



Alison Bullock

Vickie Firmstone and Sarah Burke

Sustained Continuing Education: How a Masters Programme Makes a Difference to Primary Care Dentists

Abstract: Courses that are part of a longer-term planned programme of continuing education are more likely to impact on the practice of dentists than short course interventions. This study assessed the impact of a part-time, five-year Master of Science (MSc) programme at the School of Dentistry, University of Birmingham, designed specifically for general dental practitioners. Perceptions were sought from all 22 dentists registered on the MSc at the time of the study. The study provides evidence that a well-targeted masters programme for primary care dentists can make a difference to participants' knowledge and confidence and, importantly, generate change in practice.

Clinical Relevance: Sustained continuing education programmes, such as the University of Birmingham Masters Degree targeting primary care dentists, can provide valued contact with other dentists, and enhance practitioners' clinical knowledge.

Dent Update 2009; 36: 358–364

There is a growing demand amongst primary care medical and dental practitioners for postgraduate programmes of study, including postgraduate certificates, diplomas and masters courses. In response to this demand, the School of Dentistry at the University of Birmingham launched a modular-based Masters degree (MSc) in General Dental Practice in October 2001.

Modular programmes of

continuing professional development (CPD) typically take place over several years and require considerable commitment by the participant. The Birmingham MSc programme is no exception. Designed specifically for general dental practitioners (GDPs), it is a taught programme with sessions held for 5–6 hours on Wednesday afternoons over a period of up to five years. It comprises a total of 180 credits gained through the completion of assignments, a clinical portfolio, two case studies and a research project. Course participants typically complete 30 credits per year for the first four years and 60 credits in the last year. Given the personal and professional commitment of such a course for the busy general dental practitioner, important questions to ask are: 'What is the value of such a sustained programme?' and 'Does it make a difference to practice?'

Determining the value of educational programmes is complex, since there is no 'panacea' for the most effective

way to learn. What makes CPD effective is a complex relationship between:

- The quality of the process;
- Its relevance to individual needs;¹
- Its relevance to clinical practice;^{2,3}
- Its relevance to service needs; as well as
- The mode of delivery.^{4,6}

The value of identifying learning needs is an enduring feature in planning and undertaking effective CPD. A study by Firmstone *et al*⁷ found that the likelihood of impact was enhanced if a GDP selected his/her CPD activity on the basis of individual learning needs. However, also of interest is that impact was partly related to the duration of the chosen programme.⁸ From 20 case studies of GDPs participating in courses, greater impact on practice was found amongst those following courses over an extended period (for example, six weekly half-day sessions). Whilst this finding may well reflect an interplay of factors, since longer term programmes are less likely to be undertaken on an *ad hoc*

Alison Bullock, BA, PGCE, PhD, Professor of Medical and Dental Education, Cardiff University School of Social Sciences (formerly Reader in Medical and Dental Education, University of Birmingham),
Vickie Firmstone, BA, MSc, PhD and
Sarah Burke, BA, MA, PhD, Research Fellows, Centre for Research in Medical and Dental Education (CRMDE), School of Education, University of Birmingham, Edgbaston, Birmingham B15 2TT, UK.

basis, there is some evidence to suggest the potential benefit of sustained programmes of continuing education.⁹

This paper describes a study which was specifically designed to explore the value of a sustained programme of postgraduate study for GDPs. It sought to assess the effect of the University of Birmingham Masters Degree in General Dental Practice on the participants, their practice and patient care.

Aims

The aim of the evaluation study was to assess the *intermediate* or interim impact of the programme. At the time of the evaluation, the course was into its third year. The specific objectives recognized that the full effect of the programme would be clear only once the candidates had completed the usual (five) years of study. Objectives for the study included:

- To report the participation rate and motivations to study;
- To identify gains in knowledge, skills and attitudes; and
- To explore impact on practice and patient care.

Method

Two main research techniques were deployed in collecting the data: questionnaires and interviews. Questionnaires explored change in knowledge and confidence of those studying two of the course modules. A semi-structured interview schedule was used in the face-to-face interviews with a sample of course participants ($n = 6$). Finally, interview data were analysed to inform the development of a questionnaire to survey the views of all participants completing the course ($n = 22$).

The in-depth investigation of two specific modules aimed to identify participants' perceived change in knowledge and skills by completing core aspects of the course. Two modules were sampled:

- New Dental Technologies which was a Year 1 module; and
- Periodontology, a Year 2 module.

These were selected as they took place within the evaluation's data collection timescale and included two

different year groups (Year 1: $n = 6$; Year 2: $n = 7$). This was undertaken using a self-assessment questionnaire distributed by the research team at two points in time – at the first session (referred to in this paper as 'test'), and then again in the last session of the module ('re-test'). Participants rated their confidence and knowledge towards statements which reflected the key learning objectives of the two modules using a series of 100 mm visual analogue scales.

Motivations to study the MSc, reflections on learning and the course's impact on practice and patient care were explored in the interviews. A sample of six candidates were interviewed: two from each of the Years 1, 2 and 3. The sample was selected to ensure representation from male (4) and female (2), part-time (1) and full-time (5) in practice, and experienced (more than 15 years qualified) (4) and more recently qualified (2) practitioners.

Interviews were audio-recorded, with permission, and lasted between 30 and 60 minutes. The results were then used to inform the design of a questionnaire which sought the views of the wider group, ie all course participants across the three years. The questionnaire comprised seven sections: motivations, overall views, views on the modules, best and worst, recommendations, about you, and any other comments. It was distributed and completed at the last session of the summer term; any non-attendees ($n = 3$) were mailed the questionnaire and replied by mail.

Results

The results are presented in two main sections: learning gains from the two modules, and views towards the MSc programme.

Learning gains from the two modules

The two modules are considered in turn. First, the *New Dental Technologies* (NDT) module was, overall, shown to improve participants' perceived knowledge and confidence levels across all of its eight learning objectives:

- Knowledge of new dental materials;
- Confidence in ability to use new dental materials;
- Knowledge of contemporary methods of caries diagnosis;

- Knowledge of the effectiveness of different dental lasers;
- Knowledge of the ozone treatment of caries;
- Knowledge of shade-taking devices;
- Knowledge of operating microscopes; and
- Knowledge of the application of CAD-CAM applications in dentistry.

At the end of the module, respondents reported *highest* levels of knowledge in 'contemporary methods of caries diagnosis', 'shade-taking devices' and 'CAD-CAM applications'. Learning *gains*, ie increases in knowledge, were most notable for the 'ozone treatment of caries' and the 'effectiveness of different dental lasers'.

For the *Periodontology* module, the re-test scores at the end of the module showed that self-rated confidence and knowledge had risen across *all* of the *Periodontology* module's learning objectives too. There were 16 learning objectives and, for clarity, in presentation these have been organized here into two groups:

- The *diagnosis* and *identification* of periodontal diseases; and
- The *treatment* and *management* of periodontal disease.

The rise in participants' self-rated knowledge and confidence was *higher* for objectives associated with the *management and treatment* of periodontal disease, than for *diagnosis* (Figures 1 and 2).

From the test/re-test data it is clear that the modules addressed areas of learning need and knowledge and confidence gains were demonstrated (Figures 1 and 2). There was a good match between the objectives designated for these modules and the content delivered.

Views on the MSc programme

Results are reported here from the six interviews with course participants, and from the completed questionnaires received from all 22 participants (response rate 100%).

Those interviewed identified a range of motivating factors for choosing to undertake this MSc programme. All six interviewees were motivated by the desire to be up-to-date. Three practitioners were attracted to the course because it covered a broad range of topics. They felt that this would ensure that they increased their general knowledge, rather than just

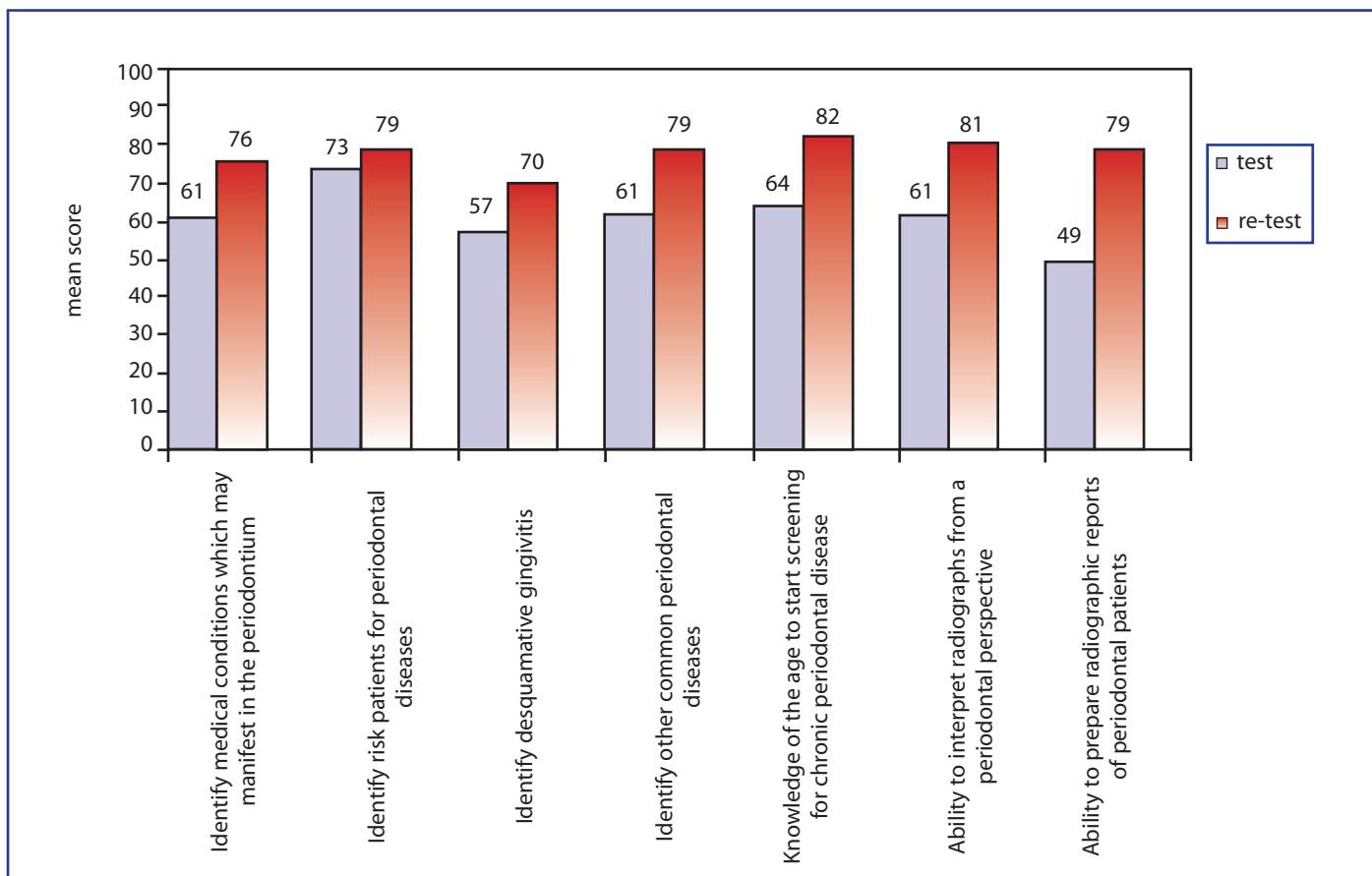


Figure 1. Change in knowledge and confidence: periodontology module – diagnosis and identification aspects (n = 7).

Reason	Number of respondents (n = 22)	Percentage
To improve patient care	19	86
For the mental stimulation	11	50
To get up-to-date	9	41
It provides formalized, structured CPD	9	41
To enhance my confidence	7	32
To enhance career prospects	5	23
For the broad coverage of topics	4	18
To improve access to other courses	1	5
Because topics are included that I might not otherwise choose	1	5
It complements other CPD activity	0	0
Because of the reputation of the course	0	0
Other	0	0

Table 1. Motivation factors for undertaking the course.

its regular structure. They felt that weekly sessions would be easy to plan for and attend. Two practitioners highlighted the networking opportunities provided by regular contact with academics, specialists and other local dental practitioners. Mental stimulation was also a motivating factor; the course was perceived as relevant for those that wanted a greater challenge than the MFGDP. Four felt the course would be directly relevant to their practice and lead to improved patient care.

These issues were further explored in the survey to all participants. From a given list of 11 items derived from the interviews (plus 'other'), participants were asked to select three reasons for undertaking the MSc. The results are presented in Table 1.

For this group of dentists, the main reason for undertaking this MSc programme was 'to improve patient care'. This reason was chosen by an overwhelming 19 out of 22 (86%) and was

focusing on those areas which they found most interesting and within their 'comfort

zone'. Four interviewees stated that they were attracted to the course because of

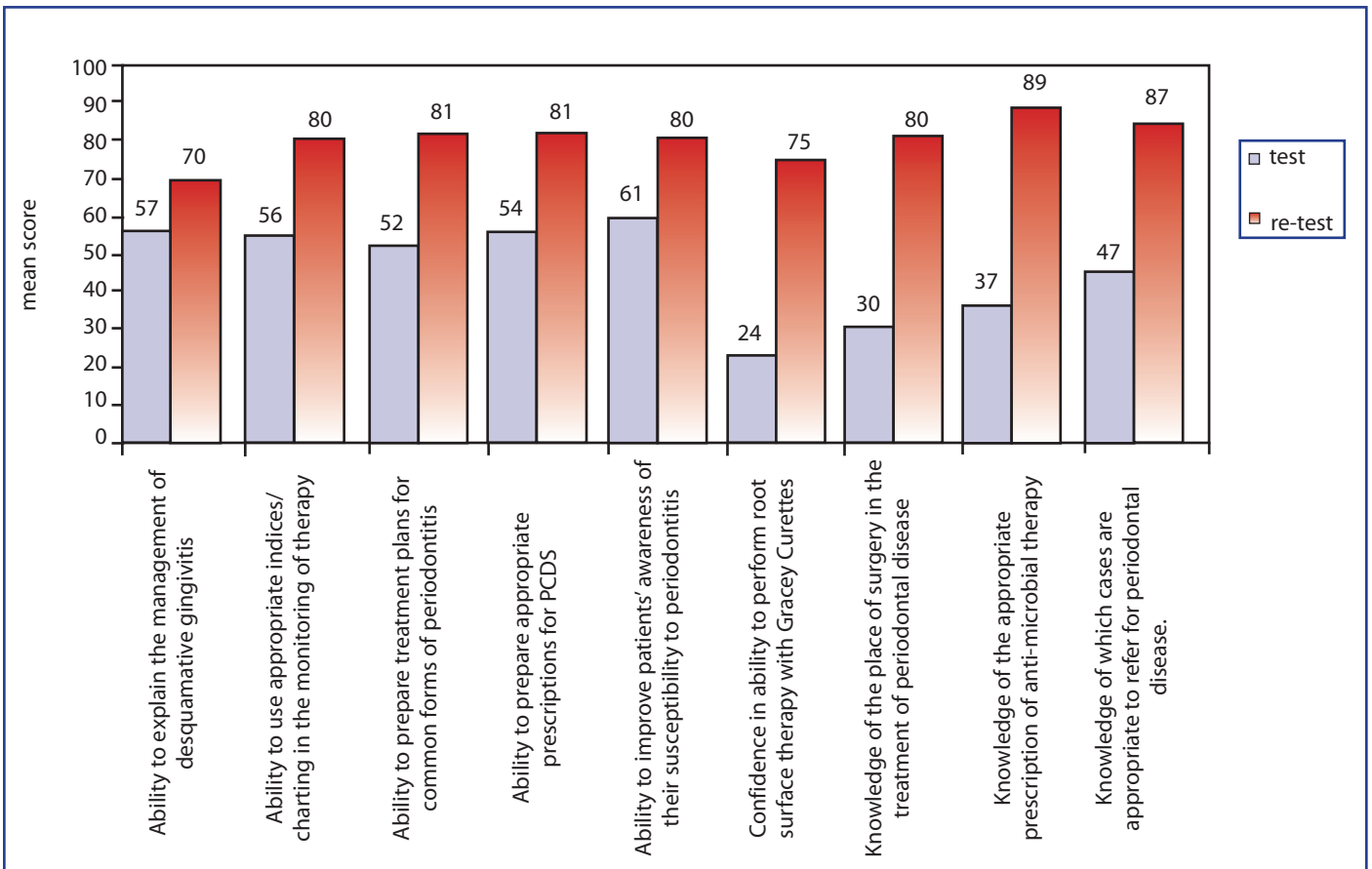


Figure 2. Change in knowledge and confidence: periodontology module – management/treatment aspects (n = 7).

very clearly the most common motivation. The next set of reasons was selected by more than a third of respondents (between 9 and 11). These were: 'for the mental stimulation', 'to get up-to-date', and because 'it provides formalized, structured CPD'. Another set of reasons was chosen by less than a third of the participants (between 4 and 7 individuals). Two of these referred to 'confidence' and 'career prospects' and the third to 'the broad coverage of topics'. Two of the listed reasons were chosen by just one respondent and three were not selected at all.

Given that the main motivation was to improve patient care, it is encouraging that the majority (21/22) were able to indicate changes to practice as a result of the course. From the interviews, the majority of changes were related to clinical practice and included improved ability to interpret radiographs, use of an oral health index, changing antibiotic regimes and use of new materials. On the questionnaire,

we also asked them to rate each of the 13 modules for impact on practice. Ratings of impact were highest for 'the management of the anxious patient' and 'the management of periodontal disease in dental practice (periodontology)'. Lowest rating was for 'IT and clinical dentistry'.

In addition, the survey data revealed other benefits from the course. The section on 'overall views' on the questionnaire asked participants to respond to statements on a 6-point scale where 1 = strongly disagree and 6 = strongly agree. Again, these statements were informed by the interviews and related to the project objectives. Other main benefits highlighted are summarized as follows:

- The informal contact with other dentists
20/22 agreed with a statement which read 'One of the best things about the course is the informal contact with other dentists'. [Mode = 6; Mean = 5.1]
- Enhanced feelings of motivation for practice

19/22 agreed that 'The course has made me feel more motivated as a practitioner'. [Mode = 6; Mean = 4.9]

■ Job satisfaction

20/22 agreed that 'This course has had a positive impact on my overall feelings of job satisfaction'. [Mode = 5; Mean = 4.6]

Conclusion

The findings demonstrate the success of the MSc programme in Birmingham. Modules have been shown to increase levels of confidence and knowledge and lead participants to reflect on their practice and implement change for the intended benefit of their patients. Most encouragingly, all respondents were confident that they would complete the MSc programme and all agreed that the course is very appropriate to GDPs. In conclusion, the content and format of this tailored postgraduate education for GDPs

has been well received by course participants. It is anticipated that similar modular programmes undertaken over several years, such as the University of Edinburgh's MSc in Dental Primary Care, might have a similar impact.

Acknowledgements

The evaluation of the MSc programme was supported by a grant from the former National Centre for the Continuing Professional Education of Dentists (NCCPED). We are grateful for this funding. We would also like to extend our thanks to all those course participants who gave their time to completing questionnaires and/or being interviewed and to the course tutors who willingly enabled the research team access to their sessions.

References

1. Bullock AD, Firmstone V, Frame J, Bedward J. Enhancing the benefit of continuing professional development: a randomized controlled study of personal development plans for dentists. *Learn Health Soc Care* 2007; **6**: 14–26.
2. Eraut M. Do continuing professional development models promote one-dimensional learning? *Med Educ* 2001; **35**: 8–11.
3. Eraut M. Learning from other people in the workplace. *Oxford Rev Educ* 2007; **33**: 403–422.
4. Davis D. Does CME work? An analysis of the effect of educational activities on physician performance or healthcare outcomes. *Int J Psychiat Med* 1998; **28**: 21–39.
5. Grant J, Stanton F. *The Effectiveness of Continuing Professional Development*. Edinburgh: Association for the Study of Medical Education, 2000. (ASME Medical Education Booklet.)
6. Cantillon P, Jones R. Does continuing medical education in general practice make a difference? *Br Med J* 1999; **318**: 1276–1279.
7. Firmstone VR, Bullock AD, Fielding A, Frame JW, Gibson C, Hall J. The impact of course attendance on the practice of dentists. *Br Dent J* 2004; **196**(12): 773–777.
8. Firmstone VR, Bullock AD, Frame JW. *The Type, Volume and Impact of Continuing Professional Development for General Dental Practitioners*. Final Report. Birmingham: The University of Birmingham, 2002. ISBN 0-7044-2388X.
9. Cordingley P, Bell M, Thomason S, Firth A. The impact of collaborative continuing professional development (CPD) on classroom teaching and learning. Review: how do collaborative and sustained CPD and sustained but not collaborative CPD affect teaching and learning? In: *Research Evidence in Education Library*. London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London, 2005.