development, including, but not limited to:

I. subject knowledge enhancement
II. curriculum change/development
III. use of a specific tool, i.e. a new piece of technology
IV. leadership development
V. pedagogy development

The interplay between facets such as these is not straightforward; on many CPD courses several of these may be incorporated. However, here the areas listed above will be exemplified by consideration of research undertaken in respect of MEI CPD courses.

I) Subject knowledge is one of the "six common components suggested by research that teachers should consider when assessing teaching quality", The Sutton Trust (2015). It is therefore not surprising that this is a key type of CPD course. MEI has developed innovative courses in terms of length, format and cost to enable teachers to select a suitable course and enhance their knowledge.

de Pomerai and Tripconey (2011) discussed CPD that took place wholly online, with short 60-90minute sessions over a number of weeks, which primarily focussed on subject knowledge enhancement. The main findings were of the many benefits that use of an online environment brought over and above physical days, including that of low cost. Though some hurdles of minor technical issues were also cited as being relevant when considering this style of delivery.

II) Curriculum change at Key Stage 4 was a prime motivator for creation of courses cited in Lee and Knights (2015), which considered a 'paired days' approach to CPD. The pair of days were separated with an up to 12 week 'gap' between them. This allowed for ideas and development to be made back in the classroom between days. The study reported positive outcomes following completion:

> "A requirement from the course to try a new activity encouraged teachers who were reluctant to do something different to do so...Reflecting on that lesson or activity, alongside written evidence from students has also proved a powerful tool in changing teachers' perceptions and practices."

III) Use of a specific tool, in this case technology, was undertaken in Tripconey et al (2013). One day courses explicitly about use of ICT were compared with those that only had elements of use of ICT incorporated into them. Analysis showed that:

> "More than half of the teachers that attended the ICT specific course and approximately one third of teachers who attended an ICT incorporated course perceived that there had been an impact on their practice as a result of the training"

This indicates that CPD which is focussed on a dedicated 'tool' can have impact on teachers' practice.

IV) Leadership development features within a 'heads of mathematics departments' CPD course as cited in Lee et al (in press). Three face-to-face study days are spread over a number of months and combined: "leadership styles, the responsibilities of the role and how to develop a vision for mathematics teaching across the school." Additional features of the course were email support between the study days as well as online resources, which included a dicsussion forum and materials. The nature of the CPD within this type of leadership course meant its length and style were carefully considered to allow teachers to maximise the benefit from their particpation.

V) Pedagogy development is one of the main characteristics of MEI extended CPD courses, as seen in Lee et al (2013), which reviewed effects of undertaking one of MEI's numerous year-long courses. The extended courses are a clear example of a multi-faceted approach to CPD. Their construction is also complex, with combinations of face-to-face sessions, online sessions, gap tasks, online resources, email support and on one course – lesson observation of the participants in their own school. This most comprehensive of CPD packages meant that outcomes seen included: "increased confidence, an increase in awareness of methods and materials and that it made them think about the subject in greater detail."

It's clear just what an important role pedagogy development plays in teaching, with Husbands and Pearce (2012) collating considerable research to formulate their report – 'What makes great pedagogy? Nine claims from research'.

It should be noted that other useful forms of professional development exist for teachers, over and above CPD 'courses' cited in this section. Examples could include: being part of a collaborative teacher network, undertaking and being part of internal lesson observations, academic and other subject-relevant reading, writing articles etc. This paper does not allow for detailed discussion of these, but acknowledges that they can be viable options for enhancement of teacher skills.

Guidance on types of CPD provision

CPD reviewed in this paper has generally been in regard to specific courses. Though the 'type' of course has varied through its content, its length and its format, what should have become clear is that it is very difficult (almost impossible) to list out specifically which type of CPD is 'the best'. The CPD course or intervention that is best for one teacher/department/school may not be the best for another teacher/department/school.

When a teacher/department/school has a clear idea of what it is they are seeking to develop, i.e. in respect of the facets listed earlier (subject knowledge, leadership etc), then this can lead to justifications for certain types of intervention as being more appropriate than others. For example if there was need for specific subject knowledge development, for a low cost and minimal impact on time away from the classroom, then a short online course could be the most appropriate. Similarly, if a new style of pedagogy, or development of leadership skills was being sought, then courses that allow gaps between study days enables the ideas and skills learnt to be taken back to the classroom/department and tried, before being further developed at later study days.

The findings of this work draw on a small number of studies from one organisation. However, they do show that even within one provider the opportunity for different types of CPD is extensive. In offering guidance on types of CPD provision it is therefore beneficial to cite other large-scale studies that have discussed similar themes.

Though not specifically on STEM subjects, the report 'Going forward: Continuing Professional Development for English Language Teachers in the UK', British Council (2012), serves as an excellent document to consider a CPD framework. It (page 8) provides a Theory of Change model and a six stage framework, which seeks to get teachers to reflect upon their CPD 'journey'.

Finally, one of the most recent large scale, multi-national studies, by the Teacher Development Trust (2015), found it appropriate to offer the following guidance on type of CPD provision and its effectiveness:

> "to be effective in producing profound, lasting change, professional development interventions had to be prolonged. The most effective professional development lasted at least 2 terms - more usually a year (or longer)."

Concluding remarks

This paper has provided readers with the opportunity to review background literature on the relevance of CPD. It then looked at research relating to one organisation's wide-ranging CPD provision, before considering overarching guidance on different types of CPD.

With significant reform currently taking place across the school/college curriculum and wider landscape, getting the most out of CPD and for the best value for money, whilst up skilling teachers, is needed more than ever. The significance and implications from this, and other studies, is to the benefits found from sustained, extended CPD courses. However, it is also apparent in showing the need for teachers to seek out and consider all of the options available, in respect of types of CPD provision, so that the required outcome for a given teacher(s) can be attained.

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