EXCELLENCE IN SCIENCE

THE ROYAL SOCIETY

Online survey of CPD (continuing professional development) provision in ICT/Computing

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Introduction

The Royal Society is carrying out a study looking at the way that ICT/computing is taught in schools and colleges across the UK. Through this study teachers, academics and other members of the computing community are coming together to address growing concerns that the design and delivery of the ICT and computing curricula in schools is putting young people off studying the subject further.

As part of this study the Royal Society conducted an online survey of teachers in UK schools and colleges to investigate the continuing professional development (CPD) available to ICT/Computing teachers, and the availability of curriculum enrichment and enhancement (E&E) for pupils, i.e. activities that extend beyond their usual, formal learning. The survey comprised 20 questions, of which eight invited respondents to provide answers in a "free text" format.

The survey closed on Monday 2 May 2011, and attracted 114 responses. These responses includes submissions from individual teachers of ICT and computing, ICT leaders in schools and colleges, heads of departments and senior management (head teachers and assistant head teachers) alongside lecturers in higher education institutions and other interested parties (CPD and E&E providers, awarding bodies, educational consultants etc).

This report summarises the key CPD themes identified by an analysis of the respondents' five "free text" answers. The data analysis arising from the survey is shown separately in the Annex.

Summary

Of the 114 respondents to the survey over two-thirds (77) were based in secondary schools and 13 were based in colleges. The sizes of these institutions were evenly spread across the ranges 500-1000, 1000-1500 and more than 1500 students. In addition to responses from teachers based in primary and middle schools and those contributed by CPD providers, comments were also received from lecturers in high education institutions and other interested parties (local authorities, awarding bodies, teacher trainers). Nearly 70 per cent of respondents were based in England while just over quarter were based in Scotland, the remainder were equally spread across Wales and Northern Ireland.

Key CPD themes emerging from the survey:

- **ICT/computing teachers value the provision of quality CPD opportunities.** The ever-changing subject matter requires teachers to review and update their subject knowledge and skills on a regular basis.
- **The culture toward CPD varies within institutions.** Not all teachers are incentivised by their senior management to undertake CPD. Teachers' own desire to update their knowledge and skills is the main driver for CPD uptake. A national initiative to promote the importance of CPD for ICT/computing teachers would help to develop a healthier culture toward CPD.
- **CPD events offer valuable networking opportunities.** By sharing ideas, experiences and discussing teaching issues participants gain self-esteem and confidence to try new approaches in their teaching of ICT/computing.

- **Associated costs and 'rarely cover' policy are the main obstacles to teachers taking up CPD opportunities.** Teachers are reluctant to lose contact time with their classes by attending CPD activities scheduled during busy term-times. The geographical distribution of CPD events is a particularly off-putting for teachers working in rural areas. More local and regional provision of CPD would be welcomed, as would distance learning materials.
- **Teachers' CPD is vital to promoting more E&E opportunities** for young people in schools.

The collective view of respondents on the importance and benefits of quality CPD opportunities for ICT/computing teachers is summarised well in the comments received from an eLearning coordinator based in an English secondary community school:

> "A CPD course targeted to a teacher's needs can reinvigorate and enthuse. Opportunities for networking allow teachers to reflect on alternative strategies and perhaps forge partnerships for mutual benefit... Having a whole day where the brain can be cleared of other matters and concentrate on the task in hand is very powerful. In the hustle and bustle of a busy school term, SMT do not always have the time to commend teachers; allowing teachers to go on courses with a good grace becomes a way that SMT can imply they value a teacher and what they currently do and are committed to helping them improve even further".

Q11: What incentives are there for teachers to attend these courses?

Of the 71 responses received over a third (29) indicated that there is little or no incentive for teachers to attend CPD courses.

In general, responses suggested that personal development drives teachers to attend these courses, rather than any incentives offered by heads of departments or senior management in schools and colleges.

The most common reasons for teachers to attend CPD events was to enrich and update their subject-specific knowledge and to learn new skills, including new pedagogical approaches to use in the ICT/computing classroom.

Many respondents also stated that a key driver for attending CPD courses was the opportunity to network, share ideas and experience, and discuss issues with other teachers and ICT/computing professionals.

Other reasons given for why teachers undertake CPD included:

- to enhance CPD portfolio, develop CV and support career progression;
- to improve student attainment and promote better results;
- to meet performance targets set by senior management.

Several respondents mentioned that for CPD courses to be worthwhile to teachers they must be of high-quality and relevant. Accreditation by a recognised body would help to promote courses.

Overall, the culture toward CPD for ICT/computing teachers varies from school to school. While some respondents were encouraged to attend courses, some comments suggested that CPD opportunities are not universal for all teachers within individual institutions. An isolated comment indicated that some senior management discourage subject-specific CPD.

Q12: What obstacles are there to teachers attending these courses and how could these be overcome?

The majority of 78 responses received agreed that the main obstacles to teachers attending CPD courses are time constraints, the 'rarely cover' policy and the associated costs of releasing a teacher to attend the course. Suggestions to overcome the issue of costs included: offering free courses; providing teachers with personal grants; and ring-fencing funding for cover

Another obstacle often cited was the availability, quality and relevance of the courses. As one respondent

suggested: "teachers may be reluctant to give up time if they are uncertain whether the outcomes will be worthwhile for them or their pupils". Another teacher commented: "I don't feel there are enough specialised courses for teaching more advanced or new techniques, e.g. programming, web development, games development etc. Courses for non-teachers are good but not generally based around projects or how to deliver a packaged course in lessons".

According to some respondents, the geographical provision of some CPD courses hindered teachers' uptake of CPD. Teachers pointed out that travelling long distances to attend events adds to the issues of time and cost. Travel was a particular issue for teachers working in rural areas. More regional provision, through centres such as universities, would help overcome this issue. Alternatively, schools might be encouraged to collaborate together to host local CPD events. One teacher suggested a "travelling road-show" might be an appropriate vehicle for CPD activities in rural area. Some respondents also wanted more provision of distance learning or web-based CPD opportunities.

Feedback received suggests that some teachers are reluctant to take up CPD opportunities because they do not want to lose contact time with their classes. Several respondents commented that courses run during school term time were not appealing. Teachers identified the summer term as a period when they have more flexibility in their timetables to accommodate CPD activities. Other respondents welcomed twilight CPD sessions or those run at the weekend. One teacher commented that preparing relevant lessons for supply cover and working to catch up on curriculum coverage following time out were unwanted additions to teachers' already heavy workloads.

Other obstacles to teachers attending CPD courses mentioned were:

- head teachers' and senior management's perceptions of ICT and computing, and their lack of understanding of the need for CPD for ICT/computing teachers;
- lack of trained teachers who are able to deliver the content of CPD courses. This could be overcome by using "county advisers" when available; lack of accreditation of courses;
- poor previous experiences of CPD opportunities;
- teacher's family life and the cost of childcare.

Q13: What is the benefit to teaching staff of attending a CPD course?

Seventy-two answers to this question were received. These focused on similar themes as those highlighted in responses to the question on incentives to attend CPD courses.

The majority of respondents mentioned the opportunity to network with other teachers and ICT/computing professionals as the most beneficial part of attending CPD courses. Through these meetings teachers share ideas and best practice, learn from experiences and research, discuss issues and find out about valuable resources to support their teaching. Some responses pointed out that meeting contacts had led some teachers to develop support networks after the CPD events. Comments also suggest that teachers look forward to trying out new ideas in the classroom and sharing the information gathered with colleagues back in school.

Many respondents stated that the greatest benefits were the opportunities to enhance their subject knowledge, to find out about new technologies and to learn new skills. This was considered essential for teachers teaching a subject that is constantly evolving and a CPD course was seen as an efficient way to deliver this.

In a few cases respondents reported that the self-improvement teachers achieve through quality ICT/computing CPD opportunities instilled them with greater confidence to use new technologies in the classroom and renewed their enthusiasm for the subject.

Several respondents said that they valued the insight into new pedagogy that some courses delivered or they picked through the ideas and strategies discussed with other participants at CPD events. These new approaches to teaching, coupled with teachers' enhanced knowledge and skills gained through courses, were viewed as leading to an additional benefit – improved student attainment and results.

Respondents who had participated in exam board-related CPD events valued the deeper understanding of the course, its requirements and mark schemes these offered.

Other benefits mentioned in answers included:

- an insight into the wide variety of jobs in computing, ICT and technology;
- enhanced employability/career development;
- dedicated time to learning a new skill, e.g. a new programming language;
- a chance to think and reflect on what is done in the classroom;
- a sense of community/support, which teachers working in isolation lack;
- improved self-esteem.

However, the benefits from a CPD course are dependent on the quality of the course. According to one respondent, many of the courses on offer were "awful" with companies offering sub-standard or inappropriate CPD for ICT/computing teachers.

Q14: Do you feel additional provision is required and if so what kind?

Less than half (55) of all respondents to the survey answered this question.

Overall, the answers received showed a strong belief among respondents that some additional CPD provision for ICT/computing teachers is required because the subject matter is continually evolving and changing. As one respondent suggested, this provision should support all types of ICT/computing teachers: "We need courses which will consolidate the basic knowledge of the subject for newly qualified teachers and courses which will update the skills and knowledge of experienced teachers".

In some cases the additional provision suggested focused on the specific personal needs of respondents. However, a common theme for some respondents was the need for more time and increased funding to make CPD courses worthwhile and to allow teachers to take up these opportunities.

More courses delivered through distance learning was suggested as a way to open up teachers' time to undertake CPD. The Computing At School online material was identified as valuable CPD, though the lack of recognition from schools' senior management or tangible outcomes for studying this material were cited as drawbacks.

Free or sponsored courses would help current school budgets stretch further to cover the cost of much need cover. Alternatively, it was suggested that schools might reduce/share costs incurred through running CPD events by joining with other local schools to establish economies of scale.

Among the responses there was support for additional provision in the form of CPD courses with a focus on:

- contexts – showing real-world applications of ICT (work shadowing), software development, hardware deployment;
- computing and its principles – including programming workshops on Java, HTML5 and web-based programming;
- understanding computer hardware – a project in collaboration with Intel already aims to deliver this;
- incorporating new technologies – including workshops on new software (Flash, Photoshop etc) and building apps for mobile phones. As well as training teachers to be competent and confident in using these new technologies, these events should also cover the pedagogy to allow teachers to incorporate them effectively in their programmes of study;
- E-safety for teachers and teaching students;

For teachers in Scotland, additional provision linked to the role of ICT/computing in delivering the aims of *Curriculum for Excellence* was a priority.

Only a couple of respondents suggested that no additional CPD provision is required. However, both mentioned

that current provision would benefit from more collaborative efforts on a local, regional and national level, which would ensure teachers' time and institutions' CPD budgets are better spent.

Other areas of additional provision identified included:

- using ICT to support teaching and learning in other subjects;
- ICT technologies to support student assessment and inform teacher feedback/reports;
- supply of well-qualified, effective trainers;
- ICT/computing provision linked with STEM initiatives;
- incentives for teachers to take part in CPD, e.g. formal recognition through a certificate of teaching.

Q16: Do you have any further suggestions for improving Continuing Professional Development opportunities in the areas of ICT and Computing?

Less than a third of respondents to the survey (36) contributed any further suggestions for improving CPD opportunities in the areas of ICT and computing. Several respondents suggested that educating head teachers and senior management regarding the importance of quality CPD for ICT/computing teachers should be a priority if teachers are to experience any improvement in CPD opportunities. A national initiative, as suggested by one respondent, might be one approach to achieving this.

In light of this issue and the challenges teachers face in justifying to senior management the time out of teaching and costs related to taking part in an external CPD event, a recurring suggestion among these responses was for more courses delivered via distance learning using new technologies. It was suggested that the Computing At School and VITAL initiatives continue to receive support and be extended, with the goal to develop a national online community to support the CPD of ICT/computing teachers and facilitate the dissemination of ideas and best practice. Websites that support specifications, for example OCR website, were identified as an invaluable resources, especially when they incorporate a valid Q&A system.

Other respondents wanted to see more CPD courses run through local and regional courses. Greater collaboration between independent at state schools, and schools and universities, would help to support this. It was also suggested that an easily accessible online national database of upcoming CPD events, contacts and teaching resources should be developed.

Other suggestions included:

- make CPD mandatory for ICT/computing teachers;
- greater involvement of industry in developing and providing CPD courses with real-world contexts;
- qualified and experienced trainers for exam board courses;
- subject-specific training for Key Stage 3 non-specialist teachers;
- HE fellowship schemes for teachers – a model for these would be the scheme run at Strathclyde University;
- hands-on workshops and training days similar to those run by the University of Surrey;
- CPD courses on video games design and how this can be included in programmes of study to meet subject requirements defined by awarding bodies;
- funding for the New Opportunities Fund (NOF) training in ICT for teachers working with special education needs (SEN) students.

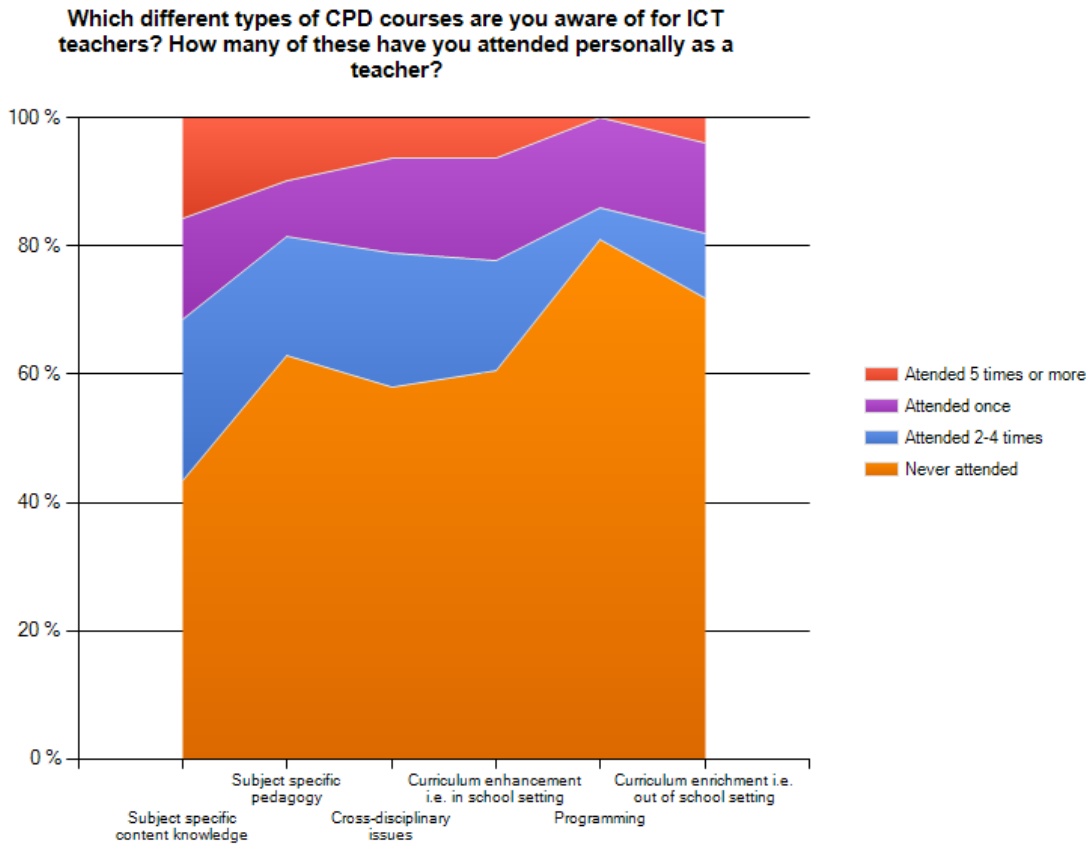
Research into the ICT CPD landscape, published in 2010 by the IoE, MirandaNet and Allison Allen (Outstream Consulting), is also available to support this survey.

Annex: data analysis

8. Which different types of CPD courses are you aware of for ICT teachers? How many of these have you attended personally as a teacher?

	Never attended	Attended once	Attended 2-4 times	Attended 5 times or more	Response count
Subject specific content knowledge	36	13	21	14	82
Subject specific pedagogy	51	7	15	9	81
Cross-disciplinary issues	47	12	17	6	81
Curriculum enhancement i.e. in school setting	49	13	14	6	82
Curriculum enrichment i.e. out of school setting	56	11	8	4	79
Programming	65	11	4	0	80

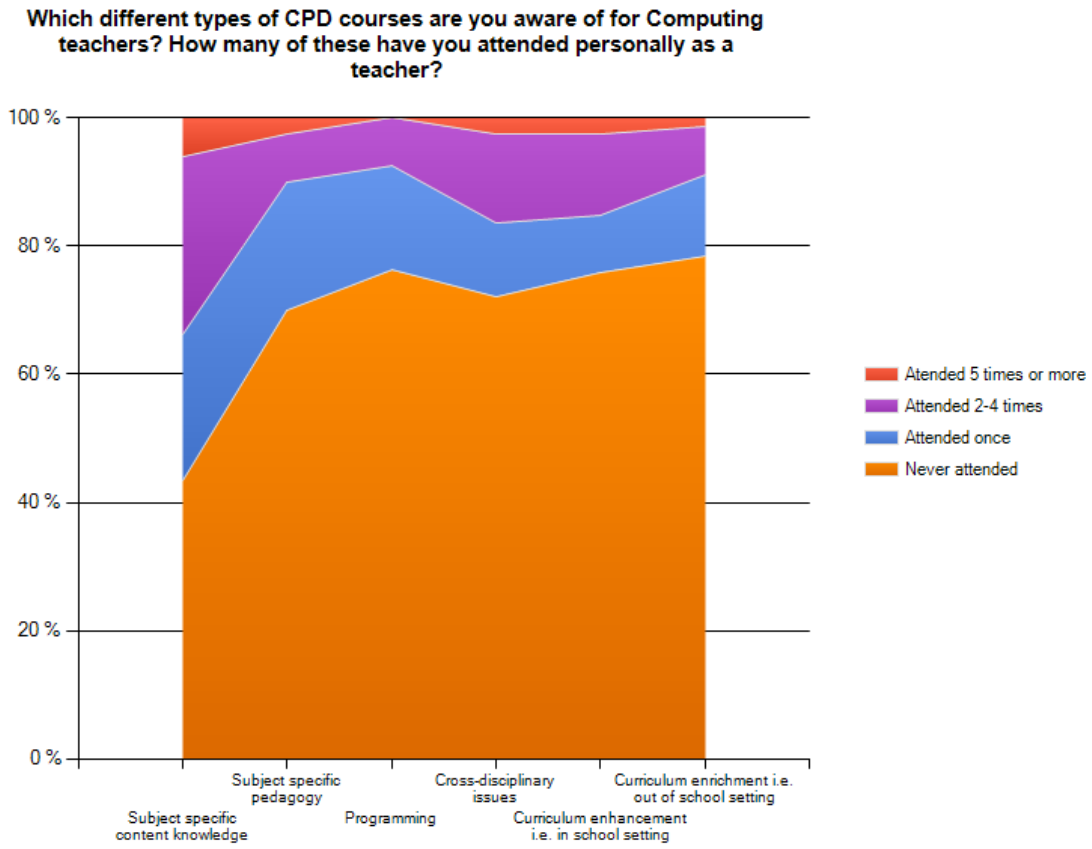
Note: Below diagram is based on secondary school responses only (by far the majority)



9. Which different types of CPD courses are you aware of for Computing teachers? How many of these have you attended personally as a teacher?

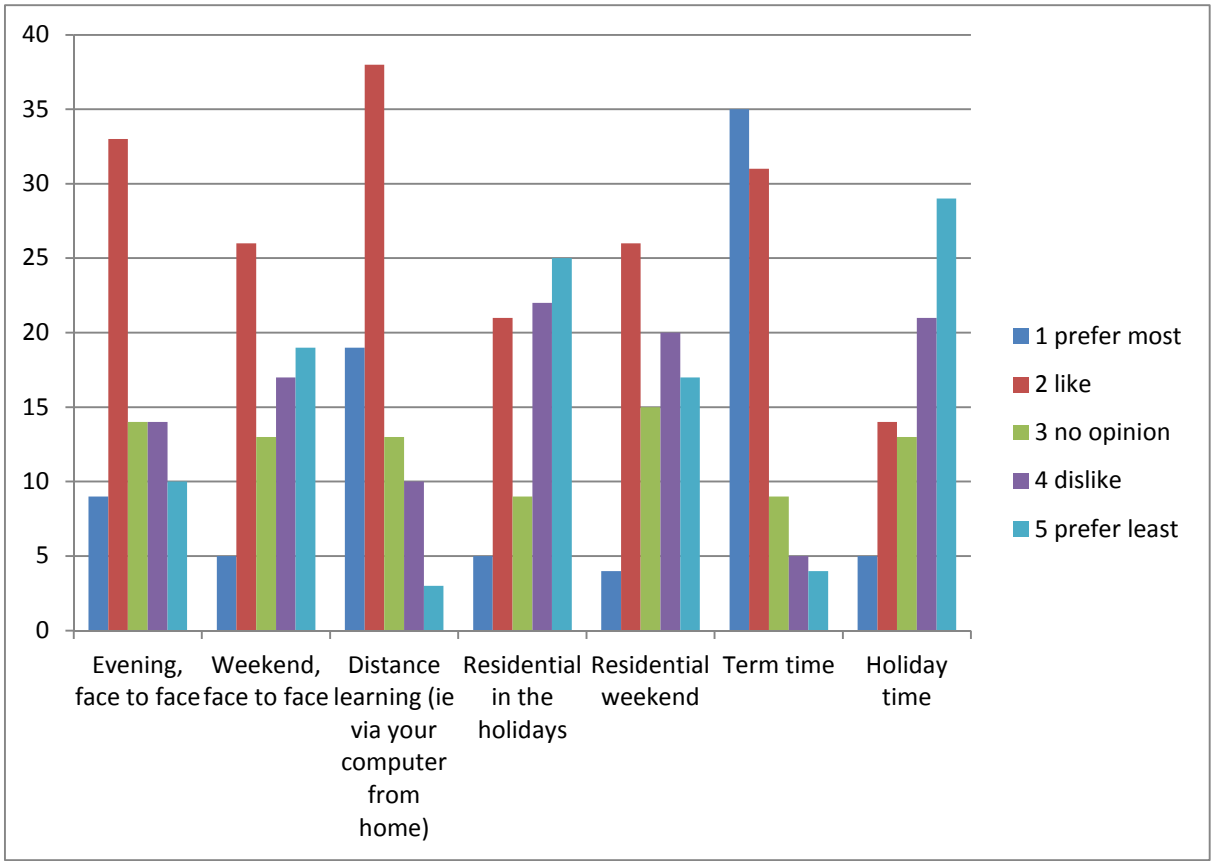
	Never attended	Attended once	Attended 2-4 times	Attended 5 times or more	Response count
Subject specific content knowledge	37	19	23	5	84
Subject specific pedagogy	57	16	6	2	81
Cross-disciplinary issues	58	9	11	2	80
Curriculum enhancement i.e. in school setting	61	7	10	2	80
Curriculum enrichment i.e. out of school setting	63	10	6	1	80
Programming	62	13	6	0	81

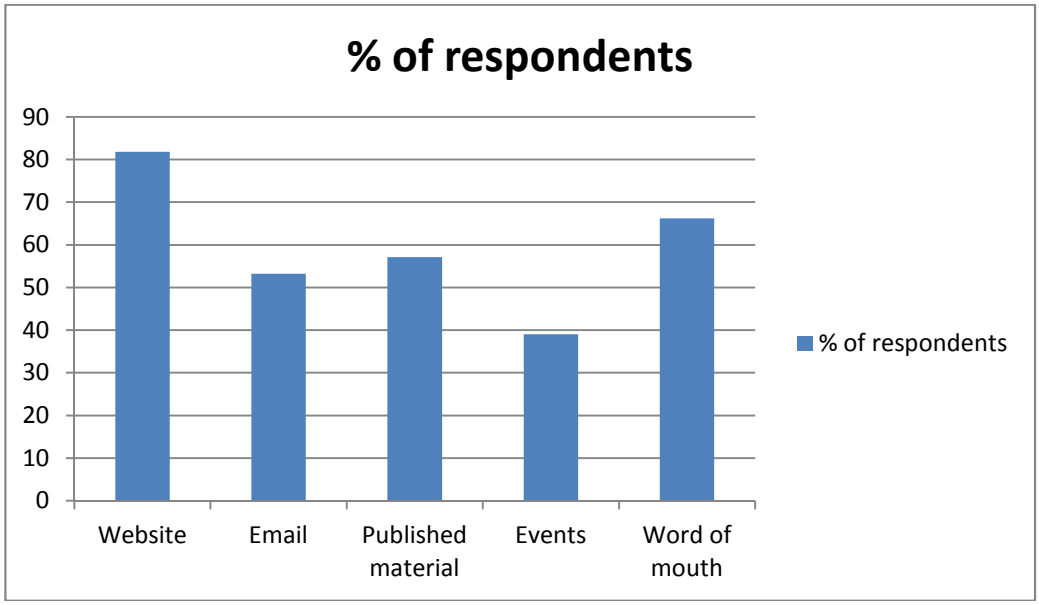
Note: Below diagram is based on secondary school responses only (by far the majority)



10. It is hard for teachers to attend CPD courses. What form of CPD provision would you most like (tick all that you would consider attending and rate them on a scale of 1-5)? Ignore issues of cost, think only about your time.

	1 prefer most	2 like	3 no opinion	4 dislike	5 prefer least	Rating average	Response count
Evening, face to face	9	33	14	14	10	2.79	80
Weekend, face to face	5	26	13	17	19	3.24	80
Distance learning (ie via your computer from home)	19	38	13	10	3	2.28	83
Residential in the holidays	5	21	9	22	25	3.5	82
Residential weekend	4	26	15	20	17	3.24	82
Term time	35	31	9	5	4	1.95	84
Holiday time	5	14	13	21	29	3.67	82



15. When you are looking for a CPD course, where do you look?

	% of respondents	Response count
Website	81.8	63
Email	53.2	41
Published material	57.1	44
Events	39	30
Word of mouth	66.2	51