

**An assessment of peer review and the
continuing professional development of
Scottish general dental practitioners with
the perceived effects on changing the
knowledge and practice of participants**

**Yann Georges Eric Maidment
BDS, MFGDP**

Doctor of Dental Surgery

The University of Edinburgh

2001



Contents

	Page
Acknowledgements	4
Certification	5
Abstract	6
List of Tables	8
List of Figures and Charts	12
Introduction	13
Chapter 1 - Literature review	15
1.1. The requirement for continuing professional development (CPD)	15
1.2. Definition of terms used in postgraduate dentistry	19
1.3. The different types of continuing dental education	27
1.4. Recertification	35
1.5. Reported levels of participation in postgraduate dental education	38
1.6. How peer review is carried out	61
1.7. Where peer review is carried out	65
1.8. Why peer review is carried out	66
1.9. Effectiveness of postgraduate dental education	72
1.10. Effectiveness of peer review	76
1.11. Summary of the principal aspects of the literature review	78
1.12. Statement of aim	79
1.13. Objectives	80
Chapter 2 - Method	81

Chapter 3 - Results and analysis	88
3.1 Demography	88
3.2 Postgraduate education Participation	95
3.3 Dentist's perceptions of effectiveness of various modes of postgraduate dental education	115
3.4 Consistency of response	140
3.5 Summary of main findings	144
Chapter 4 - Discussion	146
4.1 Response rate and non-response bias	146
4.2 Demographic profile	147
4.3 Participation in postgraduate dental education	149
4.4 Perception of effectiveness of postgraduate dental education	152
4.5 Peer Review	155
4.6 Future studies	158
Chapter 5 - Conclusions	161
Bibliography	164
Lists of other media and personal communications	173
Glossary of abbreviations	174
Glossary of equipment	176
Appendix I	177
Appendix II	187
Appendix III	189
Appendix IV	258
Appendix V	271

Acknowledgements

I wish to acknowledge and thank Professor Phillip Sutcliffe for his helpful advice and use of facilities at Edinburgh Postgraduate Dental Institute. I also wish to thank Ms. Barrie Wohlgemuth for valuable guidance on creating the database and preparation for analysis on the computer. In addition I thank Mrs. Rosemarie Bland and Mrs. Marjorie Smith for secretarial assistance. Acknowledgement is also given to the Bristol Dental Postgraduate Department for sending me information about the "Bristol University Open learning for Dentists (BUOLD)" scheme, which was useful in forming the background to this study. Similarly, I thank Leeds Dental Institute for supplying copies of their 1990 and 1995 studies of the continuing professional development of general dental practitioners. Figure 1.2 is reproduced, with permission from the BDA/FGDP "Workbook on Clinical Audit", published in 1993.

Certification

I, Yann Maidment, certify that the work contained in this thesis is entirely my own, except where otherwise acknowledged.

Yann G.E. Maidment

Abstract

The purposes of the study were to determine the demographic characteristics of the study group, the extent of their participation in continuing professional development activities and an assessment of the perceived efficacy of those activities along with peer review. The study design was a non-experimental descriptive one to compare modes of continuing dental education. Data were collected by sending an anonymous attitude questionnaire to 268 general dental practitioners in Scotland who had participated in peer review during a 26 month period, which produced a usable response from 59% of them. A further 2% were not useable. The demographic information collected showed that the sample could be regarded as typical. A device included in the questionnaire helped to demonstrate that the responses were consistent. The reported proportion of 89% attending at least one section 63 course in the previous two years and a mean number attended of six, compares favourably with other recent surveys. Computer assisted learning was the least popular activity, with only 22% participating, while reading dental journals was the most popular – with 98% engaging in it. Only 2% attended no continuing professional development activity at all and only one dentist (0.67%) reported no continuing education activity at all. Section 63 courses, private courses, symposia, reading journals, watching videos, study groups and peer review were perceived to be effective in increasing knowledge. Section 63 courses, private courses, study groups and peer review were perceived to be effective in changing practice. Peer review was perceived to be less effective than Section 63

courses, private courses and reading journals in changing knowledge. It was also perceived to be less effective in changing practice than all other activities, except computer assisted learning. However, 91 % stated that peer review had increased their knowledge and 72 % that it had changed their practice. Inadequate funding was identified as a principal disadvantage of peer review.

List of Tables

	Page
Table 1.1 - Principle UK studies of postgraduate education for general dental practitioners	45
Table 1.2 - Main measurements in principle UK studies	47
Table 1.3 - Classification of evidence levels	48
Table 1.4 - Assessment of principle UK studies	49
Table 1.5 - Evaluation of UK studies	50
Table 1.6 - Categorisation & principal findings of UK studies	51
Table 1.7 - Comparing age or time practising with attendance at courses across several studies	52
Table 1.8 - International studies and reviews	55
Table 1.9 - Comparing reasons for attending or not attending courses across several studies	57&58
Table 3.1 - Engagement in differing modes of continuing education by 158 Scottish general dental practitioners from January 1995 to December 1996	110
Table 3.2 - Membership of professional associations and frequency of visits to meetings amongst 158 general dental practitioners	111
Table 3.3 - Effect of continuing dental education mode on change in knowledge	117
Table 3.4 - Showing the relationship of analogue scores to descriptions of effectiveness	119
Table 3.5 - Effectiveness of continuing education mode on knowledge change	120
Table 3.6 - Effectiveness of continuing education mode in practice change	122
Table 3.7 - Effect of continuing dental education mode on change in practice	123
Table 3.8 - χ^2 significance of gender and activity perceived as being effective in changing practice	126
Table 3.9 - χ^2 significance of age and activity perceived as being effective in changing practice	127
Table 3.10 - χ^2 significance of holding a further qualification and activity perceived as being effective in changing practice	127
Table 3.11 - χ^2 significance of practising alone and activity perceived as being effective in changing practice	128
Table 3.12 - χ^2 significance of distance from postgraduate centre and activity perceived as being effective in changing practice	129
Table 3.13 - χ^2 significance of gender and activity perceived as being effective in changing practice	130
Table 3.14 - χ^2 significance of age against activity perceived as being	131

effective in changing practice	
Table 3.15 - χ^2 significance of possessing a further qualification against activity perceived as being effective in changing practice	132
Table 3.16 - χ^2 significance of practising alone against education activity perceived as being effective in changing practice	132
Table 3.17 - χ^2 significance of distance from postgraduate centre against activity perceived as being effective in changing practice	133
Table 3.18 - Showing number of dentists assessing peer review as causing change or no change to their knowledge and practice	134
Table 3.19 - Showing results of McNemar's test	137
Table 3.20 - Showing rankings of activities, differences and squared differences for knowledge and practice change	138
Table 3.21 - Showing rankings of activities, differences and squared differences for knowledge change and popularity	139
Table 3.22 - Showing rankings of activities, differences and squared differences for practice change and popularity	139
Table 3.23 - Showing Spearman rank correlation coefficient for associations between knowledge change, practice change and popularity	140
Table 3.24 - Showing <i>t</i> -test results for consistency of response to questions	142
Table 3.1A - The distribution of dentists by sex.	189
Table 3.2A - The distribution of dentists by age.	189
Table 3.3A - The distribution of dentists by status in practice.	190
Table 3.4A - The distribution of status in practice by gender	190
Table 3.5A - The χ^2 cell values of status in practice by gender	191
Table 3.6A - The distribution of dentists in full or part time working	191
Table 3.7A - The distribution of full time / part time working by gender	192
Table 3.8A - The distribution of dentists by number of practising locations	192
Table 3.9A - The distribution of those working as a single-handed dentist	193
Table 3.10A - The distribution of dentists by career break	193
Table 3.11A - The distribution of career break by sex	194
Table 3.12A - The distribution of dentists by distance to nearest postgraduate centre (grouped)	194
Table 3.13A - The distribution of dentists by distance in miles to nearest postgraduate centre.	195
Table 3.14A - The distribution of dentists by years since qualification	196
Table 3.15A - The distribution of dentists by decade of graduation	196
Table 3.16A - Incidence of postgraduate qualifications among the dentists	197
Table 3.17A - Distribution of postgraduate qualifications among the dentists	197
Table 3.18A - Postgraduate degrees held by the dentists	198
Table 3.19A - Section 63 courses attended in the previous two years	199
Table 3.20A - Private courses attended in the previous two years	200
Table 3.21A - Conferences attended in the previous two years	201
Table 3.22A - Other courses attended in the previous two years	202
Table 3.23A - Symposia attended in the previous two years	203

Table 3.24A - Study group meetings attended in the previous two years	204
Table 3.25A - BDA scientific meetings attended in the previous two years	205
Table 3.26A - FGDP meetings attended in the previous two years	206
Table 3.27A - Peer review meetings attended in the previous two years	207
Table 3.28A - Clinical audit meetings attended in the previous two years	208
Table 3.29A - Number of journals taken by dentists	209
Table 3.30A - Number of journals read by dentists	210
Table 3.31A - Frequency of receipt and reading of journals compared	211
Table 3.32A - Other journals read	212
Table 3.33A - Other journals taken	212
Table 3.34A - Showing χ^2 and P values for reading journals and participating in activities	213
Table 3.35A - Dental books read in the last two years	214
Table 3.36A - Numbers of dental videos watched in the previous two years	215
Table 3.37A - Numbers of CAL programs used in the previous two years	216
Table 3.38A - Dentists using distance learning in the previous two years	217
Table 3.39A - Showing χ^2 and P values for significance of factors associated with being or not being a member of a society	217
Table 3.40A - Showing χ^2 and P values for significance of factors associated with attending or not attending meetings of a professional society	217
Table 3.41A - Other professional associations	218
Table 3.42A - Membership of study groups	219
Table 3.43A - Study Groups cited and their frequency	220
Table 3.44A - Participation in Vocational Training as a trainer	221
Table 3.45A - Percentage who had completed Vocational Training	221
Table 3.46A - Years of experience being a Vocational Trainer	222
Table 3.47A - Knowledge change with attendance at Section 63 course	223
Table 3.48A - Knowledge change with attendance at private courses	224
Table 3.49A - Knowledge change with attendance at conferences	225
Table 3.50A - Knowledge change with attendance symposia	226
Table 3.51A - Knowledge change with reading journals	227
Table 3.52A - Knowledge change with viewing a video	228
Table 3.53A - Knowledge change with using a CAL program	229
Table 3.54A - Knowledge change with attending a study group	230
Table 3.55A - Effect of continuing dental education mode on change in knowledge (%)	231
Table 3.56A - Showing χ^2 and P- values for knowledge-change ratings given by dentists	232
Table 3.57A - Practise change with attending a Section 63 course	233
Table 3.58A - Practise change with attending a private course	234
Table 3.59A - Practise change with attending a conference	235
Table 3.60A - Practise change with attending symposia	236
Table 3.61A - Practise change with reading journals	237

Table 3.62A - Practise change with watching videos	238
Table 3.63A - Practise change with using CAL Programs	239
Table 3.64A - Practise change with attending study groups	240
Table 3.65A - Effect of continuing dental education mode on change in practice (%)	241
Table 3.66A - Showing χ^2 and P- values for practise-change ratings given by dentists	242
Table 3.67A - χ^2 cell values for knowledge change against sex	243
Table 3.68A - χ^2 cell values for knowledge change against age	244
Table 3.69A - χ^2 cell values for knowledge change against possessing a higher qualification	245
Table 3.70A - χ^2 cell values for knowledge change against distance from a postgraduate centre	246
Table 3.71A - χ^2 cell values for knowledge change against practising alone	247
Table 3.72A - χ^2 cell values for practice change against sex	248
Table 3.73A - χ^2 cell values for practice change against age	249
Table 3.74A - χ^2 cell values for practice change against possessing a higher qualification	250
Table 3.75A - χ^2 cell values for practice change against distance from a postgraduate centre	251
Table 3.76A - χ^2 cell values for practice change against practising alone	252
Table 3.77A - How useful peer review was	253
Table.3.78A - Disadvantages and problems with peer review	254
Table 3.79A - Paired alternatives for McNemar's test on peer review and other education activities	255

List of Figures and charts

	Page
Figure 1.1 - Venn diagram illustrating how Peer Review relates to the different components of continuing professional development	18
Figure 1.2 - Diagram from page 3 , “Clinical Audit-A Workbook”, (1993) BDA, London	26
Figure 1.3 - Showing the method of calculating the Index of Dental Educational Activity (IDEA)	42
Figure 1.4 - Showing the method of calculating the modified Index of Continuing Professional Development (ICPD)	43
Chart 3.1 - Showing the distribution of dentists by age.	90
Chart 3.2 - Showing the percentages of dentists practising single-handed	92
Chart 3.3 - Showing the distribution of dentists according to distance (grouped) in miles to nearest postgraduate centre	93
Chart 3.4 - Showing the number of dentists graduating in each quinquennium	94
Chart 3.5 - Showing section 63 courses attended in the last two years	96
Chart 3.6 - Showing private courses attended in the last two years	96
Chart 3.7 - Showing conferences attended in the last two years	97
Chart 3.8 - Showing symposia attended in the last two years	97
Chart 3.9 - Showing other courses attended in the last two year	98
Chart 3.10 - Showing study group meetings attended in the last two years	98
Chart 3.11 - Showing BDA meetings attended in the last two years	99
Chart 3.12 - Showing FGDP meetings attended in the last two year	99
Chart 3.13 - Showing peer review meetings attended in the last two years	100
Chart 3.14 - Showing clinical audit meetings attended in the last two years	100
Chart 3.15 - Showing number of journals taken regularly	104
Chart 3.16 - Showing journals read by dentists	104
Chart 3.17 - Showing journals received and read by dentists	105
Chart 3.18 - Showing dental books read in the last two years	106
Chart 3.19 - Showing dental videos watched in the last two years	107
Chart 3.20 - Showing Computer Assisted Learning (CAL) programs used in the last two years	107
Chart 3.21 - Showing the percentage of dentists using distance learning packages in the last two years	108
Chart 3.22 - Showing the perceived effect in changing knowledge of continuing dental education modes	117
Chart 3.23 - Showing the perceived effect in changing practice of continuing dental education modes	124

Introduction

“ To travel hopefully is a better thing than to arrive, and the true success is to labour” (Stevenson, 1881)

“ The continuum of dental education stretches from undergraduate studies to retirement from the profession” (Mason,1993)

“Lifelong learning will enhance public confidence in dentistry and promote professional self-esteem.” (GDC, 2000)

“One approach is to adopt a minimum requirement of verifiable activities such as formal courses and accept that participation in peer review and audit and self-study and related activities is an inherent part of any professional life.” (GDC, 1997a)

Peer review is an activity of recognised importance in the continuing professional development of dentists. It is the continuous, systematic and critical reflection on their own and others' performance by a number of colleagues in general practice, with the aim of achieving a continuous improvement in the quality of patient care (Grol & Lawrence, 1995). It is listed as a verifiable core activity in the General Dental Council's recertification scheme(GDC, 1997a) and is stated as being central to plans to implement clinical governance in practices (Audrey, 1999). The role of peer review is to facilitate professional communication in practice and produce consensus over reviewed matters. This study sets out to assess the general dental practitioner's perception of the effectiveness of peer review, as conducted according to the Scottish Office regulations (Scottish Office, 1994), in producing change in

knowledge and practice. When the project was commenced, only a pilot assessment of peer review had been carried out in England and Wales in 1993 (Pitts, 1993). A fuller evaluation was published during this study (Fleming et al, 1996), but did not assess peer review alongside other modes of continuing professional education, which is what this study attempts to carry out. It is important that evidence of peer review's effectiveness, or lack of it, be produced to inform future development of postgraduate dental education in Scotland. This study provides some evidence that peer review is seen to be effective in changing knowledge and , to a lesser extent, practice. However, it is perceived to be no more effective than other modes, indeed less effective than some other modes.

CHAPTER 1

Literature Review

1.1 The requirement for continuing professional development (CPD)

A medical school “*cannot expect to produce fully trained doctors, it can at most hope to equip students with a limited amount of knowledge, to train them in the method and spirit of scientific medicine, and to launch them, with a momentum that will make them active learners, observers, readers, thinkers and experimenters for years to come*” (Abraham Flexner, 1910, cited by Nuffield Provincial Hospital Trust, 1965).

1.1.1. Data sources

The MEDLINE database was searched from 1966 to 1996 initially and subsequently from 1996 up to the end of July 2001. The terms *continuing dental education*, *randomised controlled trial* and *peer review* were used for searching. The result was that no randomised controlled trials in continuing dental education were identified. A combined search for continuing dental education and peer review produced 21 references; 5 were not related to general dental practice, 6 were opinion or letters, 5 were concerned with peer review in an USA context (*vide infra* for explanation of why these were not accessed p21, b & c), 2 were cited from US state journals that were not readily accessed from UK and 1 was a duplicate entry. This produced two relevant papers (Milgrom et al, 1980 & Pendlebury et al, 1994). A second search

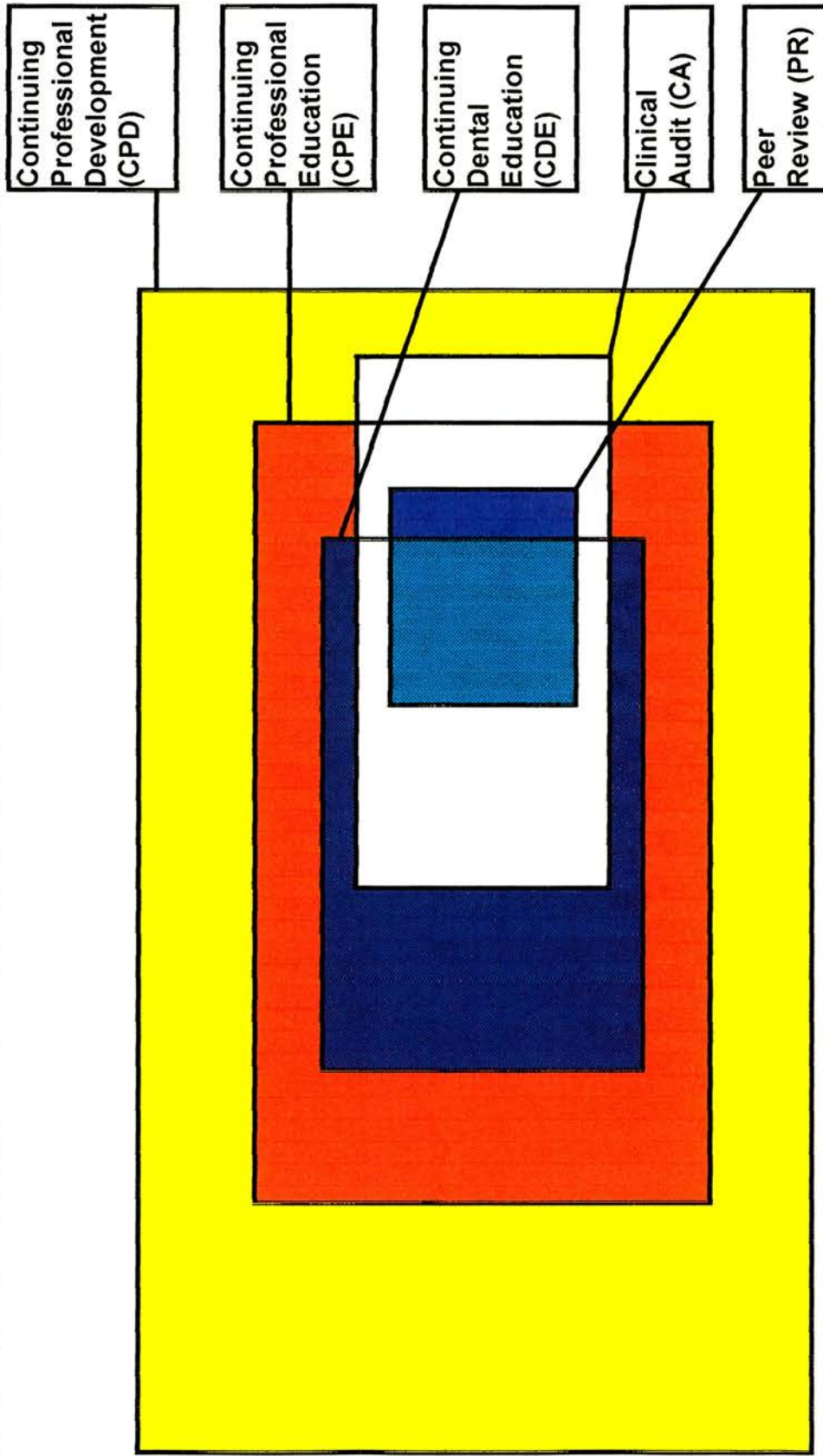
strategy was pursued, using the terms *peer review*, *clinical audit* and *dental*, which produced 5 references; one of which was a letter, one an editorial and 3 that were obviously not relevant from their titles. A third search produced 8 references; 4 of which were not relevant, one which was published in an USA state journal which was not readily accessed from UK, a reference already noted (Pendlebury et al, 1994) and 2 further useful references (Burke et al, 1994 & Milgrom et al, 1978). A fourth search using the terms *general dental practice* and *peer review* produced an identical set of 8 references. A fifth search using the terms *clinical audit* (mapped to Medical audit), *peer review* and *dental*, produced 5 references; 4 of which were not relevant and one was a letter. On a sixth search, using the terms; *clinical audit* (mapped again), *graduate dental education* and *continuing professional development* - 9 references were produced; 2 of which were letters and the remaining 7 were not relevant. Methodical further searching using binary and triple combinations of all of the terms above printed in italics, produced a further 85 references with titles that were not relevant, one letter, one editorial and 4 apparently useful titles. These were found to be not relevant upon hand searching.

The search strategy described so far had only produced a modest quantity of relevant references, so a new direction was taken - that of searching the departmental library. This identified 2 very relevant studies published by the University of Leeds (MacGregor et al, 1990 & Mercer et al, 1995). The next search tactic employed was to peruse the citations at the end of these documents for relevant references, which produced 5 further useful works (Kerr Gilbert, 1975 ;

Basker et al,1978 ; Wild, 1989; Walmsley & Frame, 1990 and Mouatt, 1991). This tactic was then repeated upon the other useful references already identified, to produce many of the other references that appear in the bibliography at the end (p 140). Other sources were consulted as they were published (e.g. Fleming et al , 1996) or came to my attention through personal contacts (e.g. BDA/FGDP Symposium, 1997) , reading books (e.g. Grol & Lawrence, 1995), committee work (e.g. SCPMDE,1996) and journals (e.g. Ireland et al ,1999) during the course of the study and writing of the thesis.

Figure 1.1

Venn diagram illustrating how peer review relates to the components of continuing professional development



1.2. Definition of terms used in postgraduate dentistry relevant to this study

The Venn diagram in Figure 1.1(p41) shows how Continuing Professional Development (CPD) embraces Continuing Professional Education (CPE), which in turn embraces Continuing Dental Education (CDE). It also how clinical audit (CA) and peer review (PR) relate to each other within these fields. A useful distinction may be made between these terms:

1.2.1 Continuing Professional Development (CPD)

This embraces fields of activity, such as competence, performance, managerial and organisational skills. As a quality issue for individual healthcare workers, it is defined as *“the systematic maintenance, improvement and broadening of personal qualities necessary for the execution of professional and technical duties throughout the practitioner’s working life”*. (Welsh & Woodward, 1989)

A statement of draft principles of continuing professional development for doctors and dentists (Standing Committee On Postgraduate Medical Education-SCOPME, 1998) lists five characteristics;

- (i) For a professionally based organisation, CPD is a core process that promotes quality through clinical effectiveness and clinical progress.
- (ii) CPD engages the person in continual reflection, evaluation and learning.
- (iii) CPD is experienced by individuals as kindling, nurturing and sustaining their motivation, delivering intellectual stimulation, responsiveness and professional satisfaction and is not constraining

(iv) CPD encourages and supports flexible career pathways.

Sources in the New Zealand and British Dental Journals agree with these principles (Newton, 1993; Carotte, 1999). Thus the SCOPME draft principles are more specific to medicine and dentistry than the 1989 Welsh and Woodward definition, which was designed to apply to all professions generally.

1.2.2 Continuing Professional Education (CPE)

This term is now widely used to denote educationally - based activities, which are relevant to the full spectrum of professional life. (GDC, 1997a).

1.2.3. Continuing Dental Education (CDE)

This is the extended post - training clinical and specialist learning component of an even wider, career - long process within dentistry which should be recognised as continuing professional development (Boulay, 1996; Jablonski, 1982).

Continuing dental education traditionally focuses on updating knowledge, whilst continuing professional development encompasses other activities, such as competence and performance (Renson, 1999).

1.2.4. Peer review

a. Peer review can be defined by reference to a dictionary, where peer is “*a person who is equal in ability, standing, rank, age, rank, or*” and review is “*to view again, survey, reconsider or revise*” (The Concise Oxford Dictionary, 1995). Combining these produces a definition of ; peer review is a survey by an

equal in standing and ability. This is fine as a general definition, but lacks the dental focus which many of those that follow possess.

b. Jablonski defines Peer Review as “ *In health care delivery, the evaluation by practising physicians, dentists, or other professionals of the effectiveness and efficiency of services ordered or performed by other practising physicians, dentists, or other members of the professions.* ” (Jablonski, 1982). This was an early definition from North America and lacks the reference to improving the quality of patient care found in Grol's definition (see further on at h.).

c. Jablonski gives an alternative definition; “ *In dental insurance, a professionally sponsored and operated system for the rendering of professional judgements on disagreements between or among dentists, patients or third party payers relating to dental fees, quality or appropriateness of treatment and related matters.* ” (Jablonski, 1982). This definition can still lead to some confusion when consulting North American texts, as it is used interchangeably with the one at (b).

d. Senator Bennett envisaged peer review as an “ *educational process resulting from the broadest possible participation by doctors in an area in the review experience on an ongoing basis. The educational effect occurs during the continuing development, application, and exposure of parameters of care outside his own practice. If we are truly concerned about the quality of medical care we must see the Public Service Review Organisations more as instruments of improvement for every physician rather than as traps for the*

failing few" (Bennett, 1973).

e. The Dental Society of the State of New York produced a definition that says that; "*Peer review is a confidential and voluntary mechanism by which the dental profession demonstrates publicly the appropriateness of the treatment and the care it renders.*" (New York State Dental Society, 1979). This was revised in 1995, by the same dental society to "*a mechanism by which the dental profession evaluates the appropriateness of treatment and the quality of care provided by its members.*" (Benton & Shub, 1995), showing a move towards including aspects of quality of care provided to patients.

f. Peer review has been equated with "internal audit" and Sanazaro's definition from the American Medical Association is "*evaluation by practising physicians of the quality and efficiency of services ordered by other practising physicians*" (Shaw, 1980). This is really only a slightly differently worded version of Jablonski's definition (see b.). The definition's listed at b to e tend to reflect the North American experience of peer review, whilst those that follow tend to reflect the British and Dutch experience of peer review. This is the format of the peer review process that is more formally stated in regulations.

g. A definition from "Teamwork 3", a practice training and development manual produced for the Department of health by the BDA & FGDP has Peer review defined as "*a means of looking at the way other people who do the same job as yourself do things which, of course, means that they look at the way you*

do things. By doing this you can share ideas and information, in other words learn from each other”(Carver & Pendlebury, 1996). This is a rather simplistic view and does not include the more contemporary approach of quality improvement and patient care, which more recent UK and North American definitions include.

h. The Chairman of the Central Peer Review Committee (Scotland) defined it as: “*Peer review involves a group of dentists choosing a topic and, in a non-confrontational way, coming to a consensus opinion as to what is best practice.*” (Yewe-Dyer, 1997). This definition describes what occurred in the Scottish Office scheme which ran from 1994 to 1998 and is what is referred to in this study. However, group schemes such as the 1994 Scottish Office one, involves practitioners in discussing and helping create the structure through which their review will occur.

i. Broadfoot defined peer review as “*...essentially groups of dentists meeting and discussing an issue and coming to a consensus view about a particular topic*”(Broadfoot, 1995) in an effort to express it simply and promote its uptake, shortly after the scheme was launched in Scotland.

j. “*The main aim of peer review is to share information about how you go about your work. Using various source materials and your own experiences, you may be able to work out and agree on ‘best practice’ and match yourself against this standard*” (Rogers & Davies, 1997). This last definition, together with

those from Yewe-Dyer and Broadfoot , lack detail and do not mention patient care.

k. Grol & Lawrence define it as “*Continuous, systematic and critical reflection on their own and others' performance by a number of colleagues in general practice, with the aim of achieving a continuous improvement in the quality of patient care*”- (Grol & Lawrence, 1995). This definition is the preferred one as it is clear about what is to be done, how it is to be done and is the only source that suggests that it can lead to a process of continual improvement – i.e. audit.

1.2.5. Clinical audit

The British Dental Association working group on Clinical audit looked at several definitions of audit, which had been proposed for use in health care in the years up to 1991: It found that a report in 1980, on competence to practice, interpreted medical audit as “*the sharing by a group of peers of information gained from personal experience and/or medical records in order to assess the care provided to patients*” (Alment Committee cited by Shaw, 1980a). This description lacked any mention of quality of care and stressed improving matters for the clinician, rather than the patient. This group considered this definition, together with that of the King’s Fund, which said - “*internal peer review by practising local clinicians can help to secure quality if it is regular, objective, explicit and effective. That is medical audit.*” (King’s Fund cited by BDA, 1991a) and that of the South West Regional Health Authority(SWRHA) - “*Medical audit is a systematic approach to the peer review of medical care in*

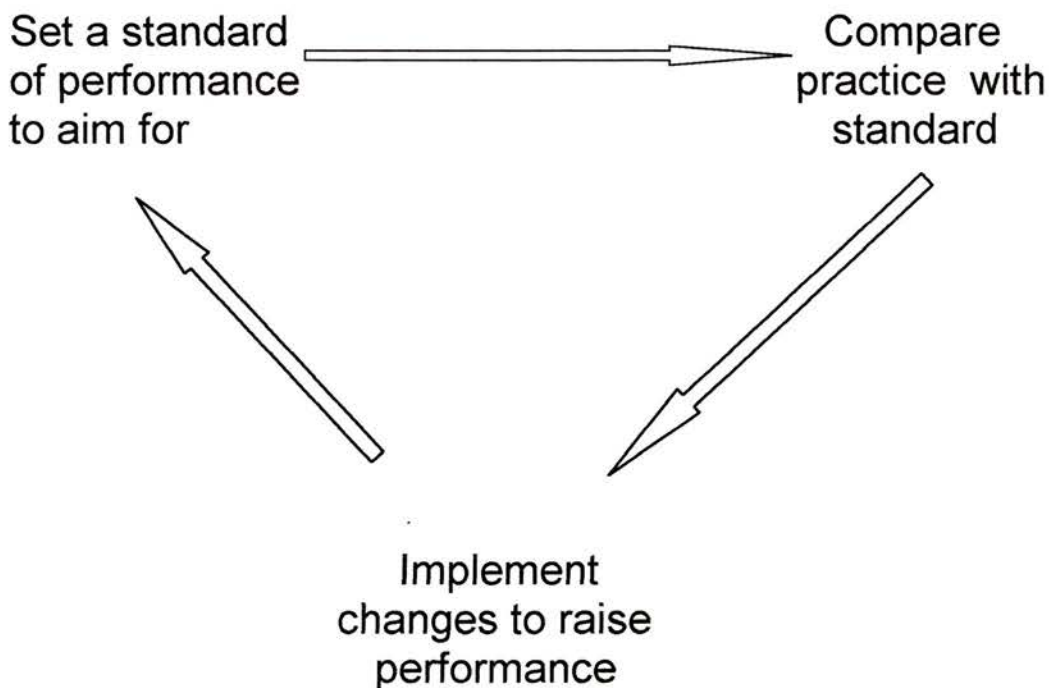
order to identify opportunities for improvement and to provide a mechanism for bringing them about.” (SWRHA cited by BDA, 1991a). Then they produced one of their own, tailoring it for dental use and focusing it more on the patient -

“Clinical audit in primary dental care may be defined as the systematic, critical analysis of the quality of dental care, including the procedures used for diagnosis and treatment, the use of resources and the resulting outcome and quality of life for the patient”(BDA, 1991a). Burke and Wilson(1994) refined it to include a process of change for improvement and made quality of care for the patient a more central feature - *“ Clinical audit may be described as a peer group sharing information gained from personal experience and/or medical records in order to assess and improve the care provided to their patients. It differs from research in that it does not aim for a universal truth about a practise, but focuses in the performance of individual practitioners and the service to individual patients”*. This is the definition that I prefer because it relates the quality of care provided to patients to the performance of individual practitioners ,makes it clear that measurement of something is involved and differentiates it from research. Peer review and clinical audit have also be differentiated; *“Peer review differs from audit, in that only the first two stages of the audit concept are involved ,namely, evaluation and reporting...”*.

They also comment *“...there is no aspect related to change, it does not necessarily bring about a change in behaviour”* (Burke and Wilson, 1994). So it could be said that *“peer review is one of the tools of audit”* (Seward, 1991). Clinical audit touches on all of the first three of fields illustrated in Figure 1.2; finding out what current or “best” practise is belongs to the field of

continuing dental education (CDE), comparing “best” practise with the practitioner’s own current practise would constitute a form of continuing professional education (CPE) and implementing changes as a result of this comparison is a competency issue that falls within the domain of continuing professional development (CPD). Peer review only embraces the first two domains, as there is not necessarily a component related to change (Burke & Wilson, 1994), whereas clinical audit “ *involves measurement of performance in achievement of best practice*” (Yewe-Dyer, 1997). So audit can be viewed as an extension of peer review, which is often useful to identify audit topics (Broadfoot,1995). Peer review can thus be an educational process (BDA,1991b).

Figure 1.2 – a basic audit cycle



From "Clinical Audit- A workbook", p.3 (BDA/FGDP, 1993)

1.3. The different types of continuing dental education

I have identified fifteen categories of continuing dental education. These are listed and defined below.

1.3.1. Section 63 courses (now MADEL-funded)

These are short courses organised and funded under section 63 of the Health Services and Public Health Act 1968 (Wild, 1989; Health Services and Public Health Act, 1968). Local persons or bodies are appointed to organise the courses, which are open to all practitioners holding contracts with health authorities or boards. Other practitioners can often be accommodated upon payment of the appropriate fee, if spaces are available. Section 63 funds are also available to help fund some of the Vocational Training Scheme educational and administration costs, and central initiatives e.g. British Postgraduate Medical Federation videos (Eaton & Rothwell, 1992). However, since 1999 the source of these funds has changed: they are now correctly referred to as the element of the Medical and Dental Educational Levy (MADEL) allocated to the continuing professional education of the General Dental Service (GDS), the Community Dental Service (CDS) and the Personal Dental Service (PDS) dentists and the educational costs of vocational training in the GDS, CDS and PDS (Ireland et al , 1999).

1.3.2. Vocational Training/ General Professional Training

The first experimental schemes started in January 1977 (Fordyce, 1978). Ten years later a voluntary national scheme was offered to recent graduates, after agreement to joint funding between the British Dental Association and the Department of Health and Social Security (Fordyce & Mouatt, 1986). Further development occurred with the establishment of a distance learning scheme in Scotland in 1989/90, to address problems of geographical isolation (Broadfoot, 1991). From October 1993 it became mandatory for all new UK and foreign non-European Economic Area graduates wishing to practice within National Health Service General Dental Service arrangements to have completed a year of Vocational Training or some experience assessed to have been equivalent (CVT, 2001). More recently, schemes of General Professional Training (GPT) have been developed. These involve one year of vocational training in general practice together with a further year of training in the Community Dental Service or Hospital Dental Service, or a combination (Musselbrook & Plowman, 2000).

1.3.4. Formal courses leading to further qualifications

Many dental departments of universities run courses leading to higher degrees. The Royal Surgical Colleges run courses to assist those studying for further college qualifications. From 1920 the Royal Surgical Colleges awarded the Higher Dental Diploma (H.D.D.), which was superseded by the Fellowship in Dental

Surgery (F.D.S.) in 1948. This was replaced by the Membership of the Faculty of Dental Surgery (MFDS) in 1998.

Qualifications specifically for general dental practitioners have been a relatively recent development, with the awarding of Membership in General Dental Surgery by the Royal Surgical Colleges, since 1979 (1983 for RCP&S Glasgow and 1988 for R.C.S.Ireland). Also since 1992 a Diploma in General Dental Practice (DGDP) has been available from the Faculty of General Dental Practitioners at the Royal College of Surgeons England, which has become the Membership of the Faculty of General Dental Practitioners (MFGDP) since 1999. In 1996 a Fellowship in Dental Surgery by assessment became available to general dental practitioners from Royal College of Surgeons Edinburgh and more recently a Fellowship in General Dental Practice has been awarded by Royal College of Surgeons England. The uptake of these qualifications has been low with only 808 DGDP's (FGDP,1997), 463 MGDS's (RCP&S. Glas, 1997; RCS. Edin, 1997; FGDP, 1997; RCS. Irel, 1997) and one FDS by assessment (RCS. Edin,1997;) held by practitioners in May 1997. By October 2001 only 9 further MGDS diplomas had been awarded by the Glasgow college, and notification was published that the college would discontinue the examination from 2002 (Part I) and 2007 (Part II)(BDJ, 2001).

1.3.4. Distance learning packages

This covers various packages, some of which comprise elements of other modes listed e.g. "Pathways in Practice" (Rothwell, 1993; Pendlebury, 1994), "Trends in the

management of fissure caries: a distance learning programme for general dental practitioners” (Paterson et al, 1989), Bristol University Open Learning for Dentists (BUOLD, 1997) and the “Self Assessment Manual and Standards”(SAMS) (Grace, 1991).

1.3.5. Clinical Audit

A number of different ways of defining clinical audit are to be found in the literature and a fuller discussion of these has already been made (see p24-26.).

1.3.6. Computer Assisted Learning (CAL)

Educational packages are available on floppy disk or CD-ROM e.g. “Masticatory Muscles” (Demirjan, 1993.). This category can also be interpreted to include information available on disk for study use as an alternative to printed matter e.g. British Association of Oral and Maxillo-Facial Surgeons pilot clinical guidelines (BAOMFS, floppy disk, 1995) and International Journal of Maxillo-Facial Surgery on CD-ROM. (BAOMFS, CD-ROM, since 1995). More recently, on line interactive CAL has been available with the opportunity for assessment and feedback being available (e.g. a lecture given by Professor Edward Lynch at the BDA 2001 Conference has been turned into an interactive CDE session available over the internet (BDA, 2001). Thus some CAL can now form part of verifiable activity for the purposes of the GDC's recertification scheme

1.3.7. Professional society/association meetings

These vary in content and may be as formal as a Section 63 course or more relaxed, allowing for more casual discussions in small groups or one to one.

Examples: British Dental Association Scientific meetings, British Society for Restorative Dentistry and the Royal Odonto-Chirurgical Society of Scotland.

1.3.8. Reading of journals

This can be a regular or occasional activity. An important distinction may be made between refereed (e.g. British Dental Journal, Quintessence, Dental Update) and non-refereed publications (Dental Practice, The Dentist, The Probe): Any article or paper appearing in a refereed journal has been subject to scientific review by other dentists recognised as having expertise in the field dealt with. Anything published in a non-referred publication will only have been subjected to standard journalistic consideration of whether it would be of interest to potential readers.

1.3.9. Reading of dental books

This is valuable as an in depth approach to a particular topic or as a comprehensive, but not completely up to date, review of a subject. A book is liable to be up to four years out of date by the time that it is published, due to the nature of the way that it is prepared, written and published. This is of

increasing relevance as the rate of technological change accelerates. However, the value of books to present an all round view of a subject area (e.g. dental implants), should not be underestimated. *“Moreover those who will not read this work with the intention of learning how to operate, will find in the rest of this book a thousand instructive things which will be useful and pleasant”* (Fauchard, 1746, translated by Lindsay 1946).

1.3.10. Videos

Many tailor-made dental videos have been made available in the last 15 years via Department of Health funding (Section 63) of British Postgraduate Medical Federation videos (e.g. "A Better Image (Panoramic Radiographs), 1993).

Also, many commercial ones are now available (e.g. "The Direct Composite Resin Crown", 1997 & "Close support", Dentistry - Ellis Paul, 1997).

1.3.11. Study Group Membership

These can be organised informally by practitioners themselves or more formally by bodies such as the Faculty of General Dental Practitioners.

1.3.12. Private courses

These vary from private initiatives organised by recognised authorities to sponsored meetings (by manufacturers etc) to courses organised alongside

leisure activities.

1.3.13. Audiotapes

These are not widely used in the United Kingdom, although a reasonably wide selection of audio and audiovisual materials are available from the BDA library. There has been positive experience of their use in Canada, where a special subscription to the Canadian Dental Association provided a monthly 'Cassette Programme' on subjects of professional interest (Farmer, 1974).

1.3.14. Vocational Training experience as a Trainer

There is some evidence for this being a positive educational process; it is supported by commendations in Standing Committee on Postgraduate Medical Education (SCOPME) report "The early years of postgraduate dental training in England" (Devine et al, 1995) and the evaluation of the first General Professional Training pilot scheme in Scotland (Musselbrook et al, 1999).

1.3.15. Peer review

A number of widely differing ways of defining peer review are to be found in the literature and a fuller discussion of these other definitions has already been made (see p20-24.).

A detailed statement of ideas upon continuing medical education can be found in the report “Lifetime learning for physicians: principles, practice, proposals” (Dryer, 1962). Dentistry is a medical field, so these principles apply to continuing dental education. The General Dental Council’s commitment to promoting and encouraging continuing professional development has been clearly stated (GDC, 1995). This was further developed in “The Accord”, between the dental faculties of the Royal Surgical Colleges and other educational bodies (GDC, 1996). Participation in appropriate postgraduate dental education activity is a professional obligation and the General Dental Council states that “*every practitioner, in whatever branch of the profession he or she works, has an ethical obligation to continue professional education for the duration of practice. Failure to do so amounts to an abnegation of professional responsibility.*” (GDC, 1995). Thus a dentist may be found guilty of serious professional misconduct for failing to engage in continuing professional education. There has been recent discussion of compulsory minimum participation in continuing professional education as a requirement for periodic recertification (GDC, 1997a & 2000; FGDP, 1995a, Newton, 1993). A scheme of recertification has been adopted and a voluntary scheme was launched in October 2000. This will progress to a comprehensive compulsory system between 2002 and 2004 (GDC, 2000).

1.4. Recertification

An enquiry into dental education recommended that the General Dental Council introduce a requirement for dentists to attend a minimum number of continuing education activities, which should ideally include a participatory element (Nuffield Foundation, 1980). A General Dental Council report from 1972 (GDC, 1972 cited by Soremark in 1978) states that three duties and responsibilities for dentists are to:

1. keep abreast of current developments
2. expand the scope of treatment by acquiring additional knowledge
3. develop adequate attitudes towards dentistry and the public

In 1997 the General Dental Council's Reaccreditation and Recertification review group proposed (GDC, 1997a) an initial model for recertification consisting of: -

1. An annual requirement for all registered dentists to complete a minimum of 15 hours verifiable core continuing professional education (CPE) activities and a further 35 hours of recorded formal or informal CPE activity.

Verifiable core activity is defined as: -

- a. formal courses, scientific meetings & conferences
- b. structured distance learning
- c. peer review

- d. clinical audit
- e. study group (depending on verifiability)
- f. verifiable computer assisted learning (CAL)

Informal “non-core” activity includes:-

- a. non-verifiable distance learning
- b. non-verifiable computer assisted learning
- c. reading journals
- d. watching videos
- e. reading books
- f. attending study groups
- g. listening to audiotapes

2. Five year reaccreditation cycle

3. Proof of compliance to be sent to the General Dental Council every five years

4. Two stage review procedure for dentists who fail to provide required proof or fail to meet minimum requirements.

A survey of 1531 members of the British Dental Association in 1999, with a response rate of 72% (1102), found that 81% already exceeded the proposed fifteen hours of verifiable continuing professional education (Scarrott, 1999). The

survey was part of a biennial random survey that is conducted of BDA members. Comparison of the demographic profile generated with other demographic data sources show this sample to be a fair reflection of the dentist population in the UK. However, this finding should be viewed in light of the fact that not all gdp's are members of the BDA and that her survey was not restricted to gdp members. It could be argued that elective membership of a professional organisation reflects a greater commitment to pursuing professional values, such as keeping up to date in practice, than the profession at large. So the results of this survey could be skewed with respect to the gdp population generally.

The introduction of compulsory recertification will necessitate the creation of a secure and reliable database of professional and educational activity and should include a broad range of options (BDA, 1997a; Seward, 1997; Allen, 1997). Continuing education was already a requirement in several states of the United States of America in 1977 and it was noted that if mandatory then a choice of courses should exist (Whittrock, 1977). Kress concluded that “*If the profession is going to impose requirements on its members, then it owes them a factual basis for those requirements*” (Kress, 1979). The 1995 discussion document from the Faculty of General Dental Practitioners proposes that the aims of a career pathway for general dental practitioners should include producing a system that recognises and rewards training, increase of skills and further knowledge (FGDP, 1995).

1.5. Reported levels of participation in postgraduate dental education

1.5.1. Levels of participation in the UK

Prior to 1945 a few ‘refresher ‘ courses were held, but little need was perceived by dentists for continuing education (Kress, 1979). Early in 1948 a meeting of interested practitioners in Birmingham was called to gauge demand for more such courses, particularly in the light of large numbers of practitioners returning to civilian practice. During the first ten years of the Central Counties Dental Postgraduate Committee, 815 students enrolled on 50 courses (Pusey, 1959). Over the following 10 years, 85 courses were run and 125 in the succeeding 6 years (Basker, et al, 1978).

Tables 1.1(p45), 1.2(p47), 1.4(p49) and 1.7(p52) show the principal studies of postgraduate dental education for general dental practitioners. I have systematically identified, selected and evaluated the findings from the previous studies and determined an ‘evidence level’, using the guidelines for developing evidence-based guidelines issued by Scottish Intercollegiate Guidelines Network (SIGN, 1999).

Tables 1.1&1.2 identify the population concerned, the educational activities or processes investigated and the participation measured. By laying out the data in Tables 1.4 & 1.8(p55) it is easier to compare and contrast like or similar data.

Table 1.5(p50) shows the answers to evaluation questions, allowing the evidence grading and ranking shown in Table 1.6(p51) to be carried out, using the

classification shown in Table 1.3 (p48). The studies highlighted in green in Table 1.6, show the five most recent and robust studies with their key findings. These five studies have a more meticulous and thorough method that allows greater weight to be placed on their results and conclusions. Also, they are more recent and so are more likely to reflect the contemporary situation.

The main trends to emerge from a chronological consideration are sustained substantial increases in numbers attending courses, with the mean number of courses attended more than doubling and a definite “tailing off” of activity in older dentists. A consistent finding across all the studies is that about 25% of the profession are significantly less active in continuing education. The 1991 survey of updating practices amongst Yorkshire general dental practitioners (MacGregor et al, 1991) confirmed previous findings of an “*active minority*”, but concluded that a substantial proportion of general dental practitioners needed to pursue more continuing professional development activity. An index was devised to try and assess how well the general dental practitioner population was keeping up to date; IDEA-Index of Dental Educational Activity (MacGregor et al, 1991) - see p 41 for further details. A second survey undertaken at the same institute in 1993 (Mercer et al, 1993) found slight, but significant changes in updating practices. Attendance at Section 63 courses rose from 77% to 82%. However, those reporting non-attendance also rose from 9% to 13%. Membership of professional organisations fell from 76% to 68%. Two more substantial changes were noted: regular reading of the British Dental Journal rose from 35% to 62%. and membership

of study groups had fallen from 55% to 20%. These large decreases in membership are difficult to account for, but external factors could be associated. October 1990 saw the introduction of a new contract for gdp's in NHS practice, after some contentious negotiations by the BDA with the Department of Health. This was followed two years later by a fee cut, imposed by the government. Neither of these events were well received by the gdp's and the BDA suffered a decrease in membership at this time. As the BDA was the most commonly cited professional organisation membership (60% of responders in 1990 & 79% in 1995), it is plausible that a decrease in BDA membership could account for the fall in membership of professional organisations. Between 1990 and 1992 there was a significant increase in the workload undertaken by gdp's (Dental Practice Board - DPB, 1989 ; 1990 ; 1991 ; 1992 ; Scottish Dental Practice Board - SDPB, 1989 ; 1990 ; 1991 ; 1992) and once again it is plausible that if gdp's were working more, then they may have had less time or may have been less inclined to pursue membership of study groups. A modified index was devised for the 1995 Leeds study study; ICPD-Index of Continuing Professional Development - see p 41 for further details.

The 1998 survey of general dental practitioners in North West England and North Wales found that 53% had attended at least four Section 63 courses in the previous year, of whom the majority (59%) were in the 35 - 44 age band. Those who had attended at least one postgraduate session in the previous year formed 99% of the sample, of which 89% had attended two or more such sessions (Ireland et al,

1999).

1.5.2. Indices of Dental Educational Activity (IDEA) and Continuing Professional Development - (ICPD)

The Index of Dental Educational Activity was originally described in 1990 (Macgregor, 1990). In order to calculate the index, points are awarded for degrees of activity in various modes of updating practice, as shown in Figure 1.3.

The Index of Continuing Professional Development was originally described in 1995 (Mercer, 1995). As with the Index of Dental Education Activity points are awarded for levels of participation in various dental educational activities. The total of these points comprises the index score for that individual. The points are awarded as shown in Figure 1.4.

The creators of these indices make it quite clear that these measures are not one-dimensional or strictly additive. They regard the indices as a way of summarising the continuing education/professional development activities of dentists and providing a means of making comparisons between groups of dentists.

Figure 1.3. Showing the method of calculating the Index of Dental Educational Activity (IDEA)

<i>Activity</i>	<i>Level</i>	<i>Points</i>
Section 63 course attended in the last 5 years	Non-attender	0
	Up to 5	1
	6 to 14	2
	15 or more	3
Journal reading	Never	0
	Occasional	1
	Frequent	2
	Regular	3
Professional association participation	Non-member	0
	Rare	1
	Occasional	2
	Frequent	3
Dental book buying in last five years	None	0
	Under 5	1
	5 to 9	2
	10 or more	3
Private course attendance	No	0
	Yes	1
Use of video	No	0
	Yes	1
Team members on courses	No	0
	Yes	1
Self on resuscitation course	No	0
	Yes	1
Team on resuscitation course	No	0
	Yes	1
Quality system in practice	No	0
	Yes	1
Practice meetings - Clinical	No	0
	Yes	1
Practice meetings - Management	No	0
	Yes	1
Visits to other dentists	No	0
	Yes	1
Total Score Range		0 to 21

Figure 1.4. Showing the method of calculating the modified Index of Continuing Professional Development (ICPD)

<i>Activity</i>	<i>Level</i>	<i>Points</i>
Section 63 course attended in the last 3 years	Non-attender	0
	1 to 2	1
	3 to 4	2
	5 or more	3
Private course attendance in the last 3 years	Non-attender	0
	1 to 2	1
	3 to 4	2
	5 or more	3
Professional association participation	Non-member	0
	Rare	1
	Occasional	2
	Frequent	3
Journal consultation	Never	0
	1 to 2	1
	3 to 4	2
	5 or more	3
Dental book buying in last three years	None	0
	1 to 4	1
	5 to 9	2
	10 or more	3
Practice meetings - Clinical	No	0
	Yes	1
Practice meetings - Management	No	0
	Yes	1
Use of Audit	No	0
	Yes	1
Use of Self Assessment Manual of Standards (SAMS)	No	0
	Yes	1
Member of Peer Review group	No	0
	Yes	1
Total score range		0 to 20

Table 1.1 Principal UK studies of postgraduate education for general dental practitioners

Date	Authors	Location	Response number	Response rate	Study period	% not on courses	Details of participation on courses
1959	Pusey	Central Counties	@	@	10 years	@	Report of numbers attending only
1975	Kerr Gilbert	Newcastle region	214	37%	3 years	49%	51% attended average of 1.3 courses over 3 years
1975	Awty & Balk	S. E. Thames region	458	44%	1 year	Not Given	30% on at least 1 course in the last year
1978	Basker et al	West Midlands	643	54%	11 years	Not Given	35% < 5 53% 5 – 10 12% >10 in last 10 yrs
1989	Wild	S. E. Scotland	446 *	77% *	3 years	33% *	65% had attended at least 1 in the last 3 years
1990	Walmsley & Frame	West Midlands	1382	41%	11 months	59% #	In last year, 41% on at least 1 at Birmingham Dental School
1991	Mouatt et al	England	1670	76%	1 year	21%	79% attended some form of training in 1989
1991	Macgregor et al	Yorkshire	374	98%	5 years	9%	91% had attended at least 1 course in the last 5 years
1995	Burke et al	England & Wales	1200	61%	1 year	8%	92% had attended at least 1 course in the past year
1995	Mercer et al	Yorkshire	307	90%	2 years	17%	87% had attended at least 1 course in the past year
1999	Ireland et al	N.W.England & N. Wales	552	69%	1 year	1%	99% attended 1 and 89% 2+ courses in the past year

Key on next page

Key to Table 1.1

= %, but attendance elsewhere than Birmingham not counted.

* = Wild's survey was a composite of a survey of records of those attending courses in East of Scotland, supplemented by questionnaire responses from a survey of non-attenders.

@ = survey of records with no population number given, hence no response rate.

Table 1.2 Main measurements in principal UK studies

Authors	who did not attend	mean age	age range	higher qualification (%)	mean years in practice	single-handed (%)	mean number of courses	mean number per year
Pusey	No info	-	-	-	-	-	-	-
Kerr Gilbert	-	42	22-74	7.5	15	50	1.33	0.5
Awty + Balk	No info	-	-	-	-	-	-	-
Basker et al	Age not a factor among those attending 10-15 courses a year	Median 20-30	21 - 70	-	Not comparable	-	-	-
Wild	More among those who were qualified more than 30 years	-	-	-	-	-	1.8	0.6
Walmsley & Frame	Older dentists attend less. Most attending qualified < 15 years	-	-	-	13	-	-	-
Mouatt et al	Lower attendance among over 50's and under 30's	-	-	-	-	-	-	-
Macgregor et al	-	-	-	-	16	20	-	-
Burke et al	-	40.3	-	-	17	26	2.27	-
Mercer et al	-	-	-	-	14	26	-	-
Ireland et al	No significant associations	-	-	-	-	-	3.3	3.3

Key to Table 1.2

Numbers in italics in table 1.2 were calculated from data given.

Table 1.3 Classification of evidence levels

- Ia Evidence obtained from meta-analysis of randomised controlled trials
- Ib Evidence obtained from at least one randomised controlled trial
- Ila Evidence obtained from at least one well designed controlled study without randomisation
- Ilb Evidence obtained from at least one other type of well-designed quasi-experimental study
- III Evidence obtained from well designed non-experimental descriptive studies, such as comparative studies, correlation studies and case studies
- IV Evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities

(US Agency for health Care Policy and Research 1993 cited by SIGN, 1999)

Table 1.4 Assessment of principal UK studies

Authors	Was study original?	Whom is it about?	Was design sensible?	Was systematic bias minimised?	Was assessment blind?	Were preliminary statistics issues dealt with?
Pusey	Yes	Dentists at Central counties courses 1948-58	Yes	N/A	N/A	N/A
Kerr Gilbert	Yes	Dentists in Newcastle area 1969 -72	No, no follow up	No – 37% response	No	N/A
Awty & Balk	Yes	GDP's in S.E. Thames region in 1974	No, no follow up	No –44% response	No	Yes, pilot in 1973
Basker et al	Yes	Dentists in W.Midlands in 1974	No, no follow up	Just – 54% Response	No	N/A
Wild	Yes	GDP's, S.E. Scotland 1983-86	Yes	Yes	No	N/A
Walmsley & Frame	Yes	GDP's attending courses at Birmingham dental school Sept 1988 to July 1989	Yes	N/A, data collected from existing records	No	N/A
Mouatt	Yes	1670 GDP's in England	Yes	Yes	No	Yes
Macgregor et al	Yes	374 GDP's, Yorkshire 1984-89	Yes	Yes	No	Yes
Burke et al	Yes	1200 GDP's in England & Wales	Yes	Yes	No	Yes
Mercer et al	Yes	307 GDP's in Yorkshire 1992-93	Yes	Yes	No	Yes
Ireland et al	Yes	552 GDP's in N.W. England and N.Wales	Yes	Yes	No	Yes

Table 1.5 Evaluation of UK studies

Author	Why was study done?	Study type	Was design appropriate for aims?
Pusey	To demonstrate demand for courses and show a method of meeting it	Retrospective survey of records	Yes
Kerr Gilbert	To find reasons for non-attendance at courses and views on various related spheres	Cross-sectional, descriptive	Yes, but low response and no follow up.
Awty & Balk	To find out views of gbps on course topics and on courses attended	Cross-sectional, descriptive	Yes, but no follow up.
Basker et al	To correlate features of the dentist population in the W.Midlands with their past attendance at courses and their future requirements	Cross-sectional, descriptive	Yes, but no follow up.
Wild	To determine attendance patterns at courses by gbps in S.E. Scotland	Cross-sectional	Yes (included targeting non-attenders)
Walmsley & Frame	To review the attendance patterns of dental practitioners at courses between Sept '88 and July '89	Retrospective survey of records	Yes, but attendance rate relates to local pg centre only
Mouatt et al	To quantify the rate of non-attendance at courses and factors influencing attendance. Do courses meet needs?	Cross-sectional	Yes, but no follow up. Statistically valid sample
Macgregor et al	Find ways in which gbps add to/maintain knowledge /skills, the factors affecting attendance and educational needs	Cross-sectional, descriptive	Yes Random 1 in 3 sample
Burke et al	To determine attitudes to treatment of HIV infected patients	Cross-sectional	Yes Random sample
Mercer et al	Follow up on Macgregor's 1990 survey	Cross-sectional, descriptive	Yes Random 1 in 3 sample
Ireland et al	To assess the current level of gbp involvement in postgraduate education in N.W.England and North Wales and preferred course format	Cross-sectional, descriptive	Yes Random sample

Table 1.6 Categorisation and principal findings of UK studies

Authors	Year	Evidence category	Principal findings
Pusey	1959	III	There is demand for courses
Kerr Gilbert	1975	III	Low demand for courses (but only 37% response)
Awty & Balk	1975	III	Support for general concept of postgraduate courses
Basker et al	1978	III	There is demand for courses
Wild	1989	III	35% had attended no courses in the last 3 years
Walmsley & Frame	1990	III	Most attendees have been qualified less than 15 years
Mouatt et al	1991	II b	21% attended no courses in 1989
Macgregor et al	1991	II b	Non course attenders only partially compensating through the use of other media
Burke et al	1995	II b	Issues pertaining to cross-infection control need to feature in continuing education for general practising dentists
Mercer et al	1995	II b	Substantial numbers still have little involvement in postgraduate education
Ireland et al	1999	II b	Demonstrated demand for existing courses and for more structured ones

Table 1.7 Comparing age or time practicing with attendance at courses across several studies

Authors	Distribution	Comments																																
Wild	<table border="1"> <thead> <tr> <th>Year of 1st registration</th> <th>No.</th> <th>% of Total</th> <th>% not attending</th> </tr> </thead> <tbody> <tr> <td>80 –84</td> <td>131</td> <td>22.8</td> <td>37.4</td> </tr> <tr> <td>75 –79</td> <td>99</td> <td>17.2</td> <td>36.4</td> </tr> <tr> <td>70 –74</td> <td>88</td> <td>15.3</td> <td>35.2</td> </tr> <tr> <td>65 –69</td> <td>83</td> <td>14.5</td> <td>22.9</td> </tr> <tr> <td>60 –64</td> <td>71</td> <td>12.4</td> <td>29.6</td> </tr> <tr> <td>55 –59</td> <td>42</td> <td>7.3</td> <td>31.0</td> </tr> <tr> <td>< 54</td> <td>60</td> <td>10.5</td> <td>50.0</td> </tr> </tbody> </table>	Year of 1st registration	No.	% of Total	% not attending	80 –84	131	22.8	37.4	75 –79	99	17.2	36.4	70 –74	88	15.3	35.2	65 –69	83	14.5	22.9	60 –64	71	12.4	29.6	55 –59	42	7.3	31.0	< 54	60	10.5	50.0	-
Year of 1st registration	No.	% of Total	% not attending																															
80 –84	131	22.8	37.4																															
75 –79	99	17.2	36.4																															
70 –74	88	15.3	35.2																															
65 –69	83	14.5	22.9																															
60 –64	71	12.4	29.6																															
55 –59	42	7.3	31.0																															
< 54	60	10.5	50.0																															
Mouatt et al	<table border="1"> <thead> <tr> <th>Age</th> <th>% attending</th> </tr> </thead> <tbody> <tr> <td>< 30</td> <td>72</td> </tr> <tr> <td>30 –39</td> <td>82</td> </tr> <tr> <td>40 –49</td> <td>85</td> </tr> <tr> <td>> 50</td> <td>73</td> </tr> </tbody> </table>	Age	% attending	< 30	72	30 –39	82	40 –49	85	> 50	73	-																						
Age	% attending																																	
< 30	72																																	
30 –39	82																																	
40 –49	85																																	
> 50	73																																	
Macgregor et al	-	Correlation @ P> 0.05 Significantly lower scores on IDEA with length of time in practice, but not with age																																
Mercer et al	-	Correlation @ P> 0.05 Significantly lower scores on ICPD with age, but not with length of time in practice. The reverse of above.																																
Ireland et al	-	No significant relationship between age and number of courses attended																																

1.5.3. Levels of participation internationally

An international review of continuing dental education delivery found a common theme in that *“the same interested practitioners participate while the majority remain unreached”* (Farmer, 1974). A common finding in the UK studies of the late 1980's and 1990's is that about 25% of the profession is significantly less active in continuing education (Tables 1.1, p45 & 1.8, p55), this figure mirrors results from New Zealand, Australia and Sweden (NZDA, 1988 ; Tan,1992 & Glantz, 1973). The 100% non-participation found in India in 1974 can be explained by the complete absence of postgraduate courses. A significant finding of majorities of practitioners in Canada, Ireland, UK, South Africa and West Germany not participating on courses by two separate international reviews carried out in the early 1970's should be seen in the context of the time when they were conducted. The actual surveys would have been carried out in the 1960's and very early 1970's, when the concept of continuous professional development was still only just beginning. Urban-based dentists in Western Australia were twice as likely to attend courses (Tan, 1992), this is hardly surprising given the geography of the area! The results from these overseas surveys are summarised in Table1.8, p55.

A survey of Swedish dentists attitude to postgraduate courses (Glantz,1973) found that Swedish dentists are interested in widening and deepening their knowledge, also that those courses which are arranged are well attended. A

negative attitude to obligatory postgraduate dental education was found to be more common amongst those with a lesser commitment to continuing dental education in the previous five years. That figure was from a study with an 88% response rate (Glantz, 1973).

Many countries in Europe now either have, are in the process of implementing or are considering implementing mandatory recertification of doctors based on fulfilment of a minimum number of attendances at continuing education (Eyensbach, 1998). A similar trend towards compulsory recertification of dentists along similar lines is happening in many states of the USA, Canada and UK. So there will soon be legal impetus to drive participation rates higher than they currently are (GDC, 2000).

Table 1.8 International studies and reviews

Date	Authors	Location	Response rate	% Not participating	Details of participation on courses
1973	Glantz	Sweden	88%	11%	1 course in last 5 years – 30% 2 courses – 26% 3 courses – 11% 4+ courses – 13% Negative attitude to obligatory continuing education among those less active on courses in last 5 years
1974	Farmer	Includes U.S.A, U.K, South Africa, Canada, Sweden	-	-	Participation rates low in all countries reviewed , except Sweden
1975	Cowan	Canada, West Germany, Ireland, Switzerland, India, & Sweden	-	90% 85% 85% 50% 100% 11%	In a 1968 USA survey the highest level of attendance was among 30 – 50 year olds , with a tailing off after 50
1988	NZ Dental Association.	New Zealand	-	-	25% of dentists significantly less active than peers in continuing education
1992	Tan	Australia	-	60%	Showed greater participation in urban areas

1.5.4. Age bands and those who do or do not take part, in the UK

Only Wild, Mouatt and Ireland analyse attendance at courses by age (Wild,1989, Mouatt,1991,Ireland et al,1999). Macgregor (MacGregor et al,1991) and Mercer (Mercer et al, 1995) did look for correlations between time in practice and score on their respective indices of dental education activity and continuing professional development. A comparison is complicated by the different wording used by different authors, that could affect the comparability of the variables. Wild uses “year of original registration”, whilst Macgregor and Mercer use “time in practice” and Ireland uses “time since graduation”. The correlations found by Macgregor and Mercer related to age appear to be contradictory – MacGregor found that those in practice longer had lower IDEA scores, whilst Mercer found that older dentists had slightly higher scores on ICPD. This could be related to the non-linear components of their respective indices, which are very similar. The principal trend to be noted from a comparison of the 1990 and 1995 Leeds studies; is that attendance at courses tails off after age 50, a finding in agreement with a finding in Cowan ‘s international review (Cowan, 1974).

Table 1.9 Comparing reasons for attending or not attending courses across several studies

Authors	Reasons for not attending	Reasons for attending	Factors influencing attendance																																										
Kerr Gilbert	<ol style="list-style-type: none"> 1. Lack of time 2. Distance 3. Fatigue at end of day 4. Loss of income 5. Lack of interest in subject 6. Lack of notification 	-	-																																										
Awty & Balk	<ol style="list-style-type: none"> 1. Courses held at inconvenient times 2. Level of course incorrect 	-	-																																										
Basker et al	-	<ol style="list-style-type: none"> 1. Update on new things 66.3% 2. Make good deficiencies in undergraduate course 15.9% 3. Revise 15.2% 	-																																										
Mouatt et al	<table border="0"> <tr> <td>Lack of time</td> <td>N</td> <td>%</td> </tr> <tr> <td>Loss of earnings</td> <td>178</td> <td>55</td> </tr> <tr> <td>Home life</td> <td>154</td> <td>48</td> </tr> <tr> <td>Relevant course not available</td> <td>99</td> <td>31</td> </tr> <tr> <td>Distance</td> <td>69</td> <td>21</td> </tr> <tr> <td>Don't need training</td> <td>60</td> <td>19</td> </tr> <tr> <td>Lack of information</td> <td>40</td> <td>12</td> </tr> <tr> <td></td> <td>53</td> <td>11</td> </tr> </table>	Lack of time	N	%	Loss of earnings	178	55	Home life	154	48	Relevant course not available	99	31	Distance	69	21	Don't need training	60	19	Lack of information	40	12		53	11	-	<table border="0"> <tr> <td>Loss of earnings payment</td> <td>86</td> </tr> <tr> <td>More local</td> <td>72</td> </tr> <tr> <td>More evenings</td> <td>62</td> </tr> <tr> <td>Wider range</td> <td>60</td> </tr> <tr> <td>Earlier information</td> <td>54</td> </tr> <tr> <td>More weekends</td> <td>50</td> </tr> <tr> <td>More information</td> <td>49</td> </tr> <tr> <td>More places</td> <td>43</td> </tr> <tr> <td>No significant correlation to age with any of these</td> <td></td> </tr> </table>	Loss of earnings payment	86	More local	72	More evenings	62	Wider range	60	Earlier information	54	More weekends	50	More information	49	More places	43	No significant correlation to age with any of these	
Lack of time	N	%																																											
Loss of earnings	178	55																																											
Home life	154	48																																											
Relevant course not available	99	31																																											
Distance	69	21																																											
Don't need training	60	19																																											
Lack of information	40	12																																											
	53	11																																											
Loss of earnings payment	86																																												
More local	72																																												
More evenings	62																																												
Wider range	60																																												
Earlier information	54																																												
More weekends	50																																												
More information	49																																												
More places	43																																												
No significant correlation to age with any of these																																													

	%	VIP	IMP	NIMP		%	VIP	IMP	NIMP	
Macgregor et al	Home life Application refused Loss of earnings Inconvenient time Subject of no interest Course too far away Insufficient notice	40 34 28 23 18 15 15	38 7 35 60 42 41 24	22 59 37 17 40 44 61		Improve skills Improve knowledge Fill gaps in university course For legal protection Learn business skills Improve earnings	48 42 29 9 4 3	45 51 47 45 39 31	7 7 27 46 57 66	-
Mercer et al	Lack of time Loss of earnings Home life Subject of no interest Application refused Inconvenient timing Other	24 16 16 11 9 7 -	17 11 10 8 10 12 10	Non attender n = 55						-
Ireland et al						63% preferred "hands on" courses Wednesdays (45%) and evenings (53%) were the most popular times 22% will go up to 30 miles to attend				a 12 session module of postgraduate education 423 (82%) would pay for this 259(61%) up to £500 126(30%) £500 - £700 39(9%) £700 -£1000

VIP = Very Important
IMP = Important
NIMP = Not Important

1.5.5. Reported barriers to participation

Barriers to the provision of continuing education are not trivial. Six principal reasons were cited as frequently given for not attending courses (Kerr Gilbert, 1975):

1.Lack of time

Lack of time to attend is cited most commonly in the surveys by Mouatt(1991) and Mercer(1995) and inconvenient timing of courses is the fourth most common reason given for not attending in MacGregor's survey(1990), after 'home life', 'application refused' and 'loss of earnings'.

2.Distance

Distance was a factor discouraging attendance for a significant proportion of dentists - 20% (Mouatt, 1991), but when MacGregor introduced a scaled response for a question on distance to courses, 56% rated it as very important or important.

3.Fatigue at end of day

This category did not seem to arise again in the other studies, but 'home life' was rated as very important or important in reasons for not attending in MacGregor's 1990 study.

4.Loss of income

This was given as a reason by 48% of those in Mouatt's 1991 survey, compared with 63% rating it as very important or important in the 1990 Yorkshire survey (MacGregor, 1990) and 16% of non-attenders (as opposed to 11% of attenders) in the 1995 follow on survey there (Mercer, 1995). In Mouatt's survey 86% said that loss of earnings

payments would make them more likely to attend courses. So it would appear to be a major factor influencing attendance at postgraduate courses.

5.Lack of interest in subject

MacGregor(1990) found that 60% said that the subject being of no interest was a reason for not attending courses. Mercer 1995 found only small numbers citing this as a reason for not attending - 11% of non-attenders and 8% of attenders.

6.Lack of notification

All the recent studies did not find that lack of notification featured much at all as a reason for not attending, so perhaps this has improved since 1973

Basker and co-workers' survey (Basker et al, 1973) found a lot of dentists desiring to obtain information on recent developments (66.3%) when attending courses.

However, it should be noted that changes in practice are more difficult to accomplish than changes in knowledge - "*affective changes are more difficult to accomplish than cognitive*" (Lang et al, 1991).

Wild, Walmsley & Frame, Mouatt et al, all found decreased participation by older dentists, but Basker found that age was not a factor for those attending a lot of courses (10 -15 per year). Also Ireland found no significant correlation between age and the number of courses attended. He also reported a significant proportion of dentists (22%) prepared to travel a substantial distance (30 miles) and 39% prepared to pay over £500 for an extended module of small group postgraduate education. Full details

in Table 1.9, p57 & 58 (Basker et al, 1978).

1.6. How peer review is carried out

A report produced for the National Health Service Executive (Fleming et al, 1996) divided the peer review methods employed by groups in England and Wales into ;

A. Identifying standards.

1. Used explicit standard

B. Identifying current professional performance.

2. Used explicit measures of performance
3. Described own practices in informal discussion
4. Member's presentations
5. Member's presentations with artefacts
6. Observations of artefacts
7. Observations of peers at work
8. Systematic discussion using explicit checklist
9. Invited speaker

C. Assessing current professional performance or standards.

10. Critical appraisal of literature
11. Implicit professional judgement of performance

12. Critical examination of self reports
13. Critical appraisal against explicit measures
14. Critical appraisal using BDA checklist.

The report also notes that proposals for a project might develop from informal discussions among general dental practitioners, local sections of the dental professional organisations, discussions involving vocational trainers and others concerned with postgraduate education. Participating dentists can use existing sources of material for their review projects or can set their own guidelines if they prefer. A British Dental Association document provides a framework for the carrying out of a review of one practitioner by another, giving useful advisory headings to help structure a review (BDA, 1991b). Also a general observation is made that it is "*preferable for more than one practice to be involved*" (Scottish Office, 1994), this is to try and encourage dentists to meet other dentists who they might not otherwise meet with professionally. The intended effect was to encourage wide dissemination of the peer review process and try and recruit dentists perhaps not otherwise involved in continuing professional development. Methods employed in Peer Review in Scotland included: progression from study group, critical appraisal of literature, critical examination of self reports, invited speaker and description of own practices in informal discussion. This information was gathered from the free form comments at the back of the questionnaires in this study, together with personal experience of groups and participant's comments to me. The project resumes and report on the scheme produced upon its completion are not publicly available. In April 2001 new advice on Peer

Review and Clinical Audit in the GDS was issued, that stressed how these processes were to form a central feature of the Clinical Governance process in a three yearly rolling cycle (DoH, 2001).

Sorricelli describes a review process carried out at the Division of Dental Health, Philadelphia Department of Public Health (Sorricelli, 1968). He makes a distinction at the end between peer review of an individual dentist's practice e.g. as undertaken as part of the MGDS examination (Royal College of Surgeons of Edinburgh, 1995) or Vocational Trainer selection procedure (Scottish Council for Postgraduate Medical and Dental Education, 1996) and that of several dentists collectively - like the 1994 Scottish Office Scheme. Peer reviewing an individual dentist usually takes the form of rating against a pro forma checklist, such as the nationally agreed one used by Health Boards in Scotland when inspecting new practices. Yet Schonfeld states *"The theory of peer review as a critical examination and subsequent evaluation, by a group of competent dentists of what has occurred elsewhere should be modified to include self-review and self-evaluation as a part of, or possibly a replacement for certain aspects of the process"* (Schonfeld, 1969). He goes on to contrast a view that review procedures should be continuous or at least periodic, with a policy of only reviewing when a problem has arisen. A detailed description of levels of service or care is then given;

Level 1 - The restoration, procedure or service.

This refers to a particular item (such as a crown) or service (such as oral hygiene instruction) provided.

Level 2 - The mouth

At this level the relationship of one restoration to another (such as crown and periodontal health of restored tooth) is examined and evaluated.

Level 3 - The person

This level involves the assessing the patient's suitability for treatment (is the patient medically fit enough to undergo the proposed treatment?) and also involving the patient's preferences and circumstances (a patient may be able to afford advanced treatment, but decline it on personal preference, equally a patient may desire advanced treatment, but be unable to afford it).

Level 4 - The family and community

This level involves knowing about all the dentistry that is needed in the community, whether provided or not.

Each level has 4 dimensions that can be assessed;

Dimension 1 - Technical

Here technical quality can be assessed against definite criteria (are appropriate instruments available, are suitable materials used, does the crown occlude correctly?).

Dimension 2 - Professional-logistic

Quantitative aspects of the adequacy of care are considered here (Are examinations scheduled at appropriate intervals, are radiographs used

appropriately for diagnostic purposes?

Dimension 3 - Organisational

This relates to the facilities of the practice or clinic, qualifications of the personnel, patterns of staffing and equipment.

Dimension 4 – Financial

This concerns how the method of financing the care affects the other three dimensions.

Under a section on standards he emphasises that the dentist must be active in measuring and evaluating, also that many dentists should be involved in standard setting. In conclusion he says that “*the standards for the various indices used for this dimension should form the foundation for daily performance*”. This is effectively a description of clinical audit 20 years before it was so called.

1.7. Where peer review is carried out

It is implicit in the 1991 guide to peer review that review should normally occur at the practices of the participants, normally “*when the practice is working*” (BDA, 1991b). However, this document is only advisory and does not exclude meetings elsewhere. Indeed, an evaluation of peer review in England and Wales found that 38% of meetings were held at practices, with 12% at other locations and 50% of data missing - practitioners did not cite this information in their resumes (Fleming, 1996). The Scottish Office document does not give explicit guidance on locations of peer review

meetings. However it is implicit in the guidance notes that the types of subjects suitable for peer review projects will involve visits to practices or collection of data from them. A published report of a peer review project in 1996 bears out this implication (Holt & Earp, 1996). An advantage of meeting in the practice setting is that it is considering matters in context as a practical exercise, rather than a theoretical conversation at a remote location. It also allows processes to be reviewed that only operate when the practice is open e.g. answering the telephone. These factors need to be weighed against the disadvantages of disruption to normal patient care and the associated loss of remuneration to the practice. Sometimes a mixture is indicated - with some sessions at the practice gathering data or observing and some sessions later, at a remote location to analyse and discuss matters.

Geographically, peer review has been carried out in the U.K. as follows:-

England and Wales since 1991 and continuing

Scotland since 1994, until 1998

Northern Ireland - no information

Other territories of the UK (e.g. Channel Islands) no schemes have been operated.

1.8. Why peer review is carried out

Probably the first recorded formal attempt at peer review in dentistry is that of C.O.Cone, who proposed, in 1846, to the American Society of Dental Surgeons that members make annual reports to the society of all failures in surgical or mechanical

dentistry and their assessment of the cause of the failure (McLuggage, 1959). In 1947 four hundred and nine dentists reported times taken to perform various procedures, mean values were obtained and served as a standard value against which their own performance could be evaluated (Klein.H. et al, 1947) - a crude form of performance measure by peers. As part of the dental services provided via the Veterans Administration after World War II, unannounced checks on technical adequacy of treatment were required to be carried out (Veterans Administration, 1955). This is a process that appears similar to Dental Reference Officer inspections of patients in the UK; a review of quality of treatment introduced as an integral part of National Health Service dental services in 1948. However, both of these may be regarded purely as a quality control mechanisms as there is no element of consensus involved in the review (Burke & Wilson, 1994). “ *The post-graduate school was thus originally an undergraduate repair shop.*”(Flexner, 1910) - part of Abraham Flexner’s damning report on Medical Education in north America in 1910 (cited by Dryer, 1962). Dryer states that at that time continuing education (Medical) relied more on the practitioner’s own conscience, peer pressure and individual patient’s judgements. A national program of continuing physician education was proposed to meet existing and anticipated needs. The educational structure he suggested should be kept within the realities of practice and so emphasise the importance of self evaluation as a precursor or part of peer review. Five highly personalised criteria were also proposed that continuing professional education should meet :-

1. Personal satisfaction .

2. Freedom of choice
3. Continuity
4. Accessibility
5. Convenience.

An interesting observation is made in this report, of what he calls Structure – Function duality, which says that organisations formed by the profession now form the profession. This is written with respect to the Medical Profession of the 1950’s in U.S.A., but it can be seen to be happening to the dental profession in the United Kingdom; the Faculties of Dental Surgery and of General Dental Practitioners were founded by interested practitioners to promote higher standards of training and practice. It now helps to form the profession by approving training and granting further qualifications. In a similar fashion, interested practitioners helped to establish and fund Vocational Training, which now is mandatory for all UK and Non-EEA graduates wishing to enter NHS practice. So, now virtually all entrants to the profession in UK are formed by VT - an experience formed by the profession, yet now it is forming the profession. Peer review in U.S.A. developed, at least partly, in response to growing public dissatisfaction (Martin ,1977; Schless ,1972) and the profession’s response to demands for quality control systems. The National Health Program states that the profession be subject to “*effective review of quality of care and fee questions and be responsible to the public’s interests as well as to those of the profession*” (American Dental Association Task Force, 1971), but it also says that review should not be

narrowly interpreted to refer to quality of care only, and thus echoes Schonfeld and the Scottish Office green book (Scottish Office, 1994). In 1974 Milgrom found that the courts (in North America) now recognise a national standard of dental care not a local one. He further asserts that continuing dental education has failed to serve as an effective quality assurance mechanism and that *“the development of individual dentist’s practice problems and specific national standards of care should provide a framework for re-structuring continuing dental education”* (Milgrom, 1974). Thus by the mid seventies thoughts on peer review were developing, but various attempts at peer review had already been made.

A letter to the British Dental Journal answers a leader question *‘just how do we motivate general dental practitioners to keep up to date?’*, by saying that there may be more than one answer. It goes on to point out the success of Dental Practice Advisors in bringing peer review to echelons of the profession which would never have involved themselves in it voluntarily (Lewis, 1991). By a postgraduate education allowance(PGEA) being payable to eligible practitioners who participated in a scheme (Scottish Office, 1994) any financial penalty for participating was at least partially offset. This has since been superseded by a continuing professional development allowance(CPDA)(Scottish Executive, 2001), that is also payable for participation in clinical audit activity - under which Peer Review is now operated in Scotland. The General Dental Council in its statement of intent on postgraduate education makes it clear that every practitioner has an ethical obligation to continue professional education for the duration of practice. Peer review is seen as a relevant professional educational activity (GDC, 1995;GDC, 1997a) and is cited as a possible

mode to be included in remedial education (GDC, 1998a). A General Dental Council report states that the important role of peer review, audit and continuing professional development are initiated and emphasised in General Professional Training (GDC, 1998b). A working group of the Dental Committee of the Scottish Council for Postgraduate Medical Education recommended significant changes in the provision of continuing education, including encouraging peer review activities as they "*believe that every general practitioner should be involved in peer review, both as 'reviewer' as well as being 'reviewed'*". (Scottish Council for Postgraduate Medical Education, 1991).

The conclusion of the evaluation of a year -long 'hands -on 'course was that a majority of participants highly valued the opportunity to study with like -minded practitioners (Vlitos et al, 1996;), emphasises the value of personal contact in continuing dental education. This had also been shown to be the case in the USA (Chambers & Hamilton, 1975). This was taken further by Ireland et al, who found an enthusiasm for existing courses and some demand for courses of longer duration (Ireland et al , 1999).The results of a pilot peer review project also showed that "*participants found discussing topics with known , like -minded and trusted colleagues and friends immensely valuable*". All participants expressed an appreciation of the chance to see how colleagues had solved common problems (Holt & Earp, 1996). Peer review is commended as it "*encourages openness because of mutual support*" (Lewis, 1997). Dentists who review themselves are more critical of their own work than as reviewers of peers (Milgrom et al, 1980). They also found

poor treatment was given by dentists who adhered only to passive modes of continuing dental education. This study concludes that a clinical assessment program that identified practice deficits led to improved patient care. In 1985 Grol and others describe a Dutch General Medical Practitioner peer review scheme which had a structured programme over 18 months. They conclude that once participants have got to know each other the perception of peer review as threatening disappears and that using predefined criteria representing ideal procedures is feasible, but that it must be possible to modify these (Grol et al,1985). This supports the idea that participation should be voluntary - *"Peer review can only succeed if all the participants are prepared to commit themselves sufficiently to the process. They should be willing."*(van de Rijdt et al cited by Grol & Lawrence ,1995). A distinction is worth making here between the studies cited above that deal with perceptions of the value or effectiveness of peer review, and studies looking at change in practice or improvement in quality measures - such as those cited in the discussion on pages 71-76.

Recent developments in National Health Service quality assurance have underlined the increasing importance envisaged for peer review. The process of clinical governance (a quality assurance measure) is in the process of being introduced to all clinical areas of the National Health Service. Clinical governance is a framework through which dental practices are accountable for continuously improving the quality of their services and safeguarding high standards of care by creating an environment in which excellence in clinical care will flourish (D.o.H, 1998). This has been put more

succinctly in Scotland as "corporate accountability for clinical performance" (NDAC,2001). Peer review can form part of the continuing professional development activity required to fulfil clinical governance requirements (BDA, 2000) - *"The central pillars of clinical governance will be clinical audit and peer review..."* (Audrey, 1999). The British Dental Association sees existing formal and informal peer review fitting easily with the new clinical governance structures (Higgins, 1999).

As an educational process (BDA, 1991b) that involves a participatory element peer review goes some way to satisfying one of the recommendations of the first Nuffield report (Nuffield Foundation , 1980) - *"17. The General Dental Council should explore methods for initiating a system by which dentists are required to obtain a certain number of 'credits' for attendance at approved continuing educational activities that include a participatory element"*. It is well established as an activity of continuing dental education, which is illustrated by it being listed in the Vocational Training curriculum amongst processes to be experienced by participants as a part of developing an awareness of the need for a lifetime of continuing professional development (CVT England & Wales, 1997). Trainees see it as an acceptable method of assessing performance in the early years of postgraduate training (Devine et al,1995).

1.9. Effectiveness of postgraduate dental education

In 1977 it was suggested that the new graduate had incomplete training (Reeves,

1977). The development of Vocational Training and the piloting of General Professional Training has addressed this perception. Reeves also highlighted a problem with contemporary postgraduate medical education - that of determining its effectiveness. A review of the literature, in a study of procedures to assess care and continuing dental education, found that *“the tacit assumption of those who require participation in continuing dental education is that it makes a difference in patient care ... Few continuing dental education programs in the USA to date (1978) have included an evaluation of impact on the skills of the dentist or outcome on patient treatment”* (Milgrom, 1978a). In the same paper he reports conclusions that practitioners strongly believe that continuing dental education affects the quality of care they provide and that the data collected indicates that some types of continuing dental education courses correlate with quality measures. A cautionary rider was appended to this paper - that the sample consisted of volunteers and that those who respond most readily to voluntary peer review may only be a portion of all practitioners (Milgrom, 1978a & b).

Multiple methods of assessment should be utilised to assess outcomes in dental education, instead of a single outcome measure (Morganstein, 1990). Conn distinguishes between process assessment, which is increasingly a requirement for recertification, and outcome assessment - which is much more difficult to assess (Conn, 1992). A long-term program in continuing education for general dentists implemented at the University of Illinois at Chicago (Neumann & Beaudry, 1979) was evaluated and feedback indicates that participants liked the (small) class size and

felt that group interaction was very important to the learning process. In the discussion section the authors say that data should be collected to demonstrate whether courses of this type result in actual changes in practice behaviour or changes in practice." *Further work should concentrate on evaluating the effectiveness of audit in bringing about change rather than on generating information*" (Shaw, 1980).

The role of continuing professional education and continuing medical education is widely recognised throughout Europe as important in maintaining standards (Jones, 1993). He also says that to be effective adult learning needs to be:

A. interactive

B. relevant to their work e.g. involving problem solving. A point emphasised by Brown & Uhl - *"Most adults learn most efficiently and effectively in a problem – solving situation"* (Brown & Uhl.1970).

C. built on their own experience.

It has been stated that General Medical Practitioners and hospital staff should, examine their performance and identify areas in which further education is required (O'Dowd & Sprackling, 1989). A successful continuing audit - The Lothian Surgical Audit, has existed since the 1940's and its success is based on accurate data, high compliance and acceptance of peer review (Nixon, 1992). Continuing medical education is but one link in the quality assurance chain (Sanazaro, cited by O'Dowd & Sprackling, 1989). There is clear evidence that having the most up to date knowledge (K) and attitudes (A) does not necessarily mean translation into practice (P), the so-called "KAP" gap (Rogers, cited by O'Dowd & Sprackling 1989). This is

borne out by findings in general dental practice that routine use of rubber dam during endodontic treatment is only practiced by a small proportion of practitioners, despite this having been taught as essential practice on both undergraduate and postgraduate courses (Saunders et al, 1999a). A conflicting view to Rogers' is expressed by Shaw who quotes an audit study from 1976 that concluded " *education and appropriate change in practice do follow*" and observes that " *The peer review group improved their technique significantly. Higher scores correlated with longer consultations*" (Kirk & Lee-Jones, cited by Shaw, 1980b). Medical education by peer review probably works, but the possibility that the improvement observed may have happened anyway could not be excluded, as an underlying trend of improvement pre-dating the peer review effort was identified (Devitt, 1973). It has also been shown that Peer assisted learning has been well received in general medical practice (Sackin et al, 1997). In General Medical Practice it has been shown that general medical practitioner's behaviour conformed more closely to criteria after participating in peer review (Grol et al, 1988). A review of the literature in 1995 showed that audit, feedback and peer review are effective in medical practice (Grol & Lawrence, 1995).

Continuing education is noted as being important in preparing practitioners for changes (ADA, 1983). Failure to make changes appeared related to lack of information (Sarll & Holloway, 1982). Another finding by these workers was that the more a dentist delegates non-dental tasks, the more likely he is to keep up to date. Social interaction (vocational) is another factor, which could also be described as socialising professionally, e.g. reading journals, membership of professional

associations and attendance at scientific meetings. All these activities correlated with innovations, but not attendance at courses. They went on to suggest that the quality of dental practice may be improved by developing new channels of communications and making better use of existing ones, finally suggesting a major hypothesis for further investigation - that dental practitioners success in keeping up to date is influenced by the volume of information they acquire from all sources in the health care system. A report that of 307 general dental practitioners in Yorkshire, 199 (65%) indicated that an educational activity in the previous three years had helped or caused them to alter the way in which they practised dentistry. 80% of these said that participation in courses was the major catalyst, 9% journals and 7% peer review (Mercer et al, 1998).

1.10. Effectiveness of peer review

A 1995 postal survey of Yorkshire general dental practitioners found that comparing experiences, discussion and contact with colleagues were three major advantages of peer review, whilst 55% said there were no disadvantages to peer review (Mercer et al, 1995). An evaluation of the peer review scheme in England and Wales by quantitatively and qualitatively analysing the contents of the end of project resumes of a random sample of 50% of the available 640 resumes found that benefits to patients include changes in clinical practise and that participating dentists value collaborative learning in the group (Eaton et al, 1998).

A report of an evaluation of the pilot peer review scheme in England concludes that the scheme was enthusiastically welcomed by the participants and has achieved its objectives of encouraging initiatives to improve patient services and testing of different types of reviews (Eaton et al, 1998). A preliminary evaluation of the scheme carried out in 1993 (Pitts, 1993) concludes that there was a clear indication of real change taking place in individual's professional practices as result of participating in peer review. Participating dentists identified the benefits as being directly attributable to collaborative learning in the group - the advantages of which have been identified elsewhere (Keffner & Dadian, 1996).

As well as the conclusions quoted above, the authors found that although established as an interim measure, it appears to have taken on a life of its own. This evaluation of the peer review pilot scheme in England and Wales uses qualitative analysis methods to draw its conclusions, which involved employing a trained social scientist coder to code the material on the basis of significant statements about all aspects of dentistry raised in the reports (discursive document reports received from the Department of Health from 57 pilot peer review groups). Although a lot of useful information was extracted, it was not possible to perform a quantitative analysis. The report makes several recommendations, including noting that peer review was perceived as an acceptable and constructive form of self-appraisal and continuing education. So the uptake of peer review should be encouraged beyond the initial group. Problems were identified, which included the following - 14 groups (25%) reported difficulty in finding time for the peer review meetings, 12 (21%) were worried that uptake of peer review might be self - selecting for motivated

practitioners only. Fifteen (27%) groups felt that peer review was under – remunerated. 5 groups, (9%) expressed difficulty in keeping to the agenda. The peer review groups were found to be valuable as learning environments. Satisfaction with peer review was expressed virtually unanimously and was felt to reduce individual practitioner’s feelings of isolation. The report concludes “*There can be no doubt that peer review groups have a place in the continuing education process for dentistry*”.

A survey of British dentists and final year British and American dental students’ opinions on their training found that the most significant influence on their continuing professional development was perceived as “*colleagues and own experience*” - 80%, compared to 57% for formal courses and 42% for literature. Other sources quoted were technicians 12% and salesmen 8%. Overall, this suggests that informal peer review was significant in continuing professional development (Silversin et al, 1974).

1.11. Summary of the principal aspects of the literature review

- Eleven UK studies have been reviewed (Table 1.5, p50) together with five international studies (Table 1.7, p52). The best information comes from five well-designed non-experimental descriptive studies.
- The main conclusions of these five studies are: Between 79% and 99% had attended a course in the previous year. Levels of participation in postgraduate dental

education have risen considerably since 1945. Although these studies show almost all the profession engaging in some continuing professional development, some were doing significantly less than the rest. However, there is a lack of information on who they are. Most studies agree that those aged over 50 participate less. This is in agreement with a finding from an international review. On other matters there are contradictory findings.

- Peer review has been reported qualitatively as an acceptable and constructive form of self-appraisal and continuing education in England and Wales. I found no similar reporting of peer review in Scotland. A 1995 review of the literature showed that audit, feedback and peer review are effective in medical practice. Information on whether this is also the case in dental practice in Scotland is lacking. The only general work on dental audit activity (uptake and effect) was the 1995 Yorkshire study (Mercer, 1995).
- Courses are a popular form of continuing dental education, but availability, timing and loss of earnings whilst attending are significant factors affecting attendance.
- A 1990 report (MacGregor) showed that most practitioners felt that participation in courses was the major catalyst in changing their practice of dentistry.

1.12. Statement of Aims

The aims of the study were; to show that the demographic characteristics of the

sample group were typical of the Scottish and United Kingdom general dental practitioner population, to determine the self-reported levels of participation in continuing professional development by dentists in the study group and to assess the perception of effectiveness of the various modes of CPD, including peer review, as methods of changing knowledge and practice in the participants. To collect some free form comments from dentists and allow any pertinent issues to emerge.

1.13. Objectives

- Obtain a list of dentists in Scotland who had participated in peer review.
- To gather, by means of a questionnaire, demographic details of the study population.
- To gather, also by means of the questionnaire, data on the levels of participation in postgraduate education.
- By means of the same questionnaire, to collect data on the perception of the participants of the effectiveness of the education.
- To test the null hypotheses (Popper, 1959):-
 - a. That peer review is perceived to be no more effective than other modes of postgraduate education in changing participant's knowledge.
 - b. That peer review is perceived to be no more effective than other modes of postgraduate education in changing participant's clinical practice.

CHAPTER 2

Method

There exists a choice of looking at outcomes to educational interventions either subjectively or objectively (Chambers, 1976, Milgrom, 1978b & Morganstein, 1990). A number of difficulties exist in assessing outcomes objectively: - The principle one is cost-it is very time-consuming for both the researchers and the subjects to undergo objective assessment of educational outcomes (Milgrom, 1980). There is also the issue that pre and post intervention tests of knowledge are not necessarily reliable, as deliberate depression of pre intervention tests has been recorded (Kress, 1979), i.e. it is not feasible to blind the experiment. It is also well established that scores on tests of factual knowledge are not always predictive of future non-test behaviour (Kress, 1979 & Rogers, 1983). Thus a subjective assessment of perception of outcomes by participants was selected on these grounds, as well as those of; budget constraint, time available to the single researcher, ease of use and convenience to both researcher and participants.

The methods available to carry out the study included data collection by:-

- postal questionnaire,
- structured interview,
- free form interview and
- focus group.

Interviews allow misinterpretations of questions to be resolved, together with the following up of points of interest as they arise and develop. However, they increase the time and financial expenditures involved. Also, further training and advice with respect to qualitative research methods would be required. Structured questionnaires and interviews allow the employment of classical quantitative analyses. Postal questionnaires have an inherent risk of a low response rate, but this can be addressed by having a non-responder follow-up strategy.

The most suitable method of conducting the study I felt was by means of a postal questionnaire; which has the advantages of being simple to administer, easy for respondents to use, easily followed up and is inexpensive compared to alternatives (Oppenheim, 1992). It is also a method that has been successfully used before in Scotland (Parry, 1989). Disadvantages include inability to clarify aberrant responses, confusing replies, inflexibility compared to interviews or focus groups and risk of a low response rate. These were addressed by incorporating free text answer questions, with the aim of allowing respondents the opportunity to explain or develop answers and a strategy to follow up non-responders was adopted, to counter the risk of a low response rate.

A pilot questionnaire form was drafted and submitted to the arbitrary number of five general dental practitioner colleagues, selected on the basis of convenience to the author, who made recommendations to improve the clarity of individual questions. The final version of the questionnaire that was used is included at Appendix I (p177).

2.1. The Questionnaire

The questionnaire was divided into seven sections covering: -

- Demographic data
- Professional experience
- Access to and participation in postgraduate dental education
- The perception of knowledge acquisition and changes in dental practice
- Perception of peer review
- Attitudes towards reaccreditation and peer review

In gathering factual information, the questionnaire mainly comprised “closed” questions, with some “open” ones. The “closed” questions required yes/no responses or a graded response on a numeric analogue scale. The “open” questions dealt with peer review and attitudes towards reaccreditation (Maxwell-Brunette, 1996; Mays and Pope, 1996; Rennie, 1994, 1995 & 1996 Oppenheim, 1992; Parry, 1989).

2.2. The mailing list

The Deputy Chief Dental Officer at the Scottish Office (the official in charge of peer review) was contacted and a list requested of those who had or were participating in the Scottish Office peer review scheme. He replied that there was no centrally held list, but provided the details of the 4 regional Peer Review Assessment Panel chairmen, who were able to furnish lists. Details of how individual projects were run

were not available, so it is not possible to say whether or not there was much variation in the methods and formats employed. So no view can be formed on the basis of data from this study as to the merits or drawbacks of particular methods or formats for peer review. Ethical considerations were addressed by the NHS Management executive, who made the provisos that the participants would be anonymous and that repeated follow ups were not made (copy of letter included at Appendix I). Formal approval from the local research ethics committee was not sought, as it was not required, given that patient treatment or confidentiality were not involved (Santini and Eaton, 1995). In this way a list of names and addresses of 268 dentists who had participated in peer review programmes during the period October 1994 to November 1996 was produced. This was the study population.

A small number (3) of the dentists reported that they were in practice limited to orthodontics, whilst a further eight reported both orthodontic and general practice activity. A further two dentists had orthodontic qualifications and three were members of orthodontic study groups, but gave no indication whether practice was limited to orthodontics or not. The question may be posed :- "do these dentists skew the data?". The GDC's continuing professional development requirements have always applied equally to all dentists on the register (Mason, 1993). The recertification requirements currently being implemented (GDC, 1997) apply equally to GDP's and specialist practitioners. At the time of the survey specialist lists were not yet in operation and identifying specialists from GDP's was a difficult matter, not the least of which is attempting to define what a GDP is. For the purposes of this study any dentist could

participate in Peer Review, but only those holding a Health Board list number were funded (Scottish Office, 1994). It is difficult to justify excluding one group of practitioners who restrict their area of practice, when it is not possible to exclude others who restrict their practice. Upon inspecting their questionnaires, the only striking feature was that their selection of journals read was more specialist in nature. So, given the small number involved and the universality of the CPD requirements a view was formed that these practitioners would not skew the data, as they correctly belonged in the GDP population at this time.

2.3. The Study Population

Questionnaires were sent out at the end of January 1997, as follows: -

- 111 to West of Scotland
 - 34 to North of Scotland
 - 23 to North-east of Scotland
 - 100 to South-east of Scotland
- 268** to all of Scotland in total

After four weeks a reminder was sent out to those who had not replied. A follow-up reminder was sent out four weeks later.

So, over 90% of those who replied did so within the first month - giving a 28 month period over which the study was carried out. The remaining 11 responders will have had a 29 or 30 month period. This will on average extend their study period by 7%, for

less than 10 % of the total response, so any effect will be less than 1% of totals for the study population and will not significantly affect the data analysis.

2.4. Anonymity

In order to preserve the anonymity of respondents the following system was adopted. A cover sheet was attached to each questionnaire, which was marked with a unique number that had been associated with each entry on the mailing list. Then the correspondingly numbered questionnaire was put in an envelope addressed with a sticker giving the addressee's name, address and unique mailing list number. An explanatory covering letter was enclosed along with a reply-paid envelope, a copy of which is included at Appendix I. Upon receipt of completed questionnaires a secretary removed the identifying cover sheet and noted on her copy of the mailing list who had responded. In this way a residual list of non- responders was created, enabling her to send a reminder without the author learning the identity of any of the respondents and without chasing those who had already replied. A copy of this reminder and the follow-up letter is included at Appendix I.

2.5. Creation of computer database to store collected data

Using an IBM - compatible Personal Computer running 'Microsoft Access' software (Microsoft corporation, 1997), a database format was created and the data collected by the questionnaires keyed into it. All entries were double-checked for errors. A conversion of 'Access' tables to 'Excel' tables allowed results to be extracted and

analysis performed using 'Microsoft Excel' software (Microsoft corporation, 1997). The 'Minitab' (Minitab Inc, 1996) statistical analysis program was used to perform Chi – Square (χ^2) analyses and Yate's corrections (Yates, 1934) were calculated manually.

2.6. Writing of the thesis

The thesis was written using 'Microsoft Word' (Microsoft corporation, 1997 & 2000) on a Dell 'Optiplex GL5100' personal computer at the university together with a Compaq 'Presario CDS520' and Siemens MCM 1510 at home. Preparation of the papers and results was made according to British Standard BS 4821: 1972 (British Standards Institution, 1972) and the university calendar 1999 – 2000 (University of Edinburgh, 1999). General information on the use of scientific English, eliminating jargon and preparing tables was obtained from books in the Erskine Medical Library (Day, 1995; Murrel et al, 1990). The Harvard referencing convention was employed (Dwyer, 1995).

CHAPTER 3

Results and analysis

3.1. Demography

Firstly, the demographic parameters of the sample population are described along with their practising arrangements.

3.1.1. The Study Population

A total of 268 questionnaires were sent out and after four weeks 147(55%) questionnaires had been returned. A final total of 164 (61%) responses were returned of which 6 (2%) were incomplete and unusable, giving a response rate of 59%(158). So, over 90% of those who replied did so within the first month - giving a 28 month period over which the study was carried out. The remaining 17 responders will have had a 29 or 30 month period. This will on average extend their study period by 5%, for 10 % of the total response, so any effect will be much less than 1% of totals for the study population and will not significantly affect the data analysis. At least six questionnaires did not reach the addressees, as they were returned marked "gone away". This will account for some of the non-responders and might reflect the higher response rates from the less populous north and northeast - fewer addressees in the west and southeast received the questionnaire in the first place. Most of the non

response (90%) was located in the west and southeast.

A small number of aberrant responses were received to some questions. These were modified by defaulting to lower scores. Full details are included at Appendix II (p187). Judicious management of the unique anonymising number system allowed a regional distribution of response to be produced, without compromising anonymity: -

- West - 58 replies to 111 questionnaires sent (52%)
- Northeast - 24 replies to 34 questionnaires sent (71%)
- North - 17 replies to 23 questionnaires sent (74%)
- Southeast - 59 replies to 100 questionnaires sent (59%)

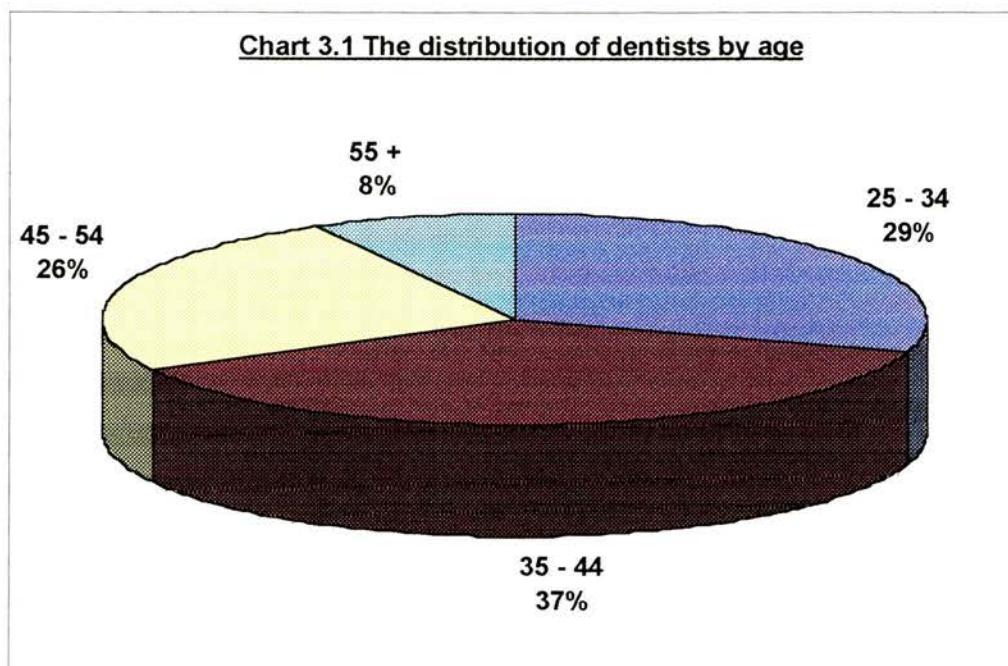
There was no significant difference between the regions in the proportions of those who responded. ($\chi^2 = 6.089$, $P = 0.107$, $df = 3$). Tables appearing in the text are numbered sequentially and those located in Appendix (p189) are numbered sequentially with the suffix A.

3.1.2. Gender

21% of those who took part in the study were female.(Table 3.1A, p189)

3.1.3. Age

The age profile of the group of dentists responding was skewed towards the practitioners who were younger than 45 years.(Table 3.2A, p189)



3.1.4. Status in Practice

Most of the sample were principals (72%), 27% were associates or assistants. The remaining 1% was accounted for by one claiming to be a salaried general dental practitioner and one dentist who did not answer this question (Table 3.3A, p190). Female dentists were much more likely to be associates or assistants rather than principals (Table 3.4A, p190). This difference was highly significant ($\chi^2 = 37.607$, $P = 0.000$, $df = 1$, Table 3.5A, p191). A similar highly significant difference ($\chi^2 = 170.79$) was found in a recent (but undated) UK wide survey with a response rate of 67% and a female proportion of 32% (Newton et al, 2000).

3.1.5. Time commitment to Practice

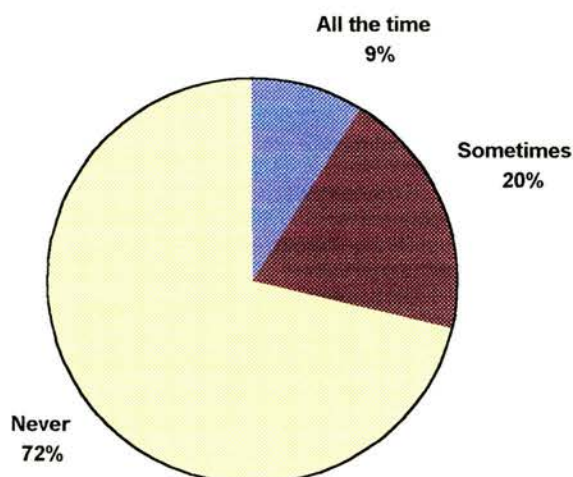
91% of respondents worked in practice full-time. Females were very likely to be working part-time (Tables 3.6A, p191 & 3.7A, p192). This difference was statistically significant ($\chi^2 = 20.369$, $P = 0.000$, $df = 1$, after Yate's correction).

3.1.6. Number of practicing locations

Nearly three quarters of the dentists worked at one location only (72%). (Table 3.8A, p192).

3.1.7. Working as Single-handed dentist

Only 9% worked in practice on their own all the time, but a further 20% did so some of the time. 71% never worked on their own in the practice (Table 3.9A, p193).

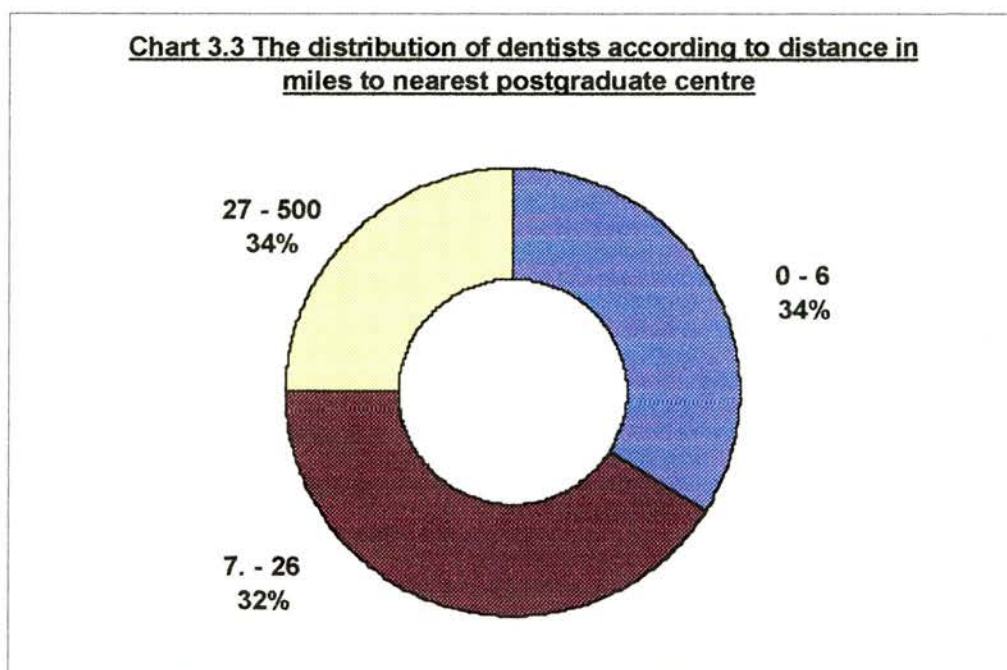
Chart 3.2 Distribution of dentists practising singlehanded

3.1.8. Career Break

11% of the dentists had taken a career break. Within this figure, 27% of women had taken a break compared to only 6% of men. So female dentists are about four and a half times more likely to have taken a career break than male dentists (Tables 3.10A, p193 & 3.11A, p194). This difference was highly significant at $P < 0.001$ ($\chi^2 = 9.772$, $P = 0.001$, $df = 1$, after Yate's correction). One obvious factor to help explain this difference is the need for women to stop work for child-bearing, often followed by an extended period of child care for young children. The emotional difficulty associated with leaving children in order to work and loss of confidence after a break from practice are factors cited as obstacles to returning to work. There are workforce planning and continuing professional development implications that flow from this area, which is covered in more detail in the report *"Better opportunities for women dentists"* (Seward, 2001).

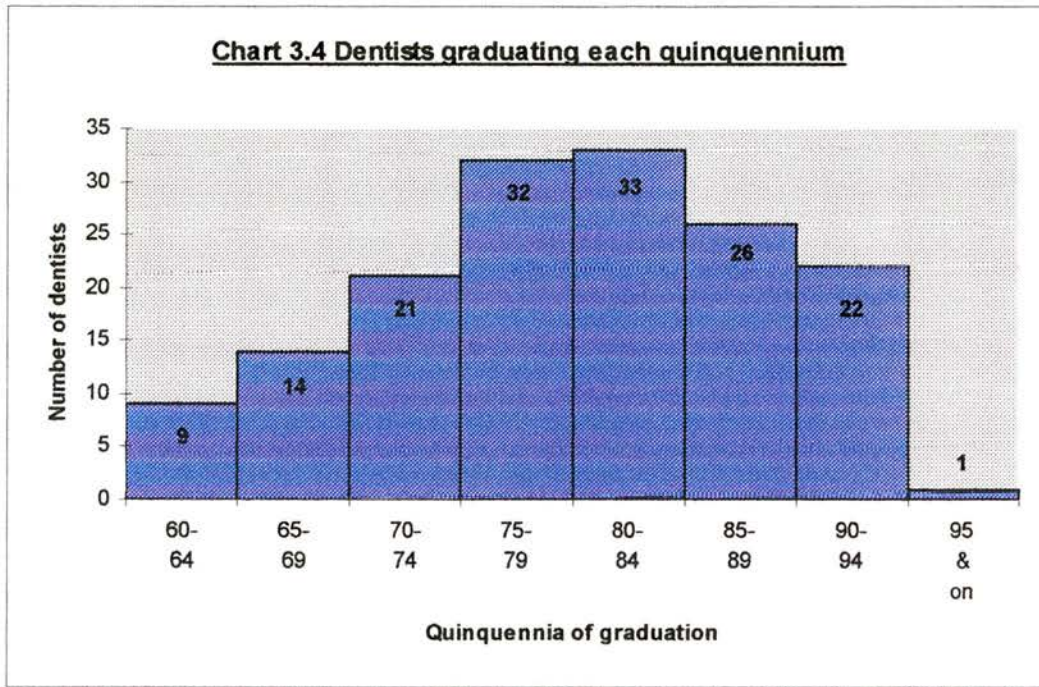
3.1.9. Distance to nearest postgraduate centre

The distance to the nearest postgraduate dental education centre varied from less than a mile to 500 miles. The average was 25.6 miles. The mode was 5 miles and the median was 15 miles (Tables 3.12A, p194 & 3.13A, p195).



3.1.10. Year Qualified

The chart 3.4 shows that the majority (57%) of dentists graduated between the late 1970's, and late 1980's. The mode was the early 1980's and the median quinquennium also the early 1980's (Tables 3.14A & 3.15A, p196).



3.2. Postgraduate Education Participation

All data in this section, to p114, are shown at Appendix III, p197-222 in Tables 3.16A to 3.46A, except that shown at Tables 3.1 & 3.2 in the text.

3.2.1. Numbers of dentists possessing postgraduate qualifications

Of the 158 respondents 45 (28%) reported that they held at least one postgraduate dental qualification. Of the 45 with postgraduate qualifications, 32 possessed only one. 5 had two and 6 had three qualifications (Tables 3.16A, p197 and 3.17A, p197).

3.2.2. Types of postgraduate qualification held

The mean number of postgraduate qualifications held was 1.5

The Mode and Median were both 1 and this shows that of the quarter or so respondents who possessed a further qualification, most had only one. The most frequently held qualification was the Diploma in General Dental Practice (DGDP), now called the Membership in General Dental Practice (MFGDP), with 25 holders. The next most frequently held was a Masters degree (MSc, MMSc & MDent) with 7 holders. The third most frequently reported qualification, with 5 holders, was Fellowship of the Faculty of Dentistry (FDS) of one of the Royal Surgical Colleges – now replaced by the Membership of the Faculty of Dental Surgery (MFDS)(Table 3.18A shows the list on p.198).

3.2.3. Attendance at courses and meetings

Charts 3.5 to 3.15 illustrate the attendance at various dental meetings

(Tables 3.19A to 3.28A, p199-208).

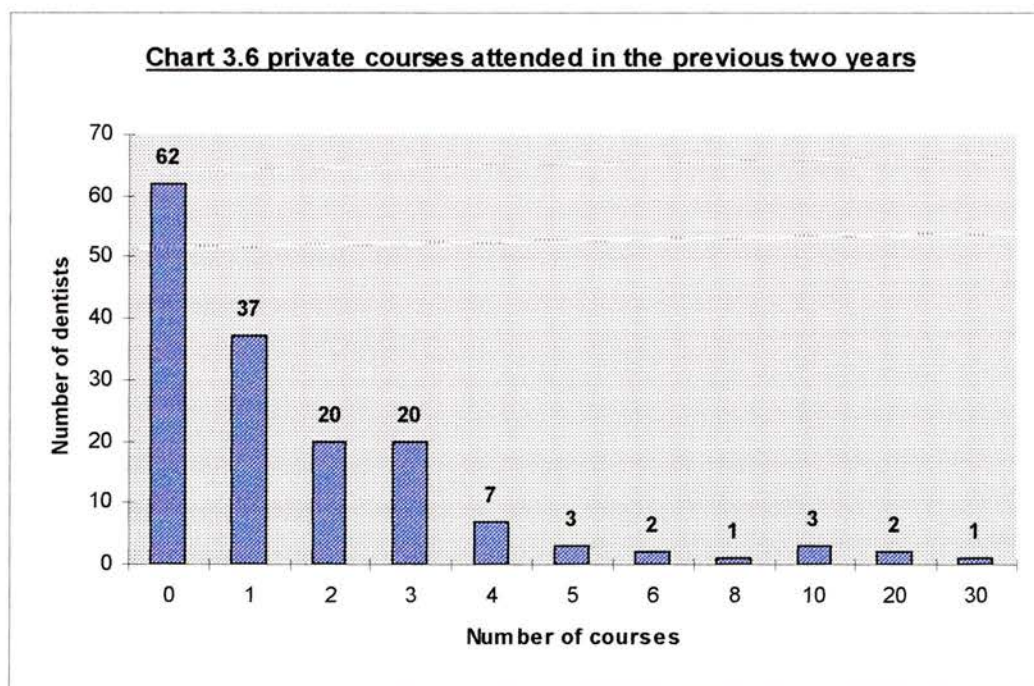
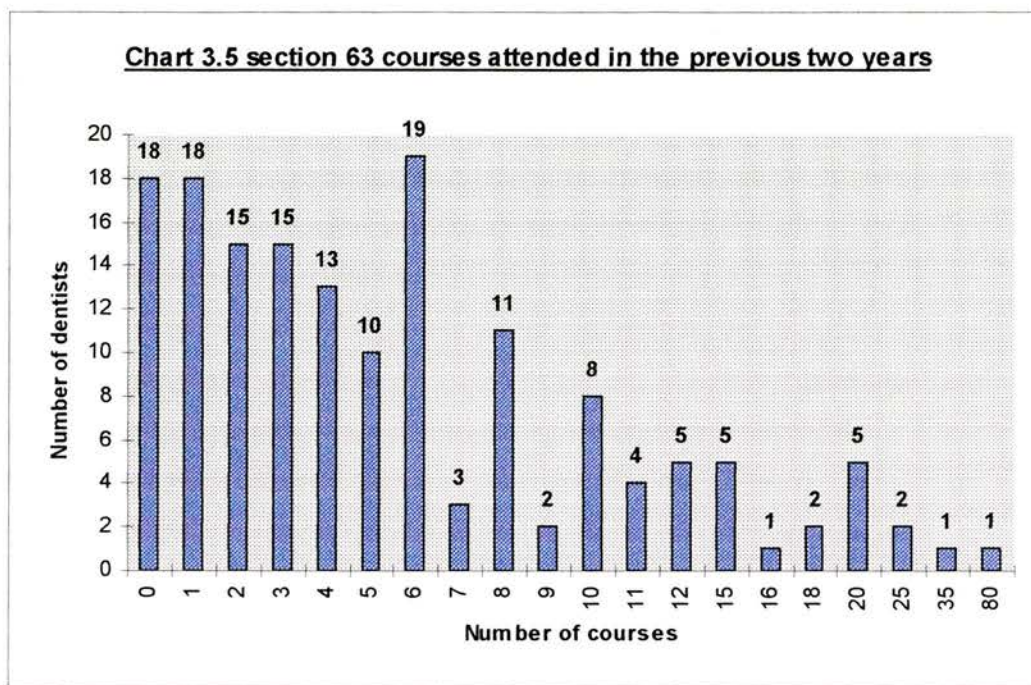


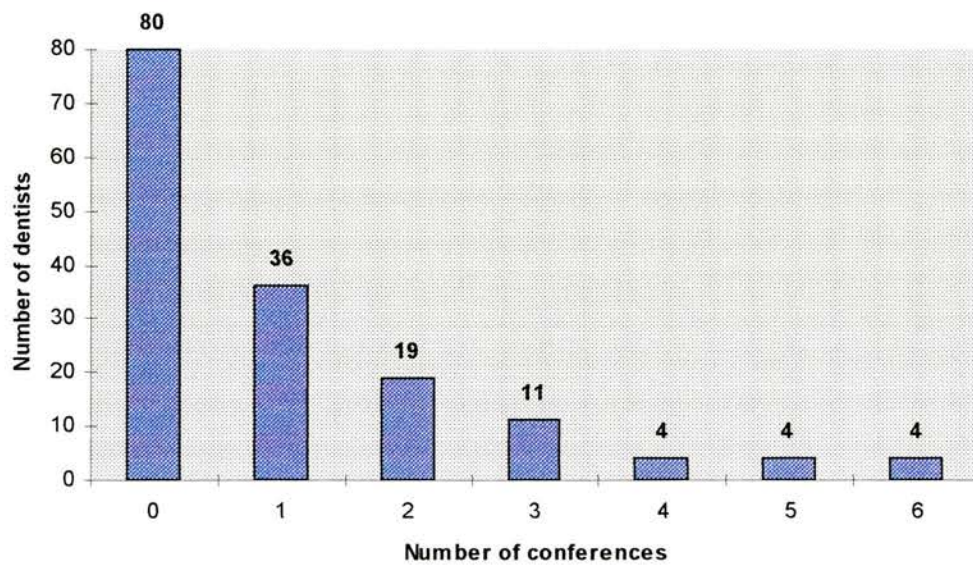
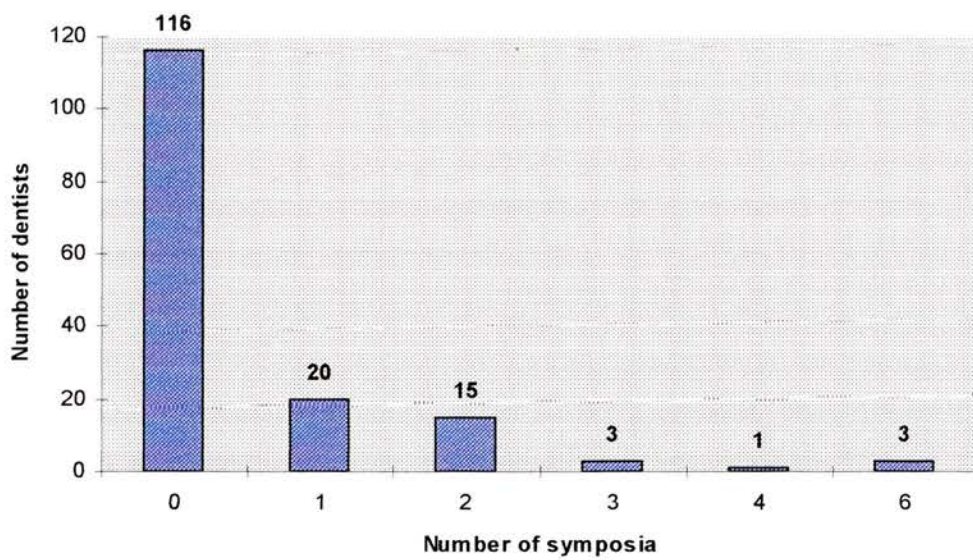
Chart 3.7 Conferences attended in the previous two years**Chart 3.8 symposia attended in the previous two years**

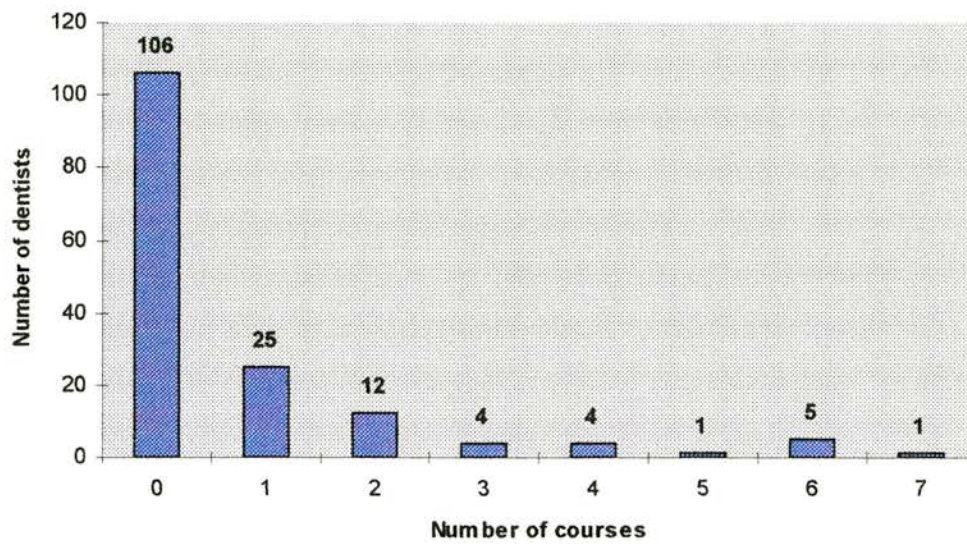
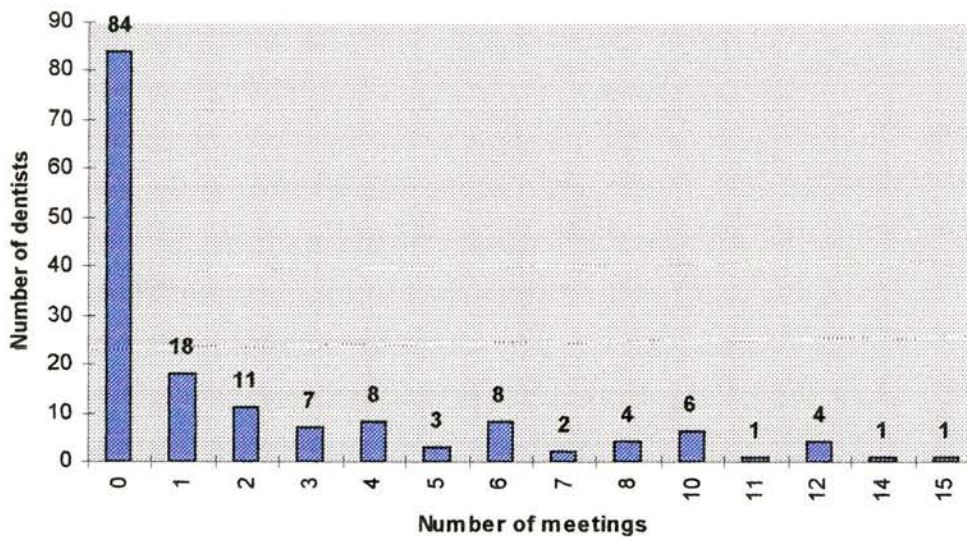
Chart 3.9 other courses attended in the previous two years**Chart 3.10 study groups attended in the last two years**

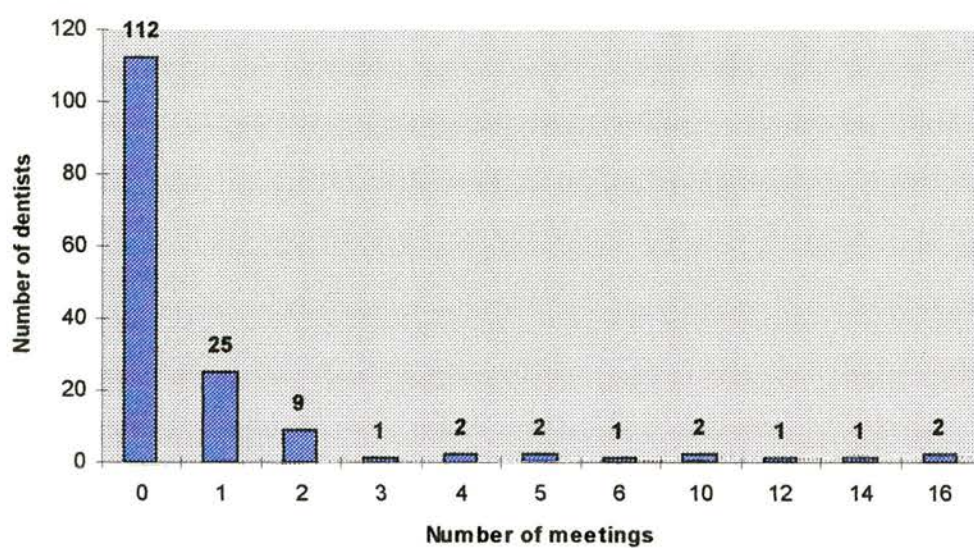
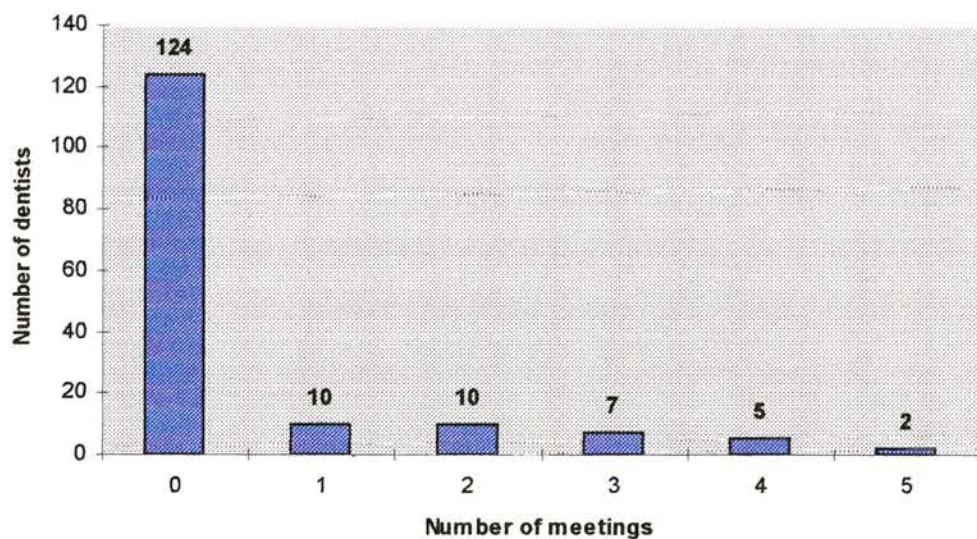
Chart 3.11 BDA meetings attended in the previous two years**Chart 3.12 FGDP meetings attended in the previous two years**

Chart 3.13 peer review meetings attended in the previous two years

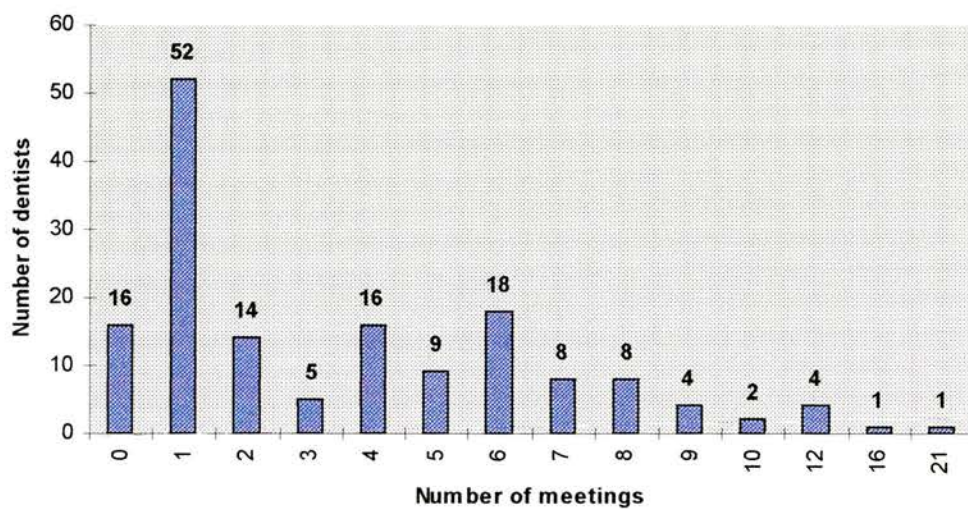
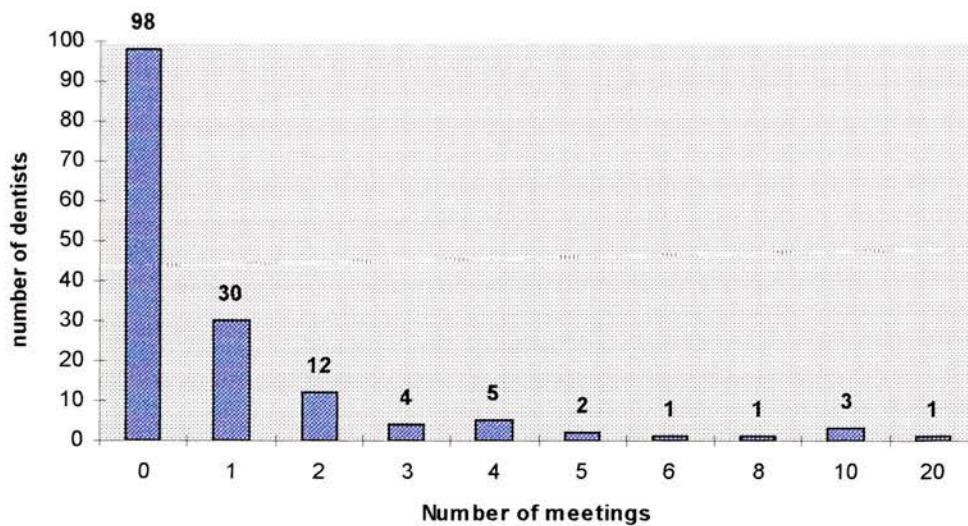


Chart 3.14 clinical audit meetings attended in the previous two years



The number of dentists shown responding in Chart 3.14. totals 157 , one less than in the other ten charts ,this is due to the exclusion of one respondent , who had answered no to attendances at audit meetings , yet recorded a number in the box for number of audit meetings attended. As the information was unclear, it was discarded. All the questionnaires were manually checked for reliability in this way.

3.2.4. Journals

The most popular journals claimed to be read were “The Probe” and “Dental Practice”, followed by the “British Dental Journal”, “General Dental Practitioner” and “Dental Update”. Only 3 practitioners (2%) reported not reading any journals at all. This is illustrated in Chart 3.17 (Tables 3.29A to 3.31A, p209-211). Charts 3.15 and 3.16 show the numbers of journals taken and read regularly, respectively. The “other” section covered specialist titles, where no more than two dentists read any particular title - except for “Scottish Dentist” which was noted six times (a non-refereed general publication). Lists of the other titles taken and read, with their frequency of citation, is included in Tables 3.32A and 3.33A (p212). The refereed journals “British Dental Journal” and “Dental Update” had significantly lower numbers taking but not reading them (12% & 14%), than non-refereed publications such as “The Probe”(17%)- the data is in Table 3.31A. One fifth of those receiving “The Dentist” claimed not to read it, but this was on a very much lower response rate to the question.

The association between reading a peer reviewed journal (British Dental Journal, Dental Update or one listed under ‘other’) and participating in educational activities was analysed and those attending Symposia were significantly more likely to read journals ($\chi^2 = 6.689, P < 0.010$). Similarly, those who attended FGDP scientific meetings were significantly more likely to

read journals ($\chi^2 = 4.700, P < 0.030$) and those who had used a distance learning package were very significantly more likely to read journals ($\chi^2 = 10.906, P < 0.001$, Table 3.34A, p213).

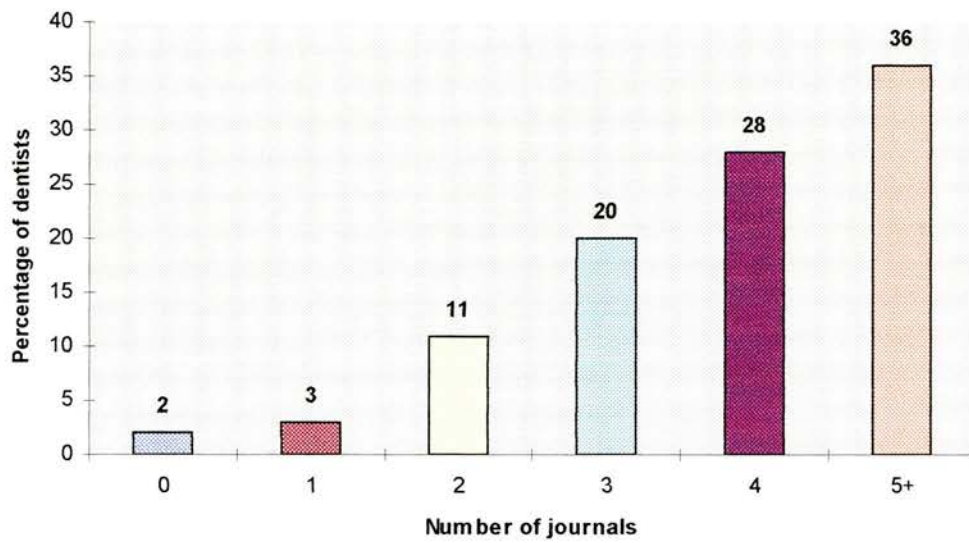
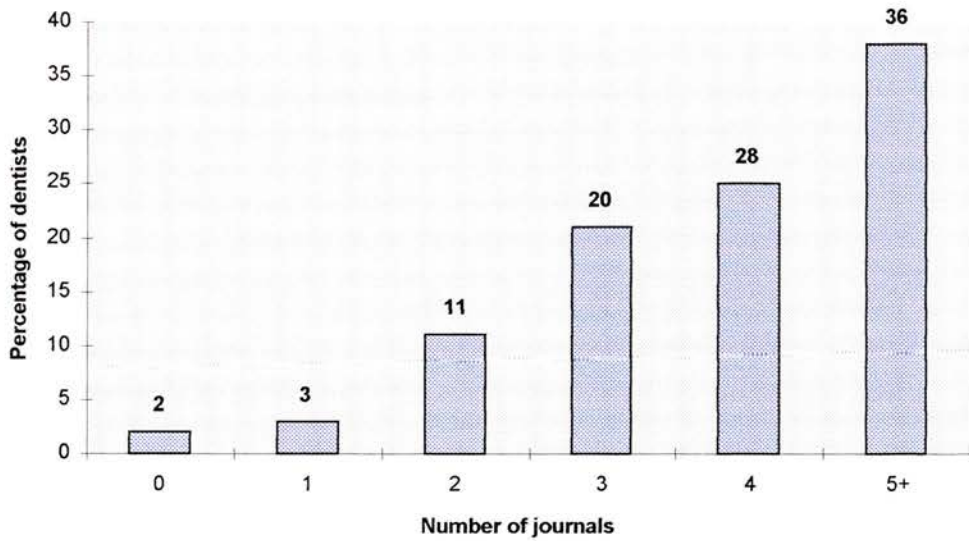
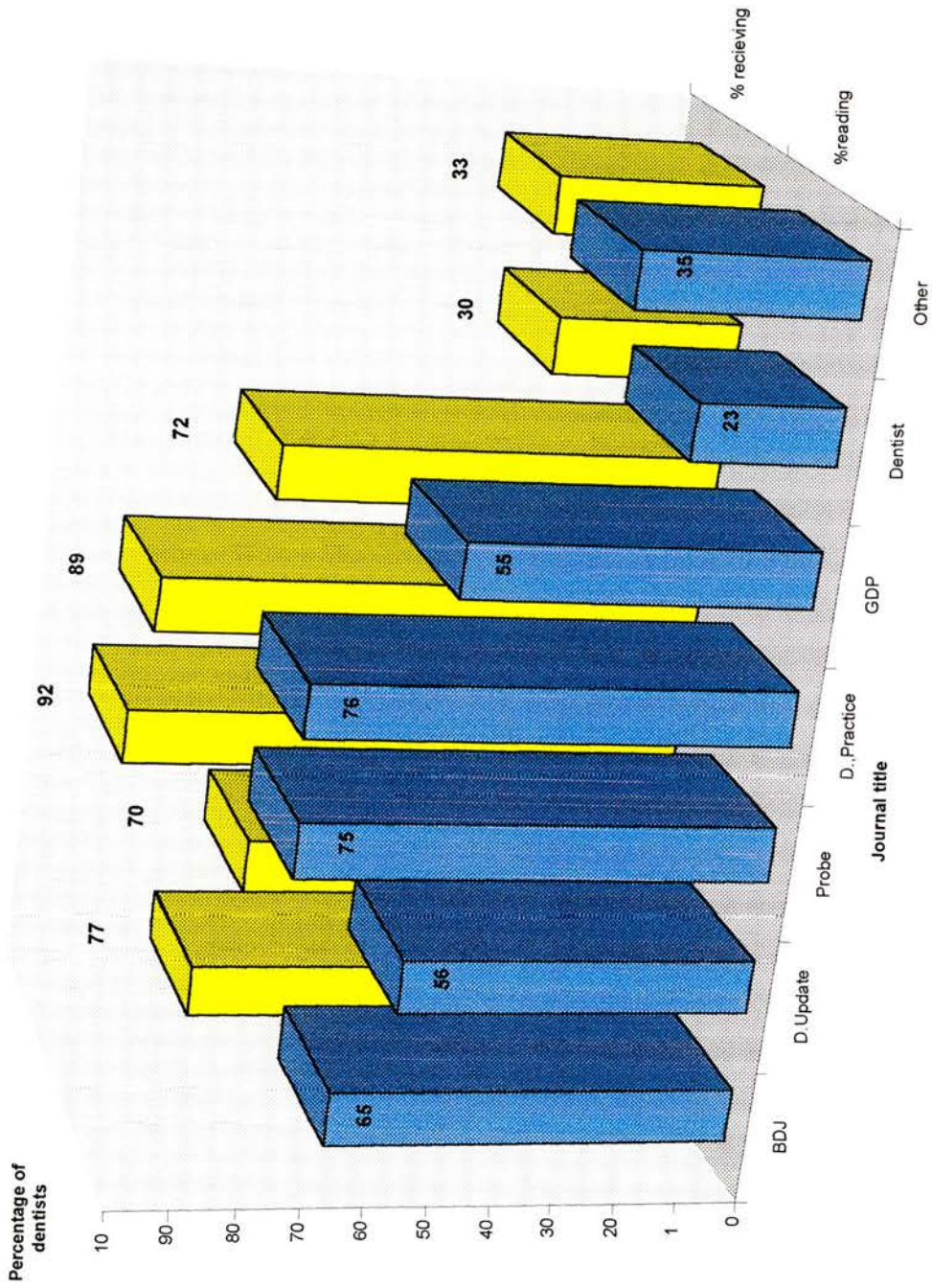
Chart 3.15 Journals taken regularly**Chart 3.16 Journals read regularly**

Chart 3.17 Showing journals received and read by dentists



3.2.5. Use of dental books, videos ,CAL and distance learning

Charts 3.18 to 3.21 show the extent of use of dental books, videos, computer assisted learning (CAL) and distance learning packages by the dentists in the previous two years (Tables 3.35A to 3.38A, p214-217).

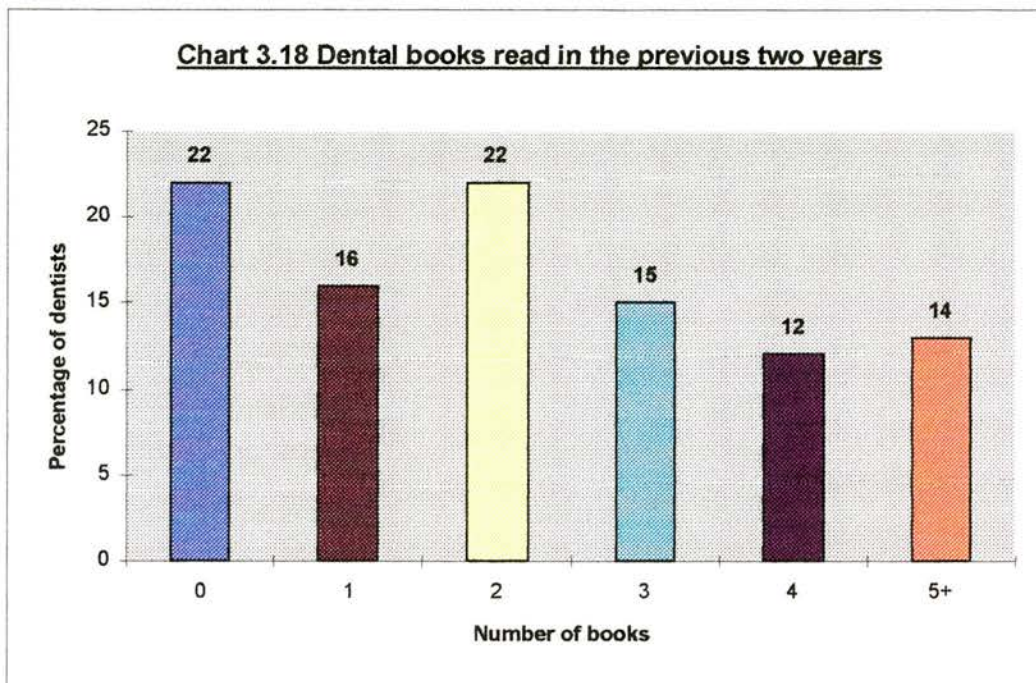


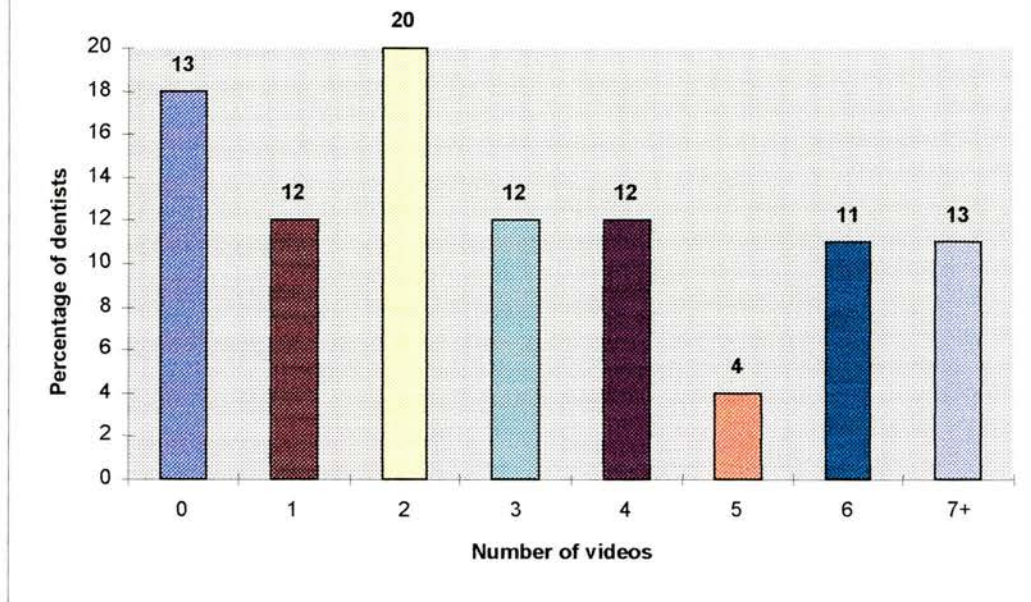
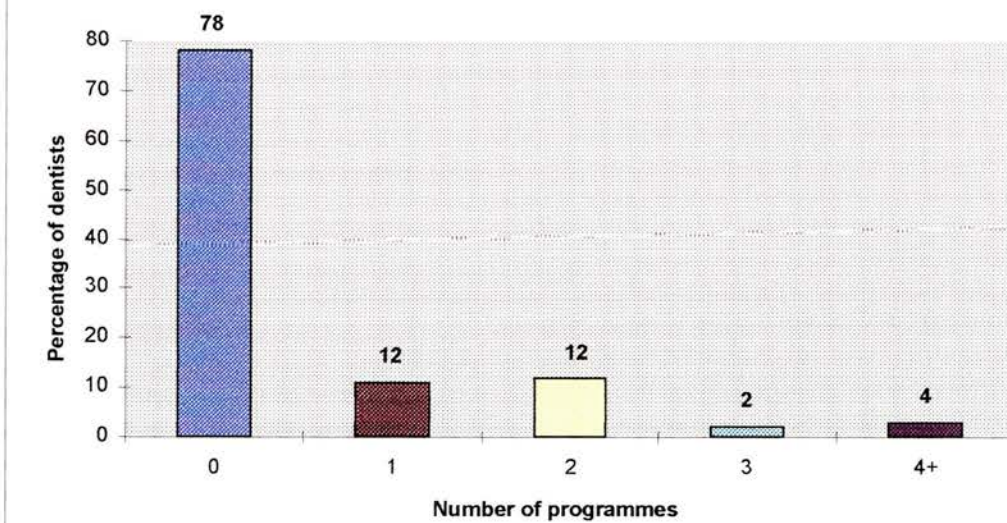
Chart 3.19 Dental videos watched in the previous two years**Chart 3.20 computer assisted learning programmes (CAL) used in the previous two years**

Chart 3.21 Percentage of dentists using distance learning packages in the previous two years

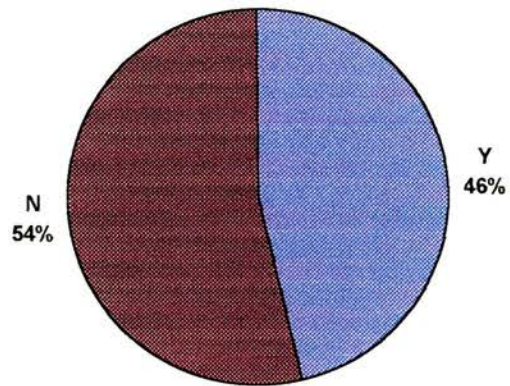


Table 3.1 Engagement in different modes of continuing education by 158 Scottish general dental practitioners from October 1994 to January 1997

Activity	% none	Number doing none	Lower quartile	Inter quartile	Upper quartile	Mean	Median	Mode
Peer review meetings attended	10	16	0-1	1-6	6-21	3.6	2	1
section 63 courses attended	11	18	0-2	2-8	9-80	6.4	5	6
private courses attended	37	62	0	0-3	3-30	1.9	1	0
conferences attended	51	80	0	0-2	2-6	1.3	0	0
study group meetings attended	53	84	0	0-3	4-15	2.3	0	0
*clinical audit meetings attended	62	98	0	0-1	1-20	1.0	0	0
other courses attended	67	106	0	0-1	1-7	.8	0	0
BDA scientific meetings attended	71	112	0	0-1	1-16	.8	0	0
symposia attended	74	116	0	0-1	1-6	.5	0	0
FGDP meetings attended	78	124	0	0	0-5	.5	0	0
dental books read	22	35	0-1	1-3	4-15	2.5	2	0 & 2
dental videos watched	13	21	0-1	2-6	7-60	2.9	3	2
CAL programmes used	78	123	0	0	0-8	0.4	0	0
distance learning packages used	54	85	N/A	N/A	N/A	N/A	N/A	N/A
number of journals read regularly	2	3	4	4-5	5-8	3.8	4	4
Journals taken	2	3	4	4-5	5-8	3.8	4	4

* n = 157, it is 158 for the other activities
N/A = not applicable

Table 3.1 summarises the participation of dentists in the various continuing dental education activities during 1995 & 96, as shown in Charts 3.5 to 3.21. The overall participation figures are indicated by the percentage not engaging in each activity from a base number of 158 dentists, except for clinical audit which has a base of 157 – due to one unintelligible response.

The mean and quartile ranges give an indication of the distribution of activity amongst the dentists, but this should be viewed along with the median and mode to gain a truer picture. Section 63 courses are shown to have the highest participation rate and overall number of attendances.

3.2.6. Membership of and attendance at professional associations, societies and study groups

Table 3.2
Membership of professional societies and frequency of visits to meetings among 158 general dental practitioners

Association	BDA	FGDP	GDPA	Other	None
% membership	41(93)	15(24)	8(12)	36(57)	20(31)
Attendance (numbers):-					
Never	53	85	7	97	0
Occasional	30	4	3	12	0
Frequent	18	11	1	21	0

Table 3.2 shows membership and frequency of attendance at professional

societies. 31 dentists were not members of any association and 50 did not attend any meetings at all. However, only six of these attended no section 63 courses and two of those had attended private courses. Of the remaining four, three attended no professional meetings at all. Those three all read the British Dental Journal and two of them read Dental Update as well. Thus only three dentists(2%) did not participate in any verifiable continuing dental education at all and only one of those reported doing nothing at all. This respondent may have omitted mention of his peer review attendance or may have been in a group yet to start. Furthermore, 98% of the dentists had engaged in combinations of two or more activities. Analysis of these results with χ^2 tests (Tables 3.39A & 3.40A, p217) showed no significant association between membership of or attendance at professional society with gender, but single-handed practitioners were much more likely not to be a member of a professional society ($\chi^2 = 11.680, P < 0.001$). Similarly, dentists aged under 45 were more likely to be a member of a society and those aged 45 and over were more likely not to be a member ($\chi^2 = 4.554, P = 0.033$).

Dentists listed other professional organisations of which they were members (Table 3.41A, p218) - the most popular was the Royal Odonto-Chirurgical Society of Scotland, with 17 (11%) reporting membership. About a third (32%) were members of study groups (Tables 3.42A & 3.43A, p219-220).

Peer review was the most popular mode of continuing dental education and

four (2.5%) claimed to have attended no peer review meetings. The questionnaire was sent to practitioners who had applied for peer review funding, so this could be because the projects had yet to commence when they completed the questionnaire. No unusual traits were identified in these four respondents. Only 39% had participated in clinical audit in the previous two years.

Section 63 was the next most popular, with 89% reporting participation and a mean of six courses per dentist. 52% had attended five or more courses in the last two years. Next most popular were private courses with 63% reporting an attendance in the last two years, mostly one, two or three courses (49%) and an average of two.

The mean attendance at conferences in the last two years was one per dentist. Most (67%) practitioners did not attend any other approved courses and the mean attendance was 0.75. Nearly three quarters (74%) of dentists had not attended a symposium in the previous two years, but 26% had attended at least one. Just under half (53%) attended meetings of study groups. Only 30% had attended at least one British Dental Association meeting. Most - 78% - of respondents had not attended a Faculty of General Dental Practitioners (FGDP) scientific meeting in the last two years.

Most dentists had bought between one and four books in the previous 2 years

(65%), while 22% had bought none. 13% had seen no videos in the last two years, whilst a handful had seen large numbers. Most had seen 1 - 6. Most of those using CAL programs in the previous two years had only used one or two. The majority(78%) had not used this medium at all.

Participation in a distance learning scheme in the previous two years was 46%. So the majority of dentists had not used this medium in the previous two years. The proportion of dentists living further than 26 miles from their nearest postgraduate centre using distance learning packages was 10 % lower than the figure for all responders. The proportion living less than 7 miles from their nearest postgraduate centre was 10 % higher than the figure for all responders and the middle proportion of dentists living between 7 and 26 miles was the same.

3.2.7. Participation in Vocational Training (VT) as a trainer and completion of Vocational Training (VT)

A large minority (41%) had been involved in Vocational Training as a trainer(Table 3.44A, p221) but most (59%) had no experience of Vocational Training as a trainer. Only 23% had completed Vocational Training - reflecting the age spread of respondents - most had qualified too early to have had the opportunity of Vocational Training. For those who had been trainers the mean number of years experience was 3 years. The Mode was 1 and 3 years, both with 14 dentists. The median was 3 years (Tables 3.45 to 3.46A, p221-222).

3.2.8. Team members on course with GDP in last 2 years

A majority of respondents - 62% replied that they had attended at least one course, other than a resuscitation course, with their team in the last two years.

3.2.9. Team members involved in practice meetings

In response to a question on whether regular practice meetings (to which team members attend) are held to discuss matters, 54% replied yes to meetings about clinical practice and 76% yes to management meetings.

3.2.10. Use of a formal quality assessment system

Almost three quarters of respondents (73%) did not employ a formal quality assessment system.

3.3 Dentist's perceptions of effectiveness of various modes of postgraduate dental education

All data in this section, to p145, are shown at Appendix III in Tables 3.47A to 3.79A (p223-255), except that shown at Tables 3.3 to 3.23 in the text.

3.3.1. Knowledge change

Dentists were asked to rate, on a numeric analogue scale, how effective they had found each mode of postgraduate education in increasing or updating their knowledge. The scale used was a sequence of numbers from one to six. It was evident that some dentists had tried to mark the scale between numbers - effectively increasing the scale to one of fourteen numbers. These responses were rounded down to the nearest whole number, so keeping all the scales the same and ensuring that any possible error introduced would be to support the null hypothesis (Oppenheim, 1992).

Alternative scales that could have been used were;

Likert scales, where responders rate the extent of their agreement or disagreement with attitude statements - usually on a five-point scale. A pilot group is used to test out and calibrate an 'item pool of statements for use in the main study.

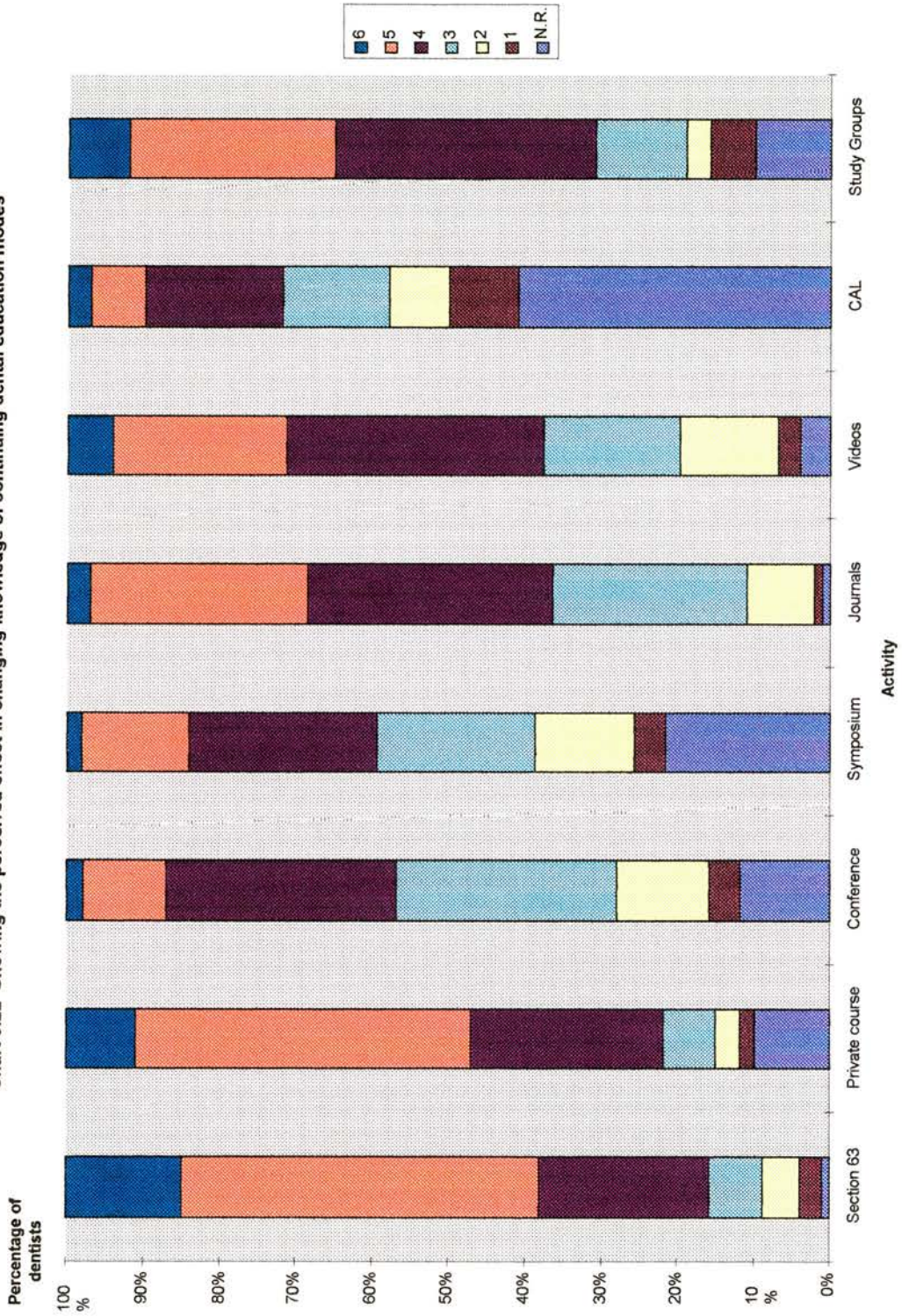
Thurstone scales, where a group of 'judges' (a focus group, effectively) compare attitude statements, two at a time.

Scalogram analysis, where groups of items are ordered according to a respondent's perception or opinion. Analysis over several item groups allows a responder's attitude to be reproducibly assessed.

Table 3.3 Effect of continuing dental education mode on change in knowledge

Rating of effect in changing knowledge	S63	Private course	Conference	Symposia	Reading Journals	Videos	CAL	Study Group
1 (not at all useful)	4	3	6	7	1	4	15	9
2	8	4	19	21	15	21	13	5
3	11	11	46	33	39	28	22	19
4	35	40	48	39	51	53	28	53
5	74	70	17	22	45	36	11	43
6 (very useful)	24	14	3	2	5	9	5	13
<i>n</i> =	156	142	139	125	156	156	94	142
Mean	4.5	4.5	3.4	3.4	3.9	3.7	3.2	4.1
Mode	5	5	4	4	4	4	4	4
Median	5	5	3	4	4	4	3	4
Interquartile range	4 - 5	4 - 5	3 - 4	3 - 4	3 - 5	3 - 5	2 - 4	4 - 5

Chart 3.22 Showing the perceived effect in changing knowledge of continuing dental education modes



The totals (n) of dentists giving ratings of effectiveness for the various modes of continuing dental education do not correspond with the numbers attending or participating in those activities. This can be explained by appreciating that these dentists may have experience of these modes of education from outwith the sampling timeframe of the study.

For the purposes of this study the effectiveness of the modes of continuing dental education in changing knowledge, as assessed by the dentists, was classified according to where the median for the sample lies on the numeric analogue scale as shown in Table 3.4. This manipulation allowed for a simpler and easier to interpret statistical analysis to be performed on the data.

Table 3.4 Showing the relationship of analogue scores to descriptions of effectiveness

Scale range	Description of median score
6	} Very effective
5	
4	- Effective
3	} Not very effective
2	
1	- Not at all effective

Table 3.5 shows how each mode is classified according to the descriptions in Table 3.4

Table 3.5
Effectiveness of continuing education mode in knowledge change

Section 63	Very effective
Private courses	Very effective
Conferences	Not very effective
Symposia	Effective
Journals	Effective
Videos	Effective
CAL	Not very effective
Study groups	Effective

Section 63 courses and private courses were considered to be very effective at increasing knowledge with 84% and 78%, respectively, of dentists rating them effective (scoring four) or very effective (scoring more than four).

Conferences and CAL were found to be not very effective (scoring less than four) with 45% and 31%, respectively, rating them not very effective (scoring two or three) or not effective at all (scoring one). This equates to 43% rating conferences and 28% rating CAL effective or very effective. A large minority (41%) made no response to the question on CAL, suggesting that experience of this method is not as widespread as with the others. Symposia, journals, videos and study groups were given intermediate rankings of effectiveness with 41%, 63%, 63% and 69% respectively finding them effective. (Tables 3.47A to 3.54A, p223-230).

The Median is used as a summary statistic and measure of where the fiftieth percentile lies (Bulman & Osborn, 1989) because the numeric analogue scale used in the questionnaire produces ordinal data, for which purpose the arithmetic mean is a less accurate statistic (Bowers, 1996). Also it is 'robust' to outliers, unlike the mean. Percentages are illustrated in Chart 3.22 and appear in Table 3.55A, p231. Section 63 courses and private courses attracted a greater participation than videos and study groups among the practitioners taking part in no other continuing dental education. It would appear that courses represent a better option for changing knowledge than video and study groups as perceived by the dentists.

3.3.2. Change in the practice of dentistry

Dentists were asked to rate the effect of each educational activity in changing the way that they practice dentistry. As with knowledge, a visual analogue scale was used. When asked about the effectiveness in changing clinical practise the responding practitioners rated section 63 courses, private courses, videos and study groups effective and conferences, symposia, journals and not very effective.

73% of the dentists rated section 63 courses as effective in changing practise. Similarly, 65% rated private courses as effective in changing practise. However, only 31% saw conferences as effective in changing practise. Roughly the same proportion (29%) rated symposia effective in

changing practise. Only 48% cited reading journals as effective in changing practise. Watching videos was ranked as effective in changing practise by 52%. Computer assisted learning (CAL) scored low, from a low response (58%) with 20% rating it as effective in changing practise. Study groups were rated effective in changing practise by 58%, making it the third most highly rated mode for changing practise (Tables 3.57A to 3.64A, p233-241).

Generally all modes scored lower on altering practise than on altering knowledge, except for videos. Table 3.7 summarises the responses given on the effectiveness of the various modes of continuing dental education in changing practise, expressed as numbers. Percentages are illustrated in Chart 3.23. (Table 3.65A, p241).

Classification of these results by where the median for the sample lies is shown in Table 3.6 below according to the descriptions laid out in Table 3.4

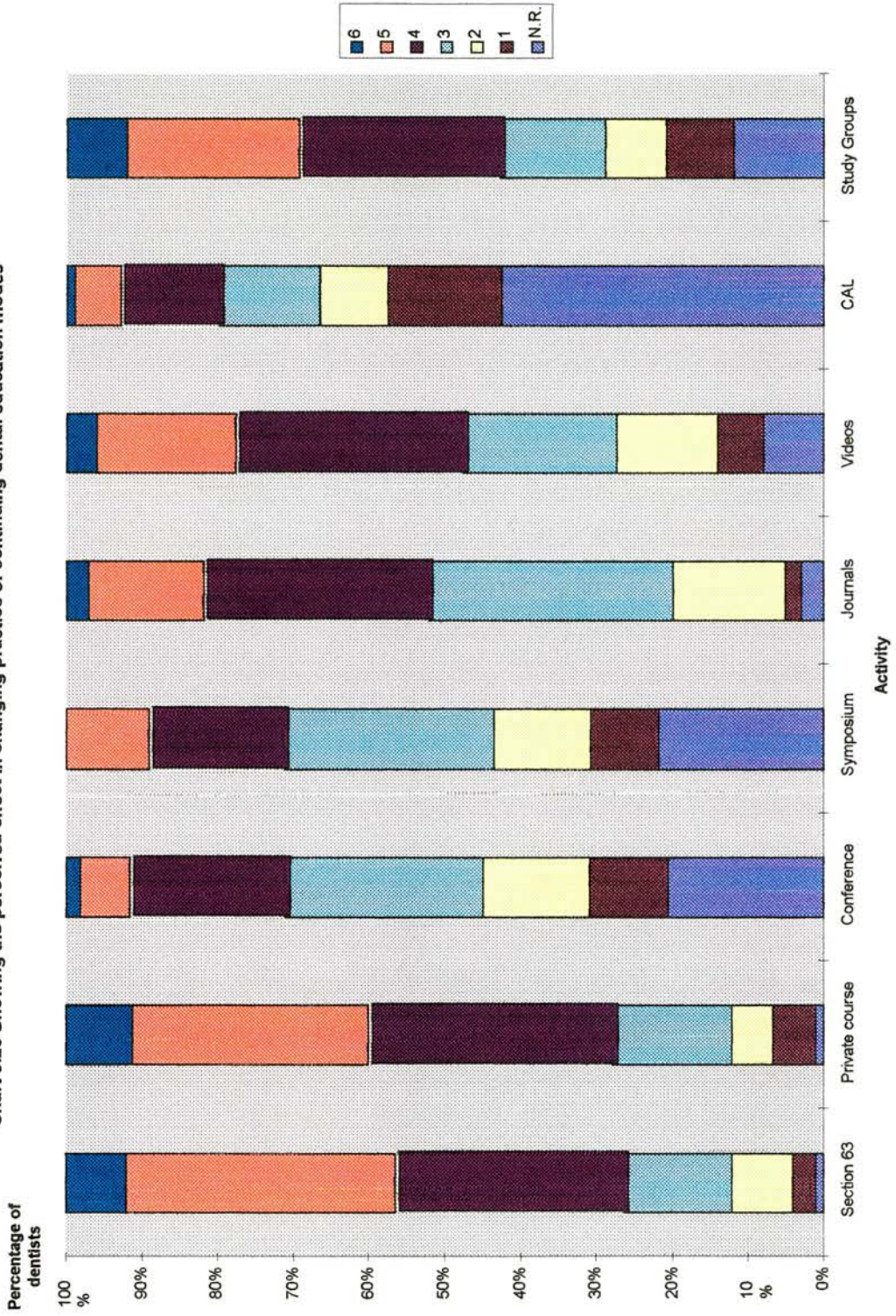
Table 3.6 Effectiveness of continuing education mode in practice change

Section 63	Effective
Private courses	Effective
Conferences	Not very effective
Symposia	Not very effective
Journals	Not very effective
Videos	Effective
CAL	Not very effective
Study groups	Effective

Table 3.7 Effect of continuing dental education mode on change in practice

Rating of effect in changing practice	S63	private course	Conference	Symposia	Reading journals	Videos	CAL	Study Group
1 (not useful at all)	5	8	18	14	3	10	23	14
2	12	8	24	20	23	21	15	13
3	22	22	44	44	50	32	20	22
4	48	46	25	29	48	48	21	42
5	56	44	11	17	24	28	10	36
6 (very useful)	13	12	3	0	5	7	3	12
n =	156	140	135	124	153	146	92	139
Mean	4.1	4.0	2.7	3.1	3.5	3.4	2.9	3.4
Mode	5	4	3	3	3	4	1	4
Median	4	4	3	3	4	4	3	4
Interquartile range	3-5	3-5	2-4	2-4	3-4	3-4	1-4	3-5

Chart 3.23 Showing the perceived effect in changing practice of continuing dental education modes



3.3.3. The perceived effectiveness of the various modes of continuing dental education in changing knowledge and the relationship with demographic characteristics of the dentists

The dentist's scoring of the effectiveness of various modes of continuing dental education were analysed against a series of demographic measures (gender, age, whether or not alone in practice, possession of a higher qualification and distance from a postgraduate centre) and the significance of the findings tested using χ^2 analysis.

The visual analogue scales used to assess the effectiveness of the various modes of continuing dental education were grouped into two categories: -“effective in producing change” and “not effective in producing change”, corresponding to scores of 1 -3 (no change) and 4 -6 (change). This simplifies the χ^2 analysis and allows usable values to be produced. Similarly, the categories of tables for age and single-handedness were configured so as to try and minimise the risk of expected values of less than 5. These methods were employed to try and ensure the validity of χ^2 results, whilst still producing useful results (Swinscow, 1983). Thus two by two tables were produced for no change/ change against: -

1. Gender - (Male/Female)
2. Age - (under 45 & 45 or over)
3. Single-handed - (Always, Never)
4. Possess higher qualification (Yes/No)

In addition, a two by three table for distance to postgraduate centre - (0-6, 7- 26 & 27+ miles) was produced. The values of χ^2 and the associated probabilities are set out in Table 3.56A, p232. χ^2 cell values are shown in Tables 3.67A to 3.71A, p243-247

3.3.3.1. Gender

Apart from attending study groups, which male dentists found to be more effective in changing knowledge, there was no difference between the sexes in their response to other forms of continuing dental education.

Table 3.8 χ^2 significance of gender and activity being perceived as effective in changing knowledge

Activity	Significance
Section 63	n.s.
Private courses	n.s.
Conferences	n.s.
Symposia	n.s.
Journals	n.s.
Videos	n.s.
CAL	n.s.
Study groups	P<0.05 ($\chi^2 = 3.844$, df = 1)

3.3.3.2. Age

Dentists aged over forty four were significantly less likely to find CAL effective in changing knowledge.

Table 3.9 χ^2 significance of age and activity being perceived as effective in changing knowledge

Activity	Significance
Section 63	n.s.
Private courses	n.s.
Conferences	n.s.
Symposia	n.s.
Journals	n.s.
Videos	n.s.
CAL	P<0.05 ($\chi^2 = 7.254$, df = 1)
Study groups	n.s.

3.3.3.3. Higher Qualification

Those dentists possessing a postgraduate qualification were significantly more likely to find conferences and symposia effective in changing knowledge.

They also found private courses very significantly more effective and section 63 significantly less effective.

Table 3.10 χ^2 significance of holding a further qualification and activity being perceived as effective in changing knowledge

Activity	Significance
Section 63	P<0.01 ($\chi^2 = 7.654$, df = 1)
Private courses	P<0.001 ($\chi^2 = 14.249$, df = 1)
Conferences	P<0.01 ($\chi^2 = 7.435$, df = 1)
Symposia	P<0.05 ($\chi^2 = 3.896$, df = 1)
Journals	n.s.
Videos	n.s.
CAL	n.s.
Study groups	n.s.

3.3.3.4. Single-handed

No significant associations between practising alone and rating of educational activities effective in changing knowledge were found.

Table 3.11 χ^2 significance of practising alone and activity being perceived as effective in changing knowledge

Activity	Significance
Section 63	n.s.
Private courses	n.s.
Conferences	n.s.
Symposia	n.s.
Journals	n.s.
Videos	n.s.
CAL	n.s.
Study groups	n.s.

3.3.3.5. Distance from postgraduate centre

No significant associations between distance from postgraduate centre and rating of educational activities effectiveness in changing knowledge were found.

Table 3.12 χ^2 significance of distance from postgraduate centre and activity being perceived as effective in changing knowledge

Activity	Significance
Section 63	n.s.
Private courses	n.s.
Conferences	n.s.
Symposia	n.s.
Journals	n.s.
Videos	n.s.
CAL	n.s.
Study groups	n.s.

3.3.4. The perceived effectiveness of the various modes of continuing dental education in changing practice and the relationship with demographic characteristics in the dentists

As with knowledge change, two by two tables were produced and χ^2 analysis used to test the significance of the findings against gender, age, whether or not alone in practice, possession of a higher qualification and distance from a postgraduate centre. The values of χ^2 and the associated probabilities are set out in Table 3.66A, p242. χ^2 cell values are shown in Tables 3.72A to 3.76A, p248-252.

3.3.4.1. Gender

The only difference in response that varied between genders was women found private courses to be less effective in changing practice than the men.

Table 3.13 χ^2 significance of gender and activity being perceived as effective in changing practice

Activity	Significance
Section 63	n.s.
Private courses	P<0.05 ($\chi^2 = 3.861, df = 1$)
Conferences	n.s.
Symposia	n.s.
Journals	n.s.
Videos	n.s.
CAL	n.s.
Study groups	n.s.

3.3.4.2. Age

Those aged over forty four were much more likely to find CAL less effective in changing practice than younger dentists.

Table 3.14 χ^2 significance of age against activity being perceived as effective in changing practice

Activity	Significance
Section 63	n.s.
Private courses	n.s.
Conferences	n.s.
Symposia	n.s.
Journals	n.s.
Videos	n.s.
CAL	$P < 0.001$ ($\chi^2 = 14.85$, $df = 1$)
Study groups	n.s.

3.3.4.3. Higher Qualification

Those possessing postgraduate qualifications were significantly less likely to find section 63 courses effective in changing practice, but much more likely to find conferences effective.

Table 3.15 χ^2 significance of possessing a further qualification against activity being perceived as effective in changing practice

Activity	Significance
Section 63	P<0.01 ($\chi^2 = 7.589$, df =1)
Private courses	n.s.
Conferences	P<0.01 ($\chi^2 = 6.806$, df =1)
Symposia	n.s.
Journals	n.s.
Videos	n.s.
CAL	n.s.
Study groups	n.s.

3.3.4.4. Single-handed

Dentists practising on their own all the time were much more likely to find videos effective in changing practice.

Table 3.16 χ^2 significance of practising alone against activity being perceived as effective in changing practice

Activity	Significance
Section 63	n.s.
Private courses	n.s.
Conferences	n.s.
Symposia	n.s.
Journals	n.s.
Videos	P<0.01 ($\chi^2 = 10.002$, df = 1)
CAL	n.s.
Study groups	n.s.

3.3.4.5. Distance from postgraduate centre

No significant associations between distance from postgraduate centre and rating of educational activities effectiveness in changing practice were found.

Table 3.17 χ^2 significance of distance from postgraduate centre against activity being perceived as effective in changing practice

Activity	Significance
Section 63	n.s.
Private courses	n.s.
Conferences	n.s.
Symposia	n.s.
Journals	n.s.
Videos	n.s.
CAL	n.s.
Study groups	n.s.

3.3.5. Effect of peer review on knowledge and practice change

No assumption was made that peer review was perceived to be effective at all in changing knowledge or practice and dentists were asked some questions to try and determine this.

Table 3.18 showing the numbers of dentists assessing peer review as causing change or no change to their knowledge and practice

Number of dentists assessing peer review	Changed	Did not change
Knowledge	144	14
Practice	114	44

3.3.5.1. Peer review and knowledge change

An overwhelming majority (91%) felt that peer review had increased their knowledge and this shows that it was perceived to be very effective in changing knowledge. No significant associations were found with χ^2 analysis against demographic measures.

3.3.5.2. Peer review and practise change

A smaller, but still large majority (72%) felt that peer review had changed the way that they practised. This shows that it was perceived to be effective in changing knowledge. No significant associations were found with χ^2 analysis against demographic measures for practice change.

3.3.5.3. How useful peer review was

Given the opportunity for free form comment on how useful peer review had been, 42% (66) reported favourably on the opportunity that it gave for communication with other dentists. 20% (31) said that it had led to change, 10% (16) that they had learnt from it and 9% (15) that problems had been solved. Only 1% (2) said that it had not been useful, with 3% (4) unclassified responses and 21% (33) giving no response to this question. Full data is in Table 3.77A, p253.

The commonest disadvantage or problem encountered with peer review was lack of funding – 19% (32). Difficulty in arranging meetings – 9% (15). Difficulty in motivation- 5% (9) and lack of time 3% (5) were the next largest groupings. 39% (65) made no response and 19% (31) stated positively that there were no disadvantages or problems. Full data is in Table 3.78A, p254.

3.3.6. Comparison of peer review with other activities' effectiveness in changing knowledge and practice

In order to test the significance of differences in the percentages saying that no change had occurred in their knowledge or practice between peer review and the other education activities rated, McNemar's test was employed. Paired alternative tables were created for peer review with each of the other activities thus:-

	Activity	Peer Review	Pairs of responses
Change in knowledge	Y	Y	w
Change in knowledge	Y	N	x (n^1)
Change in knowledge	N	Y	y (n^2)
Change in knowledge	N	N	z
			Total T

This was repeated for change in practice. These are shown at Table 3.79A, p255 in Appendix III. Change in knowledge and practice for the other activities is represented by a score of two or more, a score of one meaning no change (see question 10 in the questionnaire - p180). The result of McNemar's test on the middle two rows (n^1 & n^2) give the number of standard deviations. By reference to a standard table (Swinscow, 1996), the associated probability value may be found and significance determined in the customary fashion ($p < 0.05$, 1.96 SD's).

The results of McNemar's test on the perceived effectiveness of the other modes of postgraduate education compared with peer review in changing knowledge show that section 63 courses, private courses and reading journals are all significantly

better. The test was also significant for CAL, but showed that peer review was better. Test results on the perceived effectiveness of the other modes of postgraduate education compared with peer review in changing practice show that section 63 courses, private courses attending conferences, symposia, watching videos, attending study groups and reading journals are all significantly better. Peer review was not felt to be significantly better than CAL. Table 3.19 shows the results and Table 3.79A, p255 at appendix III the associated cell values.

Table 3.19 Showing results of McNemar's test

	Knowledge change			Practice change		
	No of S.D.'s	p	Significant	No of S.D.'s	p	Significant
S 63	3.48	0.001	√	5.66	0.001	√
Private course	2.25	0.026	√	4.76	0.001	√
Conference	1.38	0.16	x	3.32	0.001	√
Symposia	0.49	0.62	x	4.48	0.001	√
Journals	3.1	0.001	√	5.75	0.001	√
Videos	1.94	0.052	x	4.73	0.001	√
CAL	2.12	0.036	√	0.17	0.84	x
Study group	0.44	0.69	x	3.44	0.001	√

3.3.7. Investigation of association between perceived effectiveness in changing knowledge or practice and popularity of activity

The mean scores of effectiveness in changing knowledge and practice were used to rank the various activities in order of effectiveness (shown in Tables 3.19, 3.20 & 3.21). Similarly, the mean participation data was used to rank the popularity of the

various activities. The Spearman's rank correlation coefficient (Gardner & Altman, 1989) was then calculated (Table 3.23), with a modification to take account of tied rankings (Bulman, 1989), for the following pairs of ranking: -

Table 3.20 Showing rankings of activities, differences and squared differences for knowledge and practice change

	(x)	(y)	(x - y)	(d ²)
	Knowledge change	Practice change	Difference (d)	
S 63	1.5	1	0.5	0.25
Private course	1.5	2	-0.5	0.25
Conferences	9.5	11	-1.5	2.25
Symposia	9.5	9	0.5	0.25
Journals	5	7.5	-2.5	6.25
Videos	5	5	0	0
CAL	11	10	1	1
Study groups	3	3.5	-0.5	0.25
Books	7.5	7.5	0	0
Distance learning	7.5	3.5	4	16
Peer review	5	6	-1	1

$$\sum d^2 = 27.5$$

Table 3.21 Showing rankings of activities, differences and squared differences for knowledge change and popularity

	(x)	(y)	(x - y)	(d ²)
	Knowledge change	Popularity	Difference (d)	
S 63	1.5	1	-0.5	0.25
Private course	1.5	7	5.5	30.25
Conferences	9.5	8	1.5	2.25
Symposia	9.5	9	0.5	0.25
Journals	5	2	3	9
Videos	5	4	2	4
CAL	11	11	0	0
Study groups	3	6	-3	9
Books	7.5	5	2.5	6.25
Distance learning	7.5	10	2.5	6.25
Peer review	5	3	2	4

$$\sum d^2 = 68.5$$

Table 3.22 Showing rankings of activities, differences and squared differences for practice change and popularity

	(x)	(y)	(x - y)	(d ²)
	Practice change	Popularity	Difference (d)	
S 63	1	1	0	0
Private course	2	7	-5	25
Conferences	11	8	3	9
Symposia	9	9	0	0
Journals	7.5	2	5.5	30.25
Videos	5	4	2	4
CAL	10	11	-1	1
Study groups	3.5	6	-2.5	6.25
Books	7.5	5	2.5	6.25
Distance learning	3.5	10	6.5	42.25
Peer review	6	3	2	4

$$\sum d^2 = 128$$

Table 3.23 Showing Spearman rank correlation coefficient for associations between knowledge change , practice change and popularity

Association tested	Number of activities (n)	Spearman rank correlation coefficient with tied rank adjustment
Knowledge change and practice change	11	0.92
Knowledge change and popularity	11	0.68
Practice change and popularity	11	0.42

These results show that there is a strong association between the ratings of effectiveness in knowledge change and effectiveness in practice change, a moderate association of rating of effectiveness in knowledge change with popularity and only a weak association of rating of effectiveness in practice change and popularity. It would appear that dentists appreciate that change in practice follows change in knowledge. The most popular activities were the ones which produced highest knowledge change.

3.4.Consistency of response

The design of the questionnaire was arranged so as to include a repetition of some questions, worded slightly differently, to try and make the repetition less obvious. So, if there is evidence of internal consistency (across a number of questions dispersed throughout the questionnaire), then this improves confidence in the results (Saunders et al, 1999). A paired t-test (Bulman & Osborn, 1989) was

employed on the answers collected for three pairs of questions at sections: -

C 10; *“On the analogue scale please indicate how useful you find reading journals as a method of continuing education”*, and E (v); *“Please indicate on the analogue scale, how effective reading journals is in increasing/updating knowledge?”*.

C 15; *“On the analogue scale please indicate how useful you find watching T.V. videos as a method of continuing education?”*, and question E 1 (vi); *“Please indicate on the analogue scale, how effective watching dental videos is in increasing/updating knowledge?”*.

C 17; *“On the analogue scale, please indicate how useful you find using Computer Assisted Learning (CAL) programmes as a method of continuing education?”* and E 1 (vii); *“Please indicate on the analogue scale, how effective using CAL programmes on personal computers is in increasing/updating knowledge?”*.

The results of these tests are shown in Table 3.24

Table 3.24 Showing t-test results for consistency of response to questions

Questions	Journals		Videos		CAL	
	C 10	E 1 (v)	C 15	E 1 (vi)	C 17	E 1 (vii)
Number(n)	141	141	143	143	71	71
Mean (x)	4.08	3.89	3.92	3.83	3.27	3.10
S.D.	1.08	1.06	1.23	1.19	2.14	1.43
S.E. Mean	0.091	0.089	0.10	0.099	0.25	0.17
T	1.45		0.68		0.55	
P	0.15		0.49		0.58	
d.f.	279		283		121	
95% C.I.	(-0.066, 0.435)		(-0.18, 0.380)		(-0.43, 0.77)	

Where

S.D. = Standard Deviation

S.E. Mean = Standard Error of the mean

T = t-test value

P = probability

d.f. = degrees of freedom

95% C.I. = 95% Confidence Interval

3.4.1. Journals

Entering the table of t distribution at ∞ degrees of freedom (the next value after 120), the value is seen to lie between 0.674 and 1.645. Reading off the probability value, we see that $0.5 > P > 0.1$. The null hypothesis is that there is no difference between the mean ratings given in response to the two questions on the effectiveness of journals. Therefore the null hypothesis is *not* disproved. We may therefore say that there is no convincing evidence of a difference in the ratings given in response to these questions, thus the responses are consistent.

3.4.2. Videos

Entering the table of t distribution at ∞ degrees of freedom (the next value after 120), the value is seen to lie between 0.674 and 1.645. Reading off the probability value, we see that $0.5 > P > 0.1$. The null hypothesis is that there is no difference between the mean ratings given in response to the two questions on the effectiveness of videos. Therefore the null hypothesis is *not* disproved. We may therefore say that there is no convincing evidence of a difference in the ratings given in response to these questions, thus the responses are consistent.

3.4.3. CAL

Entering the table of t distribution at ∞ degrees of freedom (the next value after 120), the value is seen to lie below 0.674. Reading off the probability value, we see that $P > 0.5$. The null hypothesis is that there is no difference between the mean ratings given in response to the two questions on the effectiveness of CAL. Therefore the null hypothesis is *not* disproved. We may therefore say that there is no convincing evidence of a difference in the ratings given in response to these questions, thus the responses are consistent.

Consistency of response to the questions regarding usefulness as a method of continuing dental education and effectiveness in changing knowledge is shown and so confidence in the results obtained is strengthened.

Generally, all modes of continuing dental education are perceived as more effective at producing knowledge change than practice change.

3.5. Summary of main findings

1. 268 questionnaires were sent to Scottish dentists who had taken part in peer review activities; 164 (61%) were returned, of which 158 (59%) were usable. These showed 21% of the dentists were women and 67% were younger than 45 years old. 27% of women and 6% of men had taken a career break. 72% were principals in practice, with 91% working full-time and 72% working in a single practice location. Only 9% worked single-handed. The average distance to the nearest postgraduate dental education centre was 26 miles, with a range from under a mile to 500 miles. 27% of the dentists held at least one postgraduate dental qualification; most frequently this was the DGDP (now MFGDP).
2. The most popular form of postgraduate activity was reading journals, which was undertaken by 98% of the dentists. 89% of the dentists had attended a section 63 course over the two year period 1995-96. The average attendance was 6.4 meetings. The least popular postgraduate activity was computer assisted learning (CAL) – which had attracted the participation of only 22% of the dentists.
3. Dentists rated section 63 and private courses as effective in changing changing knowledge with mean scores of 4.

4. Dentists rated section 63 courses, private courses and reading journals as the most effective ways of changing practice, with mean scores of 5. Conferences, Symposia, watching dental videos and CAL received the lower mean scores of 3.
5. Those dentists with higher qualifications were less likely to find section 63 courses effective in changing knowledge or practice.
6. 144 dentists (91%) stated that peer review activities had changed their knowledge and 114 (71%) that it had changed the way they practised dentistry.
7. The dentists reported that in general they found section 63 courses, private courses and reading journals to be more effective than peer review in changing knowledge. Also that section 63 courses private courses, attending conferences, symposia, reading journals, watching videos and attending study groups were more effective in changing dental practice than peer review.
8. The dentists surveyed reported that peer review in Scotland does lead to change in knowledge and , to a lesser extent, in practice.

CHAPTER 4

Discussion

4.1. Response rates and non-response bias

The best and most up to date information on participation in postgraduate dental education comes from the five well-designed non-experimental descriptive studies previously identified:

Study	Response rate
MacGregor et al '91	98%
Mercer et al '95	90%
Mouatt et al '91	76%
Ireland et al '99	69%
Burke et al '95	61%

In addition, the information from Wild 1989 (77% response rate) was valuable. According to guidance issued by the British Dental Journal, survey results of less than 69% response ought to be regarded as 'suspect', but with qualification regarding difficulties and constraints. However, given the complexity of the questionnaire, that the anonymous nature of the survey prevented identification of relevant characteristics of non-responders (or reasons for non-response) and the follow up constraints imposed by NHS Management executive restricted me to only two follow up letters, this was considered to be an adequate response with which to

proceed (Rugg-Gunn, 1997a & 1997b). A survey of 3140 papers in four refereed dental journals between 1989 and 1992 found that 77 had employed a questionnaire, with a mean response rate of 61.7% to the 42 questionnaires directed at general dental practitioners (Tan & Burke, 1997). Seen against this background, the response rate of 59%, whilst on the low side for statistical validity, appears reasonable. However, none of the 77 studies using questionnaires had addressed the issue of non-response bias, either by allowing for it in the study design or by following up non-responders (Tan & Burke, 1997). Non-response bias can be a function of the response rate, so the lower the response rate the greater the risk that non-responders show different characteristics to the rest of the group. However, a survey conducted in Montreal in November 1974 specifically to test for non-response bias, with a response rate of 68.5% initially and 80.9% after a two stage follow up was shown to display no evidence of non-response bias (Siemiatycki & Campbell, 1984). This was undertaken purely as an epidemiological exercise to explore the nature and extent of non-response bias in mailed, telephone and mail with telephone combined surveys. Thus there is some evidence that it was unlikely that non-response bias occurred in this survey and any that may have occurred would be no worse than that encountered by other contemporary workers. However, that a degree of bias was introduced by the non-response rate of 39% cannot be wholly excluded.

4.2. Demographic profile

The results in chapter three show that the sample of dentists surveyed can be

regarded as following the demographic profile of dentists in the United Kingdom. 158 general dental practitioners participated in the study, of whom 21% were female, this compares with General Dental Council records showing 29% of registered dentists as female (GDC, 1997b). The proportion of females in practice in the General Dental Services in the United Kingdom in 1996 was 26% and in Scotland the figure was 31% (DRSG, 1999). However, this was still well short of the current undergraduate intake ratio of more than 50% female (BDA symposium, 1997) and recently females have comprised 51% of vocational trainees (Ewing, 1999). Females were very likely to be working part-time and were much more likely to be associates or assistants rather than principals. 11% of the dentists had taken a career break with females being about four and a half times more likely to have taken a career break than male dentists.

The age range was spread fairly evenly across the working life of respondents with a tailing off over 55 years old. But a majority of those responding (67%) were aged under 45, reflecting the relative youth of the UK's dentist population – 67% of Dental Rates Study Group dentists (the overwhelming majority of dentists in general practice) are aged under 45 years (DRSG, 1999). 70% of practitioners with health service list numbers in Scotland in 1996/97 are aged under 45 years (Common Services Agency Scotland, 1999) and 65% are aged under 40.

The majority of the sample were principals in practice (72%), the remaining 27% were associates with 1% unknown. This is comparable to what Mercer reported in

1995 (74% were principals). Postgraduate qualifications were held by 27% of the sample (*vide infra*), which compared with 30 % of those listed in the 1998 Dentists register (GDC, 1998c).

4.3. Participation in postgraduate dental education

The participation in postgraduate dental education shows significant improvement over that reported previously in Scotland, with non-attendance at Section 63 courses dropping from 33% in 1983-86 (Wild, 1989) to 11% in 1995-96. Also, the mean number of courses attended rose substantially from one in the previous three years (Wild, 1989) to six in the previous two years. The Section 63 course attendance figure is comparable to that found in Yorkshire in a 1993 survey – An average of three courses attended in the previous year and 18% attending not at all (Mercer et al, 1995), compared with my finding of an average of six courses attended in the previous two years and 11% attending none. An alternative interpretation of these figures is that they suggest that those electing to participate in peer review may have been better motivated towards continuing dental education. So, it should be born in mind that participants may represent a better motivated group, when comparing participation rates with this peer review study and any generalised conclusions from this study would tend to overstate participation rates and perceptions would tend to reflect opinion amongst those with higher participation in continuing dental education. Milgrom referred to this possibility in 1978.(Milgrom, 1978b) - see p73.

Wild's survey had a composite structure; the actual attendances at Section 63 courses of dentists in south east Scotland holding Health Board list numbers, was determined by reference to Edinburgh Postgraduate Board for Medicine's records. A list of non-attenders was produced by comparing the list of those attending courses with the three Health Board's Primary Care lists of general dental practitioners and deleting those who had attended. A postal questionnaire was sent to the non-attenders thus identified (35% of those on the lists). The response was 31% of those sent questionnaires. When the information from the questionnaires was added to the attendance records, a data set was created comprising 76% of dentists in the south east of Scotland with Health Board list numbers in the period June 1983 to May 1986. However, Wild assumed that all of the identified non-attenders who did not respond to a postal questionnaire had not attended any courses (34% of dentists in the area with Health Board list numbers). Given the low response rate and the weighting of the responses by incorporating a database based only on those who had attended courses, which would have the effect of skewing the figures positively, this figure represents a "worst case" scenario. Wild's survey was conducted 10 years before the study presented here and it is entirely possible that a significant shift in favour of attending courses has occurred, indeed the 1990 (Macgregor, 1990) and 1995 (Mercer, 1995) Leeds studies tend to support this suggestion.

Dentists aged over 44 years in this survey were found to be less likely to find using CAL effective in changing knowledge or practice. This is likely to be related to computer literacy, which is higher amongst younger people. The finding that

female dentists found private courses less effective than male dentists is probably related to lack of experience, as there were significantly fewer female dentists reporting attendance at private courses than male dentists ($\chi^2 = 7.986$, significant @ $P < 0.01$, 1 df). A more interesting finding was that male dentists found study groups more effective in changing knowledge than did female dentists. In this activity there was no significant difference in attendance at study groups between male and female dentists. This finding warrants further investigation to see if this is a true sex based difference, or whether there are confounding factors.

Most Section 63 courses last for one day, which equates to two sessions of continuing professional development. As one session is reckoned as two and a half hours, these findings suggest that a 60% of dentists in this sample are already fulfilling their General Dental Council recertification requirement (15 hours of verifiable activity per year simply with their existing attendances at courses. However, the participation rates for Section 63 and private courses together show a distribution with a highly active minority, a bulk majority with some activity and a small hardcore of less active/inactive dentists. This is borne out again in the figures for books, videos and journals, which show a similar distribution. The other modes exhibit much lower overall participation.

In a comparison of regular reading of the British Dental Journal, I found 65%, compared with 62% found by Mercer et al in 1995. A figure of 20% of dentists not belonging to any professional society compared with Mercer et al's 32% and 24%

in 1989 (Macgregor, 1990). 47% attended meetings of study groups, which compared with 20% reported by Mercer et al in 1995 and 55% by Macgregor in 1990. It is difficult to account for this wide variation, but external factors could be associated, such as the introduction of a new contract for general dental practitioners in October 1990, which has already been dealt with in more detail on p.40.

I found only one dentist who engaged in no continuing dental education at all and another one who only read the British Dental Journal and Dental Update. There appeared to be about one fifth of the dentists who would need to engage in a lot more educational activity to satisfy the new GDC recertification requirements. About two fifths of the dentists more than easily satisfied the GDC requirements, which left about another two fifths modestly deficient in educational activity with respect to these requirements. This implies that some 700 dentists should be seeking additional CPD activity from 2001-2003 onwards, as the GDC recertification requirements come in to effect. Initial reports (Carrotte,2001) appear to bear this out, with increases in demand for courses up 40 % on the previous year.

4.4. Perception of effectiveness of postgraduate education

Section 63 and private courses were rated as good at changing knowledge by 84% and 78% respectively. Similar figures were given for practice change - 75% and 73%. This compares with 80% indicating postgraduate courses as major catalysts

of change in Mercer's 1993 survey (Mercer, 1995). I found that 63% felt videos to be effective in changing knowledge and 52% in changing practice, compared with Mercer et al's finding of 59% rating them valuable or very valuable in updating knowledge and skill. However, I also found that 63% rated journals effective at changing knowledge and 48% effective at changing practice, whereas Mercer found only 9% reporting books and journals as a major catalyst of change. Also I found that 91% felt that peer review had changed knowledge and 72% changed practice compared with only 7% reporting it as a major catalyst of change by Mercer. This suggests either a big change between 1993 and 1996 or, more likely given the spread of the discrepancy over several modes of education, that the phrasing of the question heavily influences the response. The question in my survey asked specifically if peer review had caused respondents to change knowledge or practice, whereas Mercer's question was an open one asking if any educational activity helped or caused alteration in practice. This illustrates a fundamental problem in comparing attitude questionnaires (Oppenheim, 1992).

Amongst the comments collected at the end of the questionnaire there was a general welcome for the idea of a mandatory minimum commitment to continuing professional development that was adequately funded:

"Continuing Dental Education should be compulsory up to 6 sessions/year and properly funded/compensations for time off" (419, p267)

"there should be a greater requirement on general dental practitioners to

upgrade their skills throughout their careers" (459,p268)

Many of those offering views expressed the opinion that a single method of CPD was not sufficient and that use of multiple modes was necessary to keep up to date:

"I think that CDE is vitally important and is best achieved by using many and varied methods " (467, p268)

"However, accumulating relevant knowledge and information and then implementing it in the surgery one needs to use a combination of all the modes mentioned , bring them all together then discard that which is of no benefit to you" (407,p265)

The Internet, CAL, videos and trade stands were singled out by several dentists as undervalued modes of CPD:

"Trade stands at courses often trigger interest in new techniques e.g. rectangular collimation - better to see than to read!" (411, p266)

"I do not consider enough credit is given to the educational advantages of reading dental material and watching informative and well-presented videos, which can be referred to many times and at the convenience of the practitioner. Too much emphasis is placed on attendance at courses which are not always easy to fit into general dental practice." (479, p269)

"No questions on the Internet? - I have found the DERWEB site of interest" (483, p269)

4.5. Peer Review

In General Medical Practice it has been shown that general medical practitioner's behaviour conformed more closely to criteria after participating in peer review (Grol. et al, 1988). Most dentists (91%) felt that peer review had changed their knowledge, and a large majority (72%) felt that it had changed their practise as well.

I. Peer review and professional interaction between dentists

Many (42%) of the qualitative comments made at the end of the questionnaire related positively to the communication that had occurred, using words such as "awareness", "relief of isolation", "discussion" and "exchange":

"Peer review was a worthwhile exercise as it brought together practitioner's from several different types of practice and allowed us to use a frank exchange of view as" (407, p265)

"Peer review excellent for nurturing inter - colleague relationships" (477, p269)

II. Peer Review and the effect of funding level

The single most common disadvantage cited by participants was the lack of , low level of or difficulty in obtaining funding - all the 32 comments on this aspect agreed that funding was inadequate:

"payment at a higher rate should be introduced" (011, p258)

"Time and money precludes attendance at all courses that appeal.

(110, p261)

"More funding required to encourage more practitioners" (218, p263)

"There must be proper funding that genuinely reflects the time and cost of being out of the practice" (326, p264)

III. Peer review and rural practices

There were particular references to the problems of rural practices in sourcing postgraduate education generally;

"Continuing Dental Education is good provided it is easily available having to take 3 days off to go on a course on the mainland with travelling expenses approx £250 + 3 days lost working time is not ideal and we have problems getting lectures to come to us though that would be cheaper"

(306, p 263)

and peer review in particular;

"However in rural areas it can be a problem getting in contact with other interested dentists if priority is given to groups with different people (i.e. not the same group twice)" (475, p269)

IV. Peer Review and the single handed practitioner

Several dentists identified peer review as addressing the isolation of single handed practitioners:

"Peer review is vital for single - handed practitioners" (059, p259)

V. Keeping to the subject, format and structure

Straying from the subject was felt to be a problem by six of the dentists other structural problems were mentioned by another three:

"Peer review done properly and well organised is really excellent and providing the group is not too large good for interpersonal responses. Perhaps a visit from an outside observer from time to time to see format and assess progress would be a good idea" (105, p261)

VI. Peer Review and Clinical Audit

The relationship of peer review to clinical audit was not clear to some dentists, who grouped them together;

"Peer review is along with Clinical Audit very good way of keeping up to date in a non-threatening and very open way. I belonged to a study group which evolved into peer review and audit. This meant we got paid for doing something we up till then did on an ad-hoc basis" (000, p258)

and others who viewed them as separate entities;

"Peer review generally is very useful - it is based on planet earth and not on cloud 9! Audit on the other hand tends to be a bit too academic to have practical significance to general practice. I'm not talking about the continual self assessment and critical appraisal work done, treatment modes, techniques employed, laboratory work done, etc. But the rather rigid formal collation of data to prove or measure a situation that

instinctively is already known by the practitioner - to that extent I'm not an audit fan as a general dental practitioner" (309, p263)

Others had insight in to local activity in both areas;

"Clinical audit performed by groups of dentists and properly funded would retain the advantages of peer review and audit. Peer review is accessible by many. Clinical audit as presently happening in Lothian lacks attraction and is likely to be performed by a minority" (437, p267)

It was apparent from the comments that some practitioners had found peer review a way into audit activity, but there were not that many (4) and there was some suggestion that these individuals may have got involved anyway (refer to response 000 on p 157). However, the unstructured comments did overall seem to show that generally peer review in Scotland is acceptable and constructive.

4.6. Future Studies

There does appear to be a need for an up to date Scotland-wide survey of postgraduate dental education participation. The imminent advent of the GDC recertification scheme offers an opportunity to carry out a survey whilst the scheme is voluntary and again after it has become mandatory. The effectiveness of the activities engaged in should be assessed and a comparison made of the results, before and after mandation. Initial indications that demand for postgraduate courses is increasing substantially have already been alluded to (p.152), an

assumption that mandation will make a difference to postgraduate course attendance appears to have some basis. In this way it should be possible to demonstrate that the GDC scheme is not only guaranteeing that all dentists have completed a minimum of professional updating activity, but that such activity has had an effect in causing knowledge and practice change. The adoption of such a Scotland-wide survey approach would have been another way of conducting this research. It would have had the advantage of release from the anonymity and follow up constraints imposed by NHS management executive, but would have an accompanying increase in cost. It should be possible to achieve a higher response rate in such a survey, free of constraints on identifying non-responders. This would allow for an unrestricted strategy to pursue them for a response and an assessment of the attributes of those still not responding. If the research were to be repeated in such a fashion, I would include the questions on peer review in the main sections of the questionnaire along with the other activities and give clearer instructions on how to use the linear analogue scales. The entity of peer review as defined for this study has ceased to be funded as an activity discrete from audit in Scotland.

However, in England and Wales it continues. Surely then there exists an opportunity to carry out a comparison of peer review as a separate activity (as in England and Wales) with no separate peer review (as in Scotland).

It should be possible too design a study based on outcome measures by choosing a parameter of care that is readily measurable before and after an educational intervention. For example ; the prescription and provision of sealant restorations -

this is readily measured by the Dental Practice Division's practice profiling statistics, before and after participation in a peer review of sealant restorations. Thus a series of studies based on specific outcome measures might yield useful data on the effectiveness of peer review, using externally assessed measures of activity and quality (e.g. via DPD data, DRO reports and national dental health surveys)

This study could be redesigned to move it up the SIGN classification of evidence guidelines by sampling randomly. This would mean that all 1700 or so general dental practitioners in Scotland would need to be sent questionnaires, to ensure that sufficient replies were received from dentists that had done peer review to make the data meaningful. Given that peer review is no longer funded as a discrete activity in Scotland, but still is in England and Wales, it should be possible to run a UK-wide version of this study, using Scottish practitioners as controls for the English and Welsh. This would be another way to move a redesigned study up the SIGN levels of classification of evidence.

The conclusions of the study tend to support the decision to discontinue funding peer review as a separate entity in Scotland. As an element in the process of clinical audit, it probably still has a future and its description as one of the central pillars of clinical governance suggests that there may be a future for it, even if in a different form.

CHAPTER 5

Conclusions

5.1. Consistency of responses

This was good for questions on rating the effectiveness of knowledge change. If the answers to these three questions on rating effectiveness in changing knowledge were shown to be reliable, then there is every reason to presume that this was the case with all answers (Saunders et al, 1999).

5.2. Effectiveness of postgraduate education

5.2.1. Knowledge Change

Dentists felt that symposia, reading journals, watching videos, study groups and peer review were effective in increasing knowledge. But Section 63 courses and private courses were rated very effective.

5.2.2. Practice change

Dentists rated Section 63 courses, private courses, study groups and peer review effective in changing practising behaviour.

5.2.3. Other highly significant differences

Journals were rated as effective in increasing knowledge, with practitioners aged

under 45 very much more likely to rate journals effective and those aged over 45 years much more likely to rate them as less effective.

Private courses were assessed as effective in increasing knowledge. Those with a higher qualification are much more likely to rate private courses as effective in increasing knowledge.

5.2.4. Correlations of effectiveness in changing knowledge with effectiveness in changing practice, and popularity of activity

The strong association between rating of change in knowledge and rating of change in practice suggests that activities effective at changing one are also effective at changing the other.

There is a moderate association of rating effectiveness in changing knowledge with popularity of activity.

5.3. Concluding remarks

The null hypothesis that peer review is no more effective than other modes of postgraduate dental education in increasing knowledge is not disproved, as Section 63 courses, private courses and reading journals are all viewed as significantly more effective at producing change in knowledge and, only computer assisted learning was rated worse.

The null hypothesis that peer review is no more effective than other modes of postgraduate dental education in changing practising behaviour is not disproved, as they were all rated as significantly more effective, except computer assisted learning.

Different groups within the sample studied viewed the differing postgraduate dental education modes with varying perceptions of effectiveness. Externally validated effective educational activities are required to help dentists meet the GDC's recertification requirements and any difference between perceived and validated effectiveness only underlines the need for the flexibility in the General Dental Council's reaccreditation and recertification proposals.

The differing groups appear to have differing perceptions of educational needs; some favouring informal modes such as peer review and study groups and others the converse of formal courses and conferences. Yet others still, prefer solitary educational media such as videos, distance learning and reading journals. Further investigation of what education particular groups require is indicated, along with the development of more versatile (and less subjective) methods of assessment of effectiveness. This could be achieved as part of the Scotland-wide survey of postgraduate dental education participation already suggested.

Bibliography

Journal abbreviations employed:-

Amer J Public Health	- American Journal of Public Health
Am J of Epidemiol	- American Journal of Epidemiology
Arch Pathol Lab Med	- Archives of Pathology Laboratory Medicine
BDA News	- British Dental Association News
BDJ	- British Dental Journal
BMJ	- British Medical Journal
Br J of GP	- British Journal of General Practice
Congr Rec	- Congressional Record
IDJ	- International Dental Journal
JADA	- Journal of the American Dental Association
JAMA	- Journal of the American Medical Association
J Dent Educ	- Journal Dental Education
J Med Educ	- Journal of Medical Education
J of Dent	- Journal of Dentistry
J of Public Health Dent	- Journal of Public health Dentistry
J of the R Coll Gen Prac	- Journal of the Royal College of General Practitioners
N.Y.State Dent J	- New York State Dental Journal
N.Y.State J Med	- New York State Medical Journal
NZDJ	- New Zealand Dental Journal
Postgrad Med J	- Postgraduate Medical Journal

ADA (1983), "Strategic plan: - Report of the American Dental Association 's special committee on the future of dentistry", *American Dental Association*, , Chicago, p46.

ADA Task Force on National Health Programs (1971), "Dentistry in National Health Programs: A Report with recommendations", *JADA* ; **83** : 569

Allen.W (1997), "Report of the Postgraduate Database Group", B. D.A, London, 1997

Audrey. C (1999), " Clinical Governance in the GDS" , *BDA News* , Nov 1999 **12**(11) : 24 - 25, BDA ,London.

Awty .M & Balk.T (1975), "Dental Practitioner's attitudes to postgraduate education in the South East Thames Region", *BDJ*; **139**(3): 111 – 112

Basker.R.M,Browne.R.M & Grieve.A.R (1978), " Postgraduate activities: The West Midlands approach", *Dental Update* ; **5** : 89 –99.

BDA (1991a) Working group on clinical Audit, "Clinical Audit in Primary Dental Care - A Consultative Paper" , ,BDA, London.

BDA (1991b) General Dental Services Committee, "Peer Review in General Dental Practice" - A quality of care initiative from the, BDA, London .

- BDA** (1993) Working group on clinical Audit, "Clinical Audit-A Workbook", BDA, London.
- BDA** (1997), Ad-hoc working group on the development of a postgraduate database, "The case for a national postgraduate database", London.
- BDA** (2000), Practice Quality System, BDA, London
- BDJ** (2001), "General Notices", *BDJ* ; **191** (7) : 2 (Classified section)
- Bennett. W.F** (1973), "Senator Bennett discusses PSRO(Public Service Review Organisation).", *Congr Rec*; **119** (176).
- Benton R.M & Shub.J.L** (1995), "Peer Review - Its good for patients and dentists", *N.Y.State Dent J* ; **61**(7) : 28 - 29.
- Boulay C** (1996), "Have we got it right?", Association of Clinical Pathologists Newsletter.
- Bowers.D** (1996) , "Statistics from scratch – An introduction for health care professionals", p 16 –18, John Wiley & Sons Ltd, London.
- British Standards Institution** (1972), "Recommendations for the presentation of theses", BS4821: 1972, British Standards Institution, London.
- Broadfoot. R** (1995), "Research, Peer Review or Audit?", Scottish Dental Audit Group Newsletter ; **2** : 3
- Broadfoot.R** (1991) "The Scottish Distance VT Scheme. Aims and Development", *BDJ*; **170** (7) : 274
- Brown.C.R & Uhl.H.S.M** (1970), "Mandatory continuing education - sense or nonsense? ", *JAMA* ; **213** (10) : 1660 – 1668
- Bulman.J.S & Osborn. J.F** (1989), "Statistics in Dentistry", London, B.D.A.
- BUOLD** (1997), "*BUOLD Information Pack*, University of Bristol Dental Postgraduate department, Bristol Dental Hospital, Lower Maudlin St, Bristol, BS1 2LY
- Burke.F.J.T, Wilson N.H.F & Cheung S.W** (1995), "Factors associated with dentist's willingness to treat high risk patients", *BDJ*; **178** :145 - 148
- Burke.F.J.T.&Wilson N.H.F** (1994)"Who needs clinical audit?", *IDJ*;**44**:495- 500.
- Carotte.P.** (1995), "Continuing Professional Development", *BDJ*; **179** : 277
- Carver. A & Pendlebury . M** (1996), "Audit and Peer Review in dental practice ", Teamwork 3 , p11 - 16 , A Section 63 funded initiative from the British Dental Association, London.
- Chambers .D.W & Hamilton.D.L** (1975), "Continuing Dental Education : Reasonable answers to unreasonable questions" , *JADA* ; **90** (1) : 116 - 120
- Chambers .D.W** (1976), "An investigation into behaviour change in continuing dental education", *J Dent Educ* **40** (8) : 546-551
- Committee on Vocational Training (CVT) for England and Wales** (1993), " The Vocational Training Curriculum", CVT , London. CVT, London
- Common Services Agency Scotland** (1999), Information and Statistics Division, Primary Care Information Unit Trinity Park House ,Edinburgh
- Concise Oxford Dictionary** (1995), 9th Ed, Oxford , Oxford University Press.
- Conn.R.B** (1992), "Can Continuing Medical Education prepare the current practitioner for the twenty - first century?", *Arch Pathol Lab Med* , **116** (6) : 602 - 604.
- Coulter. W** (1973), " Peer Review - A Philosophic second look", *N.Y.State J Med*;

June 1, 1973, p1329 - 1330.

Cowan.A (1975), "General comments on continuing education", *IDJ*; **25** (1) : 1-5

CVT (Committee on Vocational Training) (2001), 123 Gray's Inn Rd, London.

Day.R.A (1995), "How to write and publish a scientific paper", 4th Edition, University Press, Cambridge.

Devine.G, Fenwick.N & Watson.G (1995), "The Early Years of Postgraduate Dental Training in England", Centre for Medical Education, Dundee Scottish Council for Research in Education, *Standing Committee on Postgraduate Medical and Dental Education*, London.

Devitt.J.E (1973), "Does continuing Medical education by Peer Review really work?", *Canadian Medical Association Journal* ; **108** : 1279-81

D.o.H (1998), A first class service: Quality in the NHS, D.o.H, London.

D.o.H (2001), Modernising NHS Dentistry - Clinical Audit and Peer Review in the GDS, D.o.H, London.

DPB - Dental Practice Board (1989), Annual report, Eastbourne, Compton Place Rd, East Sussex

DPB - Dental Practice Board (1990), Annual report, Eastbourne, Compton Place Rd, East Sussex

DPB - Dental Practice Board (1991), Annual report, Eastbourne, Compton Place Rd, East Sussex

DPB - Dental Practice Board (1992), Annual report, Eastbourne, Compton Place Rd, East Sussex

DRSG(Dental Rates Study Group) (1999) "Annual Report", Department of Health, London

Dryer.B.V (1962), "Lifetime learning for physicians: principles, practices, proposals", *J Med Educ*; **37(6) Parts 1 and 2**

Dwyer.M (1995), "A guide to the Harvard referencing system", *British Journal of Nursing* ; **4** (10) : 599 - 602.

Eaton. K.A. & Rothwell. P.S (1992) "What are Section 63 and 'approved' courses and how are they organised?", *BDJ* ; **173** (9) :307 - 311

Eaton.K.A, Fleming.W.G & Rich.J.L (1998), "A report of an evaluation of the pilot peer review scheme for general dental practitioners working in the general dental service in England", *BDJ* ; **184** : 178 - 182

Ewing.D.J (1999) "Medical and dental staffing in the health service in Scotland" *Health Bulletin*, **57** (6): 406 - 414.

Eysenbach.G (1998), *Medicine and Medical Education in Europe*, Thieme, Stuttgart, 1998.

Farmer. E.D (1974), "The delivery of continuing dental education", *IDJ* ; **24** : 427 - 434

Fauchard, Pierre (1746), *Le Chirurgien-Dentiste*, Paris. Preface *xxiii*. Translated by Lillian Lindsay 1946, BDA, London.

FGDP (1995), "A framework for a career pathway in General Dental Practice", FGDP, London,

FGDP (2001), Examinations office, Faculty of General Dental Practitioners, R.C.S. England, Lincolns Inn Fields, London.

Fleming.W, Golding.L, Macdonald.M & Fleetwood-Walker.P

- (1996), "Evaluation of the Peer Review scheme for GDP's in England", Soundings Research, 377 Heath Road South, Northfield, Birmingham, B31 2BA.
- Flexner A** (1910), "Medical Education in the United States and Canada. Bulletin Number Four".
- Fordyce.G.L. & Mouatt. R.B** (1986), "A Voluntary Scheme of Vocational Training for General Dental Practice in England and Wales", *BDJ*; **161**(11): 417-419.
- Fordyce.G.L** (1978), "Vocational Training - an introduction to postgraduate education", *IDJ*; **28** (2): 137-141
- Gardner .M. & Altman.D.G** (1989), "Statistics with confidence - confidence intervals and statistical guidelines", BMJ, London.
- GDC** (1995), "Statement of policy on postgraduate education", GDC, London.
- GDC** (1996), "The accord', between the GDC and the Dental Faculties of the Royal Surgical Colleges and other educational bodies", GDC, London,
- GDC** (1997a), "Reaccreditation and Recertification for the Dental Profession a consultation paper", GDC, London,
- GDC** (1997b), "Dentists register", General Dental Council, London.
- GDC** (1998a) "Report of the Career Redevelopment Review Group, GDC, London
- GDC** (1998b), "The Next Two Years - General Professional Training, GDC, London.
- GDC** (1998c), "Dentists register", GDC, London.
- GDC** (2000) "Lifelong learning", GDC, London.
- GDC, BDA & the Faculty of Dental Surgery ,Royal College of Surgeons of England** (1989), "Areas of Responsibility" - Joint Statement on Postgraduate Education", *BDJ*; **166**(5): 146
- Glantz.P-O, Lindell S-M, Lowhagen L. & Wittbjer. J** (1973), "The attitude of Swedish dentists to postgraduate courses", *Odontologisk Revy*; **24**: 293 - 303
- Grace.M** (Ed.) (1991), "Self Assessment Manual and Standards (SAMS) -Clinical Standards in General Dental Practice", Advisory Board in GDP at R.C.S.Eng, London
- Greenhalgh.T** (1997a), "How to read a paper I - Getting to know your bearings (deciding what the paper is about)", *BMJ*; **315**: 243 - 246
- Greenhalgh.T** (1997b), "How to read a paper III - Assessing the methodological quality of published papers", *BMJ*; **315**: 305-8
- Grol. R & Lawrence. M** (1995), "Quality improvement by Peer Review", 1st Ed, Oxford, OUP.
- Grol.R, van Eijk J, Mesker.P & Schellvis.F** (1985), Audit: A project in peer review in General Practice, *Family Practice*; **2** (4): 219 - 224
- Grol.R, Mokkink.H & Schellevis.F** (1988), The effects of Peer Review in General Practice, *J of the R.Coll Gen Prac*; **38**:10-13
- Health Services and Public Health Act 1968** (1968), Ch. 46, p 1187 - 1189. London.
- Higgins .H** (1999), "How the BDA will approach Clinical Governance in general dental practice", *BDA News*, Dec 1999 **12** (12):17, BDA, London
- Holt.V. & Earp.D** (1996), "Using Clinical Audit in practice : a pilot Peer Review project", *Primary Dental Care*; **3** (2): 75 - 77

- Ireland.R.S, Palmer.N.O & Bickley .S.R** (1999) ,"A survey of general dental practitioners' postgraduate education activity and demand for extended modular postgraduate programmes", *BDJ* ; **187** (9): 502-506
- Jablonski** (1982), "Illustrated Dictionary of Dentistry", Ed. Stanley Jablonski, Philadelphia Pennsylvania, W.B. Saunders.
- Jones .R.V.H** (1993)," Continuing Professional Education" , *Postgrad Med J* ;**69** (Suppl 2) : S91 -S93
- Keffner.J.H, Dadian.T** (1996),"Using collaborative learning in dental education", *J Dent Educ*; **61** : 66-72
- Kerr Gilbert. R** (1975), "An investigation into postgraduate dental education in the Newcastle Region", *J.of Dent*; **3**: 73-76
- Klein.H, Dollar.M.L. & Bagdonas.J.E** (1947) "Dentist time required to perform dental operations" *JADA*; **35**: 153 - 160
- Kress.G.C** (1979), "Continuing Education: Does it affect the practice of dentistry" , *JADA* ; **99** (9) : 448 - 455
- Lang.P.W, Farghaly.M.M, Woolfolk M.W, Ziemiecki. T.L & Faja.B.W** (1991),"Educating Dentists about fissure sealants and effects on knowledge, attitudes and use", *J of Public Health Dent* ;**51**(3) : 164-169.
- Lewis .K.J** (1997), "The Performing Arts", *Dental Practice*; **35** (13) : 4
- Lewis K.J** (1991), Measure for measure", *Dental Practice*; **29** (16): 4
- Lewis.D** (1991), "All is not well", *BDJ* ; **170**: 50
- MacGregor. A.J , Long. A.F. & Mercer. P.E** (1990), "The continuing professional development of general dental practitioners in the Yorkshire region", University of Leeds, Leeds.
- MacGregor. A.J , Long. A.F. & Mercer. P.E** (1991), "Updating practices amongst Yorkshire GDP's", *BDJ*; **170**(2) :73-75
- Martin. J.L** (1977), "Dental Peer Review: A Conceptual Model", *N.Y.State Dent J*; **43** (2): 76 - 79
- Mason. Sir David** (1993), "President's address to the General Dental Council" , *BDJ* ; **175** (11) : 345 -347.
- Maxwell Brunette. D** (1996),"Critical Thinking - Understanding and Evaluating Dental Research", Quintessence publishing, Carol Stream - Illinois.
- Mays.N & Pope.C** (1996), "Qualitative research in Healthcare", BMJ Publishing , London.
- McCluggage. R.W** (1959)," A history of the American Dental Association: A century of Health Service", *American Dental Association*, Chicago.
- Mercer.P.E, Long.A.F, Ralph.J.P & Bailey.H** (1995) "Clinical Audit activity and continuing professional development of general dental practitioners", University of Leeds, Leeds.
- Mercer.P.E, Long.A.F, Ralph.J.P & Bailey.H** (1998) "Audit activity and uptake of postgraduate dental education among general dental practitioners in Yorkshire", *BDJ* ; **184** (3) : 138-142.
- Milgrom. P** (1974), "Continuing education and the prospect for a national standard of dental care", *J of Dent Educ*; **38** (9) : 482 - 486
- Milgrom.P** (1978a),"A study of procedures to assess care and dental education", *IDJ*; **28**(2): 126-135

- Milgrom. P** (1978b) "Volunteering in Dental Peer Review: Differences between volunteers and practitioners at large", *J Dent Res* ; **57** (2) : 201-208
- Milgrom.P, Weinstein.P & Ratener.P** (1980) "Quality assessment as a form of continuing dental education : Changing dentist clinical performance" ,*JADA* ; **101** (8) : 258 -264
- Morganstein.W.M** (1990), "Outcome measures in dental education - we've only just begun", *J.Dent Educ*; **54**(6): 308 -310
- Mouatt .R.B, Veale.B & Archer.K** (1991), "Continuing Education in the GDS - An England survey", *BDJ* ; **170**(2) :76-79
- Murrel.G, Huang.C, and Ellis.H** (1990), "Research in Medicine – a guide to writing a thesis in the medical sciences", Cambridge University Press, Cambridge.
- Musselbrook.K, Plowman.L & Devine.L** (1999) , "A Bridge too Far - An evaluation of General Professional Training for Dentistry in Scotland" , Scottish Council for Postgraduate Medical and Dental Education, Edinburgh .
- Musselbrook.K, Plowman** (2000), "An evaluation of general professional training for dentistry in Scotland", *BDJ* ; **188**(10) : 563 – 567.
- NDAC** (2001), Clinical Governance in dental primary care, National Dental Advisory Committee, Scottish Executive, Edinburgh
- Neumann. L.M & Beaudry** (1987), " Long-Term Continuing Education for General Dentists", *J of Dent Educ*; **51** (8) : 492-496
- New York State Dental Society** (1979), "Peer review manual" *NY Dent.J*; 45(7) p 1 - 22
- Newton . J** (1993), "Continuing Professional Development ", *NZDJ*; **89** : 9 –12
- Newton.J.T, Thorogood.N & Gibbons.D.E** (2000), "A study of the career development of male and female dental practitioners", *BDJ* ; **188** (2) : 90 - 94
- Nixon.S.J** (1992), "Does Audit result in change in practice ? - The Lothian surgical experience ", *Quality in Healthcare*; **1** (supp) : 525 –527
- Nuffield Foundation** (1980), "An Enquiry into Dental Education - a report to the Nuffield Foundation ", London.
- Nuffield Provincial Hospital Trust** (1965), "Medical Education in Britain", Nuffield Provincial Hospital Trust, London.
- NZDA council** (1989), "Report of the NZDA committee on continuing education in dentistry", *NZDJ*; **85**: 101 - 102
- O'Dowd .T.C & Sprackling.P.D** (1989), "Continuing medical education in general practice" , *BMJ* ; **298** : 1479
- Oppenheim.A.N** (1992), "Questionnaire design, interviewing and attitude measurement", 2nd Ed, Pinter publishers, London.
- Parry. Michael** (1989), "Inquiry into Continuing Education for Community Dental Officers", Edinburgh , Scottish Council for Postgraduate Medical and Dental Education.
- Paterson.R.C, Watts.A, Saunders.W.P & Pitts.N.B** (1989), "Trends in the management of fissure caries: a distance learning programme for GDP's", Scottish Home and Health Department, Dundee,
- Pendlebury.M.E** (1994), "The Pathways in Practice programme: An investigation into its potential use by GDP's", *BDJ* , **176** (1) ; 26 -28.
- Pitts.N** (1993), "A Pilot Peer Review scheme for GDP's -Report of an evaluation,

Centre for Medical Education,, University of Dundee, Ninewells Hospital and Medical School, Dundee.

Popper.K.R (1959), "The logic of scientific discovery", Hutchinson, London.

Pusey.R.F (1959), "Postgraduate activities in the Central Counties Region", *BDJ* ; **105** (10) : 326-7

RCS. Edinburgh (2001), 52 Nicolson St, Edinburgh

RCS. Ireland (2001), St. Stephen's Green, Dublin

RCP&S Glasgow (2001), 232-242 St Vincent St. Glasgow

Reeves.J.F (1977), "The ways and means of educating the General Dental Practitioner", *BDJ*; **147**(12) :326-7

Rennie.J (1994) "Vocational Training assessment questionnaire 1994/95, Scottish Council for Postgraduate Medical and Dental Education, Edinburgh.

Rennie.J (1995) "Vocational Training assessment questionnaire 1995/96, Scottish Council for Postgraduate Medical and Dental Education , Edinburgh.

Rennie.J (1996) "Vocational Training assessment questionnaire 1996/97, Scottish Council for Postgraduate Medical and Dental Education , Edinburgh.

Renson.C.E (1999) "CPD, CDE and CPE for PDC practitioners", *First Hand* , October 1999, FGDP, London

Rogers.E.M, (1983), "Diffusion of innovations", 3rd Edition, Free Press , New York, p69-70.

Rogers.J & Davies. R (1997), "Peer Review and Clinical Audit in General Dental Practice ", Pathways Vol 2, FGDP, London.

Rothwell . P (Ed) (1993), "Pathways in Practice" - a distance learning pack, , Faculty of GDP's , London.

Royal College of Surgeons of Edinburgh (1995), "Regulations relating to the diploma of MGDS", Edinburgh, Page 9.

Rugg-Gunn A (1997), "Scientific Validity" (Editorial), *BDJ*; **182** (2) : 41

Rugg-Gunn A (1997), "Statement on response rates", *BDJ*; **182** (2) : 68

Sackin.P , Barnett.M, Easthaugh A & Paxton. P (1997), "Peer supported learning", *Br J of GP* ; **47** (415) : 67 – 68.

Santini. A & Eaton.K.A (1995), "Research in General Dental Practice - Ethical considerations", FGDP, London.

Sarll.D.W & Holloway.P.J (1982), "Factors influencing innovation in general dental practice", *BDJ*; **153** : 264-266

Saunders.W.P,Chestnutt.I.G & Saunders.E.M (1999a) , "Factors influencing the diagnosis and management of teeth with pulpal and periradicular disease by general dental Practitioners. part ", *BDJ* ; **187** (9) : 548 - 554

Saunders.W.P,Chestnutt.I.G & Saunders.E.M (1999b) , "Factors influencing the diagnosis and management of teeth with pulpal and periradicular disease by general dental Practitioners. part 2", *BDJ* ; **187** (10) : 548 - 554

Scarrott D (1999), "Continuing Professional Development: Can the system cope?", *BDA News* ; **12** (9) Sept 1999 . P.22.

Schonfeld.H.K (1969), "Peer review of quality of dental care", *JADA*; **79** : 1376 - 1382

Schless. J.M (1972), " Peer Review as an educational challenge" , *JAMA* ; **219** (8) :1060-61.

- Scottish Council for Postgraduate Medical and Dental Education** (1996), "Guidelines on the operation of Vocational Training Schemes within the Scottish General Dental Service", 12 Queen Street, Edinburgh, Pages 5 & 14.
- Scottish Council for Postgraduate Medical Education** (1991), "Continuing Education in General Dental Practice - A report of the Dental Committee of the Scottish Council for Postgraduate Medical Education", 12 Queen St. Edinburgh.
- Scottish Executive** (2001), Amendment to "Statement of Dental Remuneration", Scottish Executive NHS Management Executive, Edinburgh.
- Scottish Office** (1994). "Dental peer review in Scotland – a handbook of guidance", Scottish Office NHS Management Executive, Edinburgh.
- SDPB - Scottish Dental Practice Board** (1989), Annual report, Trinity Park House, South Trinity Road, Edinburgh
- SDPB - Scottish Dental Practice Board** (1990), Annual report, Trinity Park House, South Trinity Road, Edinburgh
- SDPB - Scottish Dental Practice Board** (1991), Annual report, Trinity Park House, South Trinity Road, Edinburgh
- SDPB - Scottish Dental Practice Board** (1992), Annual report, Trinity Park House, South Trinity Road, Edinburgh
- Seward.M** (1991), "Clinical Audit and self assessment initiatives", *BDJ*; **171** (7) : 189
- Seward.M** (1997), "President's address to the General Dental Council", *BDJ*; **182** (10) : 363 -366
- Seward.M** (2001), "Better opportunities for women dentists", Department of Health, London.
- Shaw.C.D** (1980a), "Aspects of Audit - 1.The Background", *BMJ*; **284** : 1256 - 1258
- Shaw.C.D** (1980b)," Aspects of Audit -3.Audit in British general practice", *BMJ*; **284** : 1361 – 1363
- Siemiatycki,J & Campbell.S** (1984), "Non-response bias and early versus all responders in mail and telephone surveys", *Am J Epidemiol*; **120** :291 – 301
- Scottish Intercollegiate Guidelines Network (SIGN)** (1999), "An introduction to SIGN methodology for the production of evidence-based clinical guidelines", Scottish Intercollegiate Guidelines Network, Royal College of Physicians, 9 Queen Street, Edinburgh, EH2 1JQ.
- Silversin.J.B, Shafer.S.M, Smales.F.C& Sheiham.A** (1974), "British dentists and final year British and U.S.students' opinions about their undergraduate training",*BDJ* ; **137** : 161 - 168
- Smile-on Ltd** (2001), www.smile-on.com.
- Soremark.R** (1978), "Dental Education", *IDJ* ; **28** (2) : 143 - 147
- Sorricelli . D.A** (1968) "Methods of administrative control for the promotion of quality in dental programs", *Amer J Public Health*; **58** (Sept 1968): 1723
- Standing Committee on Postgraduate Medical and Dental Education** (1998), "Continuing Professional Development for doctors and Dentists – Recommendations", SCOPME, London.
- Stevenson.R.L** (1881), El Dorado "Virginibus Puerisque", 1881,
- Swinscow.J.D.V** (1983), "Statistics at Square one" London, B.M.A.

p.43-53 - Chi-square test and p.1 -6. - Means

Swinscow.J.D.V (1996) revised by Campbell.M.J, "Statistics at Square one"

London, B.M.A

p.4 Median

Tan.R.S. & Burke. F.J.T (1997), "Response rates to questionnaires mailed to dentists. A review of 77 publications", *IDJ*; 47: 349 - 354

summary (1998), in *Evidence Based Dentistry*; 1(1): 15

Tan.A.E.S (1992), "Survey of CDE attendance in Western Australia", *Australian Dental Journal*; 37(4) : 296-9

University of Edinburgh (1999), "University of Edinburgh Calendar", James Thin Ltd, 53 - 59 South Bridge, Edinburgh.

US Agency for Health Care Policy and Research (1993) Acute pain management operative or medical procedures and trauma. Rockville (MD): The Agency; 1993. Clinical Practice Guideline No. 1. AHCPR Publication No. 92-0023. P. 107.

Veterans Administration (1955), Department of Medicine and Surgery. Manual M-4 "Dentistry". Washington .D.C. ,May 1955 ,p 13.

Vlitos.J.P,Croysdill.A.H& Downer.M.C (1996), "Evaluation of a year long hands on restorative dentistry course for practitioners", *BDJ*; 181(8): 296-301

Walmsley.A.D,& Frame. J.W (1990), "Dental Practitioner attendances at postgraduate courses in a dental school", *BDJ* ; 169 (2) : 61-63

Welsh.L & Woodward . P. (1989) "Continuing Professional Development : towards a national strategy" , Department of Education & Science report, The Planning Exchange ,Glasgow.

Whittrock J.W (1977), "The General Practitioner and Continuing Education", *JADA* ,94(June 1977) : 1065-67

Wild J.R (1989), "A survey of attenders and non-attenders at dental Section 63 courses in South East Scotland ", *Health Bulletin*; 47 (2): 92 - 94.

Yates (1934), "Contingency tables involving small numbers and the χ^2 test", *Journal of the Royal Statistical Society*, Supplement 1, 217 - 235.

Yewe-Dyer Mervin (1997), " From peer review to clinical audit the Scottish way", *Scottish Dental Audit Group Newsletter*, SCPMDE, 12 Queen St. Edinburgh.

List of other media

- BDA/FGDP Symposium** "Face the Future"- career pathway development for general dental practitioners (1997), 12th June 1997, Royal Lancaster Hotel, London
- British Association of Oral and Maxillo-Facial Surgeons** (1995), Pilot Clinical Guidelines(draft), CAL on floppy disk.
- British Postgraduate Medical Federation** (1993),"A Better Image(Panoramic Radiographs), University of London, Cedric Maggs Video Production.
- Knight.G** (1997), "The Direct Class II Composite Resin " (video), Leading Edge Videos/ Dentaltalk Seminars
- Paul.E** (1997)"Close support" (video), University of Liverpool
- International Journal of Oral and Maxillo-Facial implants on CD-Rom** (1995), Quintessence publishing Co Inc, Carol Stream, Illinois , U.S.A
- Masticatory Muscles** (1993), CD-ROM , Arto Demirjan, Silver Platter Information Ltd, U.S.A.
- Microsoft Access** (1997), Microsoft corporation, Redmond, Washington, U.S.A.
- Microsoft Excel** (1997) Microsoft corporation, Redmond, Washington, U.S.A.
- Microsoft Word** (1997) Microsoft corporation, Redmond, Washington, U.S.A.
- Microsoft Word** (2000) Microsoft corporation, Redmond, Washington, U.S.A.
- Minitab** (1996) Minitab Inc, State College, Pennsylvania, USA.

List of Personal Communications

- Bearne.A**, (1999) BDA Economic Advisor, BDA, London, November 1999
- Carotte.P**. (2001), report of increased demand for Section 63 courses at Scottish Audit Symposium, 6th September 2001, SCPMDE, Edinburgh

Glossary of abbreviations used

BAO	British Association of Orthodontists
BDA	British Dental Association
BDJ	British Dental Journal
BUOLD	Bristol University Open Learning for Dentists
CAL	Computer Assisted Learning
CDE	Continuing Dental Education
CME	Continuing Medical Education
COSHH	Committee On Substances Hazardous to Health
CPITN	Community Periodontal Index of Treatment Needs
CPD	Continuing Professional Development
CPE	Continuing Professional Education
CVT	Committee for Vocational Training
DDO	Diploma in Dental Orthopaedics
DDS	Doctor of Dental Surgery
DGDP	Diploma in General Dental Practice
DHSS	Department of Health and Social Security
DoH	Department of Health
DPA	Dental Practice Advisor
DPD	Dental Practice Division
EU	European Union
FDS	Fellowship in Dental Surgery
FGDP	Faculty of General Dental Practice
GDC	General Dental Council
GDP & gdp	General Dental Practitioner
GDSC	General Dental Services Committee
GMP	General Medical Practitioner
GPT	General Professional Training
HB	Health Board
HDD	Higher Dental Diploma
IDJ	International Dental Journal
JAMA	Journal of the American Medical Association
LDC	Local Dental Committee
LDS	Licence in Dental Surgery
MADEL	Medical and Dental Education levy
MFDS	Member of the Faculty of Dental Surgery
MFGDP	Member of the Faculty of General Dental Practice
NZDA	New Zealand Dental Association
NHS	National Health Service
PG	Postgraduate
PSRO	Public Services Review Organisation
RCS.Edin	Royal College of Surgeons, Edinburgh

RCS.Eng	Royal College of Surgeons, England
RCS.Glas	Royal College of Physicians and Surgeons, Glasgow
RCS.Irl	Royal College of Surgeons, Ireland
SAMS	Self Assessment Manual of Standards
SCOPME	Standing Committee on Postgraduate Medical Education
SNAP	State-wide Needs Assessment Program
S63	Section 63 funded course
UK	United Kingdom
USA	United States of America
VT	Vocational Training
WMPDEC	West Midlands Regional Postgraduate Dental Education Committee
χ^2	Chi-square

Glossary of equipment used

1. Dell Optiplex GL 5100 personal computer (University)
2. Compaq 510 CDS personal computer (Home)
3. Siemens MCM 1510 personal computer (Home)
4. Brother HL - 631 printer.
5. Pocket calculator.

APPENDIX I

**RESEARCH PROJECT ON THE EFFECTIVENESS OF
PEER REVIEW**

Yann Maidment
Centre for Dental Education
Edinburgh University
Lister Postgraduate Institute
11 Hill Square
Edinburgh EH8 9DR

1. Name:.....

For office
use:.....

2. Practice address (main one).....
.....
.....
.....

Anon No:

A. Please complete the following personal details for demographic purposes:

1. Sex: M F
2. Date of birth:.....
3. Post code of residence:.....
4. Year qualified:.....

B. Please complete details of practising experience and arrangements, against which to gauge the context of your Postgraduate Dental Education experiences:

1. Are you currently engaged in General Practice? Full-time
Please indicate by ticking appropriate box: Part-time
2. Has there been a complete break since qualification when not engaged in general practice (eg. career break for family commitments, illness, time off to pursue other interests etc.):
Yes
No
3. Do you currently work as a Single-handed dentist? please indicate by ticking appropriate box:
(i) all the time
(ii) some of the time
(iii) never
4. Do you practice at: please indicate by ticking appropriate box:
(i) single location
(ii) multiple locations
5. Do you work as: (please indicate by ticking appropriate box(es) if applicable)?
(i) a practice owner/Partner
(ii) an associate/assistant
(iii) Salaried GDP

C. In this next section we are looking at access to and participation in Postgraduate Dental Education

1. How far would you have to travel to your nearest Postgraduate Dental Education Centre? Miles
2. Do you hold any postgraduate dental degrees or diplomas? Yes No
If yes, please specify:.....
.....

3. Since October 1994 have you attended the following? Please note the number of such activities attended against each one.

	Yes	No	If Yes, how many?
(i) Section 63 course	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(ii) Private course (s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(iii) Conference (s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(iv) Other approved course (s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(v) Symposia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(vi) Study group meeting (s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(vii) BDA Scientific meeting (s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(viii) FGDP scientific meeting (s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(ix) Peer review (s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(x) Clinical audit (s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Did you complete a year's Vocational Training? Yes No
5. Have you ever been a Trainer in a Vocational Training scheme? Yes No
If yes, how many years experience in total as a trainer?.....
6. Do you belong to any study groups? Yes No
If yes, please state which:.....
.....

7. Which, if any, professional associations do you belong to? (Please indicate your frequency of attendance at the association meetings using the following scale 0 = never, 1 = rarely, 2 = usually).

Association	Attendance
.....
.....
.....
.....

8. Which of the following journals are taken in your practice?

	Yes	No
(i) British Dental Journal	<input type="checkbox"/>	<input type="checkbox"/>
(ii) Dental Update	<input type="checkbox"/>	<input type="checkbox"/>
(iii) The Probe	<input type="checkbox"/>	<input type="checkbox"/>
(iv) Dental Practice	<input type="checkbox"/>	<input type="checkbox"/>
(v) The GDP	<input type="checkbox"/>	<input type="checkbox"/>
(vi) The Dentist	<input type="checkbox"/>	<input type="checkbox"/>
(vii) Other(s), please specify:.....	<input type="checkbox"/>	<input type="checkbox"/>

9. Which, if any, of the professional journals do you read on a regular basis?

	Yes	No
(i) British Dental Journal	<input type="checkbox"/>	<input type="checkbox"/>
(ii) Dental Update	<input type="checkbox"/>	<input type="checkbox"/>
(iii) The Probe	<input type="checkbox"/>	<input type="checkbox"/>
(iv) Dental Practice	<input type="checkbox"/>	<input type="checkbox"/>
(v) The GDP	<input type="checkbox"/>	<input type="checkbox"/>
(vi) The Dentist	<input type="checkbox"/>	<input type="checkbox"/>
(vii) Other(s), please specify:.....	<input type="checkbox"/>	<input type="checkbox"/>

10. On the analogue scale (example of analogue use: (. . . . | .) please strike through
 through
 1 2 3 4 5 6
 how useful you find reading journals as a method of continuing education? (1 = not at all up to 6 = very useful) (.)
 1 2 3 4 5 6
11. How many dental books have you read in the last two years:
12. On the analogue scale, please indicate how useful you find reading dental books as a method of continuing education? (.)
 1 2 3 4 5 6
13. How many dental videos have you watched in the last 2 years?.....
15. On the analogue scale, please indicate how useful you find watching T.V. videos as a method of continuing education? (.)
 1 2 3 4 5 6
16. How many different Computer Assisted Learning (CAL) programs have you used on our computer in the last two years?.....
17. On the analogue scale, please indicate how useful you find using Computer Assisted Learning (CAL) programmes as a method of continuing education? (.)
 1 2 3 4 5 6
18. Have you used any other distance learning packages e.g. "Pathways", in the last two years?
 Yes No
19. If applicable, on the analogue scale, please indicate how useful you found them to be as a method of continuing education? (.)
 1 2 3 4 5 6
20. Does being funded make you more likely to participate in the following?
- | | | | | |
|---|-----|--------------------------|----|--------------------------|
| (i) Peer review | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> |
| (ii) Clinical audit | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> |
| (iii) Section 63
(only the first two sessions attract funding) | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> |
| (iv) BPGMF videos sent out free to GDP's
(British Postgraduate Medical Federation) | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> |
21. Has lack of funding discouraged you from participating in the following?
- | | | | | |
|-------------------------------|-----|--------------------------|----|--------------------------|
| (i) Conferences | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> |
| (ii) Other approved course(s) | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> |
| (iii) Private course(s) | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> |
| (iv) Symposia | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> |
| (v) Study group(s) | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> |

D. I will now ask a few questions about team involvement in educational and training activities.

1. Have you taken team members with you on courses (excluding resuscitation) in the last two years? Yes No
2. Are practice meetings held regularly to:
- (a) Discuss practice management Yes No
- (b) Discuss clinical techniques/practice ? Yes No
3. Do you employ a formal quality assessment system? (eg. ISO9002, Denplan/Bupa/or other third party system).
Yes No

E. In this section I am interested in distinguishing between an acquisition of knowledge, and actual changes in the way you practice dentistry.

1. For each category please indicate on the analogue scales how effective each mode is in increasing/updating knowledge.
- | | | |
|--------|------------------------|-------------|
| (i) | Section 63 | (.) |
| | | 1 2 3 4 5 6 |
| (ii) | Private course(s) | (.) |
| | | 1 2 3 4 5 6 |
| (iii) | Conference(s) | (.) |
| | | 1 2 3 4 5 6 |
| (iv) | Symposia | (.) |
| | | 1 2 3 4 5 6 |
| (v) | Reading journals | (.) |
| | | 1 2 3 4 5 6 |
| (vi) | Watching dental videos | (.) |
| | | 1 2 3 4 5 6 |
| (vii) | Using CAL programs | (.) |
| | | 1 2 3 4 5 6 |
| (viii) | Study group meeting(s) | (.) |
| | | 1 2 3 4 5 6 |

2. For each category please indicate on the scales how effective each mode is in improving the way you practice dentistry.

(i)	Section 63	(.) 1 2 3 4 5 6
(ii)	Private course(s)	(.) 1 2 3 4 5 6
(iii)	Conference(s)	(.) 1 2 3 4 5 6
(iv)	Symposia	(.) 1 2 3 4 5 6
(v)	Reading journals	(.) 1 2 3 4 5 6
(vi)	Watching dental videos	(.) 1 2 3 4 5 6
(vii)	Using CAL programs	(.) 1 2 3 4 5 6
(viii)	Study group meeting(s)	(.) 1 2 3 4 5 6

F. In this section there follows questions on Peer Review to try and discover how the general dental practitioners perceive it.

- How did you find out about Peer Review?.....
.....
- Has Peer Review been successful in?:
 - increasing /updating knowledge of the subject under review Yes No
 - changing the way you practice dentistry Yes No
- Please specify how it was useful.....
.....
- Please specify any disadvantages or problems encountered.....
.....

Dear Colleague,

I am a General Dental Practitioner undertaking a research project on the effectiveness of Peer Review. By completing the enclosed questionnaire you will be helping to assess continuing professional development and contribute to it's evolution.

As only those GDP's who have participated in Peer Review will receive questionnaires, your time in filling in the one enclosed will be much appreciated. The responses will be anonymised. To assist in this please could you enter your name and address in the box on page 1 and return it to Mrs. Rosemarie Bland, who is the senior secretary at the Centre for Dental Education, Edinburgh University, in the reply paid envelope. The covering letter will be removed by her and I shall receive only the anonymous responses. This procedure is necessary to allow us to contact the people who do not respond.

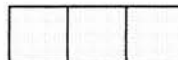
Each section is preceded by a preamble explaining the need for the information. Questions on re-accreditation and mandatory postgraduate education proposals have been included to try and gauge opinion within the profession.

I would be grateful if you could complete the questionnaire and return in the reply paid envelope at your earliest convenience.

Thanking you in advance for your co-operation and assistance in this matter.

Yours sincerely,

Yann Maidment



26th February 1997

Dear Colleague ,

The Effectiveness of Peer Review

- In the past four weeks GDP's throughout Scotland have been returning the above questionnaire.
- We now have over 55% of those which were sent out.
- We are still interested in receiving more , as the higher the response rate , the more accurately the situation in practice will be revealed.

We would value your time completing the questionnaire ,should you be willing to return your one completed.

We can assure you that all information will be confidential and no individual will be identifiable during the analysis of results , nor in any publication arising from the results.

If you still have your questionnaire please return it once completed in the prepaid envelope. If you require another copy , please call Mrs. Rosemarie Bland , the senior secretary at the Centre for Dental Education , between 08.45 and 12.00 Monday to Friday .

Thanking you in anticipation,

Yann Maidment , Research Lecturer.

Dear Colleague,

Some time ago, you were sent a questionnaire from Mr Yann Maidment who is conducting research into Peer Review. I realise that you must be very busy with what I am sure is a very time consuming career and other commitments. However, by completing the enclosed questionnaire you will be helping to assess continuing professional development and contribute to its evolution.

As only those GDP's who have participated in Peer Review will receive questionnaires, your time in filling it in will be much appreciated. The responses will be anonymised. To assist in this please could you enter your name and address in the box on page 1 and return it to me in the reply paid envelope. The covering letter will be removed by myself and Mr Maidment shall receive only the anonymous responses. This procedure is necessary to allow us to contact the people who do not respond.

Each section is preceded by a preamble explaining the need for the information. Questions on re-accreditation and mandatory postgraduate education proposals have been included to try and gauge opinion within the profession.

I would be grateful if you could complete the questionnaire and return in the reply paid envelope at your earliest convenience. Alternatively, should you wish to give your answers over the telephone, I would be more than happy to assist. As I work part-time, you would most likely reach me between 0830 - 1215, Monday to Friday. If you call at any other time, please leave a message on our answering machine and I will get back to you as soon as possible..

I would like to take this opportunity to thank you in advance for your co-operation and assistance in this matter.

Yours sincerely,

Mrs Rosemarie Bland
Departmental Administrator

APPENDIX II

Aberrant responses

Generally, if responses were missed to question C.3. they were defaulted to “no” and if numbers were missed they were defaulted to 0 for no and 1 for yes, unless evidence suggested more than one, for example “lots” ,in which case they were defaulted to 2. Where there was doubt as to which number had been struck through on the visual analogue scales, the lower number was recorded so that any bias introduced would not tend to inflate scores. It was evident that some respondents were attempting to use the 6-point scale provided as a 13-point scale by striking between numbers. Respondent number 205 left question B.3 unanswered, but the response was inferred from the comments made at the end. Respondent 012 answered yes to attending section 63 courses but did not detail how many, so 1 was used as a default value. Respondents 028, 403 and 003 did the same with all activities and were processed in the same way as 012. Similarly, respondent 015 answered yes to experience as a vocational trainer, but did not state number of years - so 1 used as default again. 090 gave no data on participation, yet expressed opinions on the usefulness of the various modes. These responses are retained in the study as zero participation and the scores for usefulness were included. The same treatment was given to response 010 which gave incomplete responses to the participation section. Respondent 074 was assumed to be working full-time as they did not tick box, but wrote “orthodontic practice” alongside. 483 replied “lots” to numbers of section 63 courses attended, this was treated as 2. 417

replied yes to three modes of continuing professional education, but did not provide numbers - these were defaulted to 1 and the omission to answer yes or no to the others was defaulted to no. Respondent 492 omitted to answer question C.3. on educational activities, these were defaulted to no and zero except for Peer Review which was counted as one.

APPENDIX III

A number of the percentages in the following tables do not total 100, due to rounding. Tables containing χ^2 values, have significant figures in bold typeface.

Table 3.1A

The distribution of dentists by sex.

Sex	Number	%
M	125	79
F	33	21
Total	158	100

Table 3.2A

The distribution of dentists by age .

Age range	Number	%
55 +	13	8
45 - 54	40	26
35 - 44	58	37
25 - 34	47	29
Total	158	100

Table 3.3A*The distribution of dentists by status in practice.*

Status	Number	%
Associate/Assistant	42	27
Owner/Partner	114	72
Not known	2	1
Total	158	100

Table 3.4A*The distribution of status in practice by gender*

Status	F	M	Total
Associate/assistant	23	19	42
Not Known	0	1	1
Principal	10	104	114
Salaried GDP	0	1	1
Total	33	125	158

Table 3.5A

The χ^2 cell values of status in practice by gender

Status	F	M	Total
Associate/assistant	21.567	5.740	
Principal	8.135	2.165	
Total			37.607

Table 3.6A

The distribution of dentists in full or part time working

Full/Part - time	Number	%
F/T	144	91
P/T	14	9
Total	158	100

Table 3.7A

The distribution of full time / part time working by gender

Full/Part-time	F	%	M	%	Total
F/T	23	70	121	97	144
P/T	10	30	4	3	14
Total	33		125		158

Table 3.8A

The distribution of dentists by number of practising locations

	Number	%
Multiple	43	27
Single	114	72
Not Known	1	1
Total	158	100

Table 3.9A*The distribution of dentists by working as a single -handed dentist*

	Number	%
All the Time	14	9
Sometimes	31	20
Never	113	72
Total	158	101

Table 3.10A*The distribution of dentists by career break*

Career break	Number	%
No	141	89
Yes	17	11
Total	158	100

Table 3.11A

The distribution of career break by sex

Career Break	F	%	M	%	Total
Y	9	(27)	8	(6)	17
N	24	(73)	117	(94)	141
Total	33	(100)	125	(100)	158

Table 3.12A

The distribution of dentists by distance to nearest postgraduate centre

Travel distance	Number	%
0 - 6	54	34
7 - 26	51	32
27 - 500	53	34
Total	158	100

Table 3.13A*The distribution of dentists by distance in miles to nearest postgraduate centre.*

<i>Distance</i>	<i>Number</i>	<i>Cumulative number</i>	<i>%</i>	<i>Cumulative %</i>
0	1	1	0.6	0.6
1	6	7	3.7	4.4
2	10	17	6.3	10.8
3	9	26	5.7	16.5
4	10	36	6.3	22.8
5	14	50	8.9	31.6
6	4	54	2.5	34.2
7	6	60	3.7	38
8	1	61	0.6	38.6
10	7	68	4.4	43
12	4	72	2.5	45.6
13	2	74	1.3	46.8
14	3	77	1.9	48.7
15	9	86	5.7	54.4
16	2	88	1.3	55.7
17	1	89	0.6	56.3
20	7	96	4.4	60.7
21	1	97	0.6	61.4
24	1	98	0.6	62
25	6	104	3.8	65.8
26	1	105	0.6	66.5
27	1	106	0.6	67.1
28	1	107	0.6	67.7
30	12	119	7.6	75.3
31	1	120	0.6	75.9
32	2	122	1.3	77.2
34	1	123	0.6	77.8
35	8	131	5.1	82.9
36	1	132	0.6	83.5
38	2	134	1.3	84.8
40	5	139	3.2	87
46	1	140	0.6	88.6
48	2	142	1.3	89.9
50	1	143	0.6	90.5
55	1	144	0.6	91.1
60	2	146	1.3	92.4
80	1	147	0.6	93
96	1	148	0.6	93.7
100	3	151	1.9	95.6
112	1	152	0.6	96.2
120	1	153	0.6	96.8
180	2	155	1.3	98.1
200	1	156	0.6	98.7
250	1	157	0.6	99.3
500	1	158	0.6	99.9
Grand Total		158		99.9

Table 3.14A*The distribution of dentists by years since qualification*

Years qualified	Number	%
up to 6	23	15
7 -16	59	37
17 -26	53	33
27 -32+	23	15
Total	158	100

Table 3.15A*The distribution of dentists by decade of graduation*

Graduation decade	Number	%
1960's	23	15
1970's	53	33
1980's	59	37
1990's	23	15
Total	158	100

Table 3.16A*Incidence of postgraduate qualifications among the dentists*

Postgraduate qualification	Number	%
Y	45	28
N	113	72
Total	158	100

Table 3.17A*Distribution of postgraduate qualifications among the dentists*

Number of postgraduate qualifications	Number of dentists
1 (Part 1 only)	2
1	32
2	4
2 (and a Part 1 only)	1
3	6
Total	45

Table 3.18A*Postgraduate degrees held by the dentists*

- 25 Diploma in General Dental Practice – DGDP(now MFGDP)
- 4 Membership in General Dental Surgery - MGDS
- 5 Fellowship in Dental Surgery – FDS(now MFDS)
- 3 Diploma in Dental Orthopaedics - DDO
- 2 Membership in Dental Orthopaedics - MDO
- 5 Master of Science - Msc
- 2 Diploma in Orthodontics - D.Orth.
- 1 M.Dent
- 1 Batchelor of Science - Bsc
- 1 Doctor of Philosophy - PhD
- 3 Doctor of Dental Surgery - DDS
- 3 Diploma in Forensic Medicine - Dip.For.Med.
- 1 BMSc
- 1 MMSc
- 1 LLM

Total = 60

Additionally, two dentists held MGDS part one only and one held FDS part one only.

Table 3.19A*Section 63 courses attended in the previous two years*

Number of Section 63 courses attended	Number	%
0	18	11
1	18	11
2	15	9
3	15	9
4	13	8
5	10	6
6	19	12
7	3	2
8	11	7
9	2	1
10	8	5
11	4	3
12	5	3
15	5	3
16	1	3
18	2	1
20	5	3
25	2	1
35	1	1
80	1	1
Total	158	100

The mean number of courses attended was 6.4. 52% had attended five or more courses in the last two years.

Table 3.20A*Private courses attended in the previous two years*

Number of Private courses attended	Number of Respondents attending	% Respondents attending
0	62	37
1	37	23
2	20	13
3	20	13
4	7	4
5	3	2
6	2	1
8	1	1
10	3	2
20	2	1
30	1	1
Total	158	98

Table 3.21A*Conferences attended in the previous two years*

Number of conferences	Number attending	% attending
0	80	51
1	36	23
2	19	12
3	11	7
4	4	3
5	4	3
6	4	3
Total	158	102

The mean attendance at conferences was 1 per dentist, in the last two years.

Table 3.22A*Symposia attended in the previous two years*

<i>Number of Symposia</i>	<i>Number attending</i>	<i>% attending</i>
0	116	74
1	20	13
2	15	9
3	3	2
4	1	1
6	3	2
Total	158	101

Table 3.23A*Other courses attended in the previous two years*

Number of other approved courses	Number attending	% attending	cumulative total
0	106	67	67
1	25	16	83
2	12	8	91
3	4	3	94
4	4	3	97
5	1	1	98
6	5	3	101
7	1	1	102
Total	158	102	

Most (67%) practitioners did not attend any other courses and the mean attendance was 0.75 .

Table 3.24A*Study group meetings attended in the previous two years*

Number of Study Group meetings attended	Number attending	% attending
0	84	53
1	18	11
2	11	7
3	7	4
4	8	5
5	3	2
6	8	5
7	2	1
8	4	3
10	6	4
11	1	1
12	4	3
14	1	1
15	1	1
Total	158	101

Table 3.25A*BDA scientific meetings attended in the previous two years*

Number of BDA Scientific meetings attended	Number attending	% attending
0	112	71
1	25	16
2	9	6
3	1	1
4	2	1
5	2	1
6	1	1
10	2	1
12	1	1
14	1	1
16	2	1
Total	158	101

Table 3.26A*FGDP meetings attended in the previous two years*

Number of meetings attended	Number attending	% attending
0	124	78
1	10	6
2	10	6
3	7	4
4	5	3
5	2	1
Total	158	98

Table 3.27A*Peer review meetings attended in the previous two years*

Number of meetings attended	Number attending	% attending
0	16	10
1	52	33
2	14	9
3	5	3
4	16	10
5	9	6
6	18	11
7	8	5
8	8	5
9	4	3
10	2	1
12	4	3
16	1	1
21	1	1
Total	158	99

Table 3.28A*Clinical audit meetings attended in the previous two years*

Number of meetings attended	Number attending	% attending
0	98	62
1	30	19
2	12	8
3	4	3
4	5	3
5	2	1
6	1	1
8	1	1
10	3	2
20	1	1
Total	157	101

Table 3.29A**Number of journals taken by dentists**

Number of journals	Number of dentists	%
0	3	2
1	5	3
2	17	11
3	32	20
4	44	28
5+	57	36
Total	158	100

Table 3.30A*Number of journals read by dentists*

Number of journals	Number of dentists	%
0	3	2
1	4	3
2	18	11
3	31	20
4	46	29
5+	56	35
Total	158	100

Table 3.31A*Frequency of receipt and reading of journals compared*

Title	Number receiving	Number reading	% receiving	% reading
British Dental Journal	122	102	77	65
Dental Update	111	89	70	56
The Probe	146	118	92	75
Dental Practice	139	119	89	76
General Dental Practitioner	114	87	72	55
The Dentist	47	37	30	23
Other	52	55	33	35

A list of the "other " journals listed as taken in the practice , where abbreviations were used and the parent publication is not obvious , it has been left as an abbreviation.

Table 3.32A

Other journals read: -

Scottish Dentist		18
Independent		8
British Journal of Orthodontics		4
Primary Dental Care		4
Quintessence		4
American Journal of Orthodontics		2
Endo		2
British association of Oral and Maxillo-Facial Surgery		1
British Endo Journal	1	
Caries research		1
CDH		1
Clinical Research Associates		1
Cranio	1	
Cranio View		1
Dentistry Monthly		1
First Hand		1
IJP		1
Journal of the American Dental Association		1
Journal of Clinical Dentistry		1
Journal of Prosthetic Dentistry		1
Journal of Oral Rehabilitation		1
Ortho		1
	Total	57

Table 3.33A

Other journals taken: -

British Journal of Orthodontics	4
Dentistry monthly	1
Independent	1
EDJ	1
Ortho journals	1
Scottish Dentist	2
Quintessence	1
Implantology	1
None	106

Table 3.34A Showing χ^2 and P values for reading journals and participating in activities

		Read / Do not read journal χ^2	pV	Significance
Section 63		0.139	0.709	n.s
Private course	χ^2	0.678	0.410	n.s.
Conference	χ^2	0.033	0.856	n.s.
Other approved Course	χ^2	0.039	0.843	n.s.
Symposium	χ^2	6.689	0.010	@ P<0.01
Study group	χ^2	0.6022	0.014	n.s.
BDA Scientific Meeting	χ^2	2.504	0.114	n.s.
FGDP Scientific Meeting	χ^2	4.700	0.030	@ P<0.05
Clinical audit	χ^2	0.056	0.814	n.s.
Books	χ^2	3.552	0.059	n.s.
Videos	χ^2	0.675	0.411	n.s.
CAL	χ^2	0.234	0.629	n.s.
Distance Learning	χ^2	10.906	0.001	@ P<0.001

Table 3.35A*Dental books read in the last two years*

Number of books	Number reading	% reading
0	35	22
1	25	16
2	34	22
3	23	15
4	19	12
5	7	4
6	7	4
8	2	1
10	3	2
11	1	1
12	1	1
15	1	1
Total	158	101

65% had read 1 -4 books in the previous two years , while 22% had read none.

Mean = 2.5 books

Mode = 2 “

Median = 4

Table 3.36A*Numbers of dental videos watched in the previous two years*

Number of videos watched	Number watching	% watching
0	21	13
1	19	12
2	31	20
3	19	12
4	19	12
5	7	4
6	17	11
7	4	3
8	2	1
9	1	1
10	6	4
11	1	1
20	1	1
50	1	1
60	1	1
Total	158	97

13% had seen no videos in the last two years , whilst a handful had seen very large numbers. Most had seen 1 -6.

Mean = 2.9 Videos

Mode = 2 “

Median = 5 “

Table 3.37A*Numbers of CAL programs used in the previous two years*

Number of programs used	Number using	% using
0	123	78
1	18	12
2	10	12
3	3	2
4	1	1
5	1	1
6	1	1
8	1	1
Total	158	101

Table 3.38A*Dentists using distance learning in the previous two years*

Participated in distance learning	Number of respondents	% respondents
No	85	54
Yes	73	46
Total	158	100

Table 3.39A Showing χ^2 and P values for significance of factors associated with being or not being a member of a society

	Sex	Age	Single-handed
χ^2	0.634	4.554	11.680
P-value	0.426	0.033	0.001

Table 3.40A Showing χ^2 and P values for significance of factors associated with attending or not attending meetings of a professional society

	Sex	Age	Single-handed
χ^2	0.055	0.858	2.392(1.552 after Yate's correction)
P-value	0.082	0.354	0.122

Table 3.41A

Other professional associations

Royal Odonto-Chirurgical Society	17
LDC	9
British Orthodontic Society	4
Odontological Soc	4
SAAD	4
British Society for Medical and Dental Hypnosis	3
Glasgow Odontological Soc	3
RCPS Glas	2
BOA	2
British Society for Prosthetic Dentistry	2

In addition, the following societies were listed only once:-

AAO
 AID
 American Dental Association
 Ayrshire Dental Soc
 British Association for Forensic Odontology
 British Endodontic Society
 British Society for Restorative Dentistry
 BSOS
 DHRG
 EAO
 Edinburgh Dental Alumni Society
 EOS
 FDI
 GDC
 Kilmarnock Independent Dentists
 L.D. Pankey Association
 LPG
 MDDUS
 NZ Dental Association
 P.D.A.
 Paedodontic Soc
 Perio Soc
 RCS Edin
 Scot Soc For Med
 SPG
 TSSO
 Women in Dentistry
 Young dentists Group

Table 3.42A*Membership of study groups*

Belong to a Study Group	Number Belonging	% Belonging
No	108	68
Yes	50	32
Total	158	100

Table 3.43AStudy Groups cited and their frequency

Ortho	7
Diploma in General Dental Practice	5
Membership in General Dental Surgery	4
Local	4
Borders	4
Highland	3
N.E.Scot Ortho	2
Grampian ortho	2

21 other groups were mentioned only once : -

A private group
 Aberdeen ortho
 Audit S group
 Ayrshire dental society
 Edin ortho
 Fort William PGSG
 Glasgow orthodontic
 Independent
 Lanarkshire
 Northern PG
 Practice management
 Private
 Progressive dental
 Saltcoats/Stevenson
 Scottish ortho
 Tayside ortho

Table 3.44A*Participation in Vocational Training as a trainer*

Experience as a Vocational Trainer	Numbers of respondents	% respondents
No	94	59
Yes	64	41
Total	158	100

Table 3.45A*Percentage who had completed Vocational Training*

Vocational Training undertaken and completed	Number	%
No	122	77
Yes	36	23
Total	158	100

Table 3.46A*Years of experience being a Vocational Trainer*

Number of years experience as a Vocational Trainer	Number of respondents	% of respondents
0	94	60
1	14	9
2	11	7
3	14	9
4	7	4
5	5	3
6	7	4
7	1	1
8	2	1
10	1	1
Total	156	99

Table 3.47A*Knowledge change with attendance at Section 63 course*

Rating of effectiveness in changing knowledge	Number	%
No response	2	1
1	4	3
2	8	5
3	11	7
4	35	22
5	74	47
6	24	15
Total	158	100

Mean = 4.2

Mode = 5

Median = 5

Table 3.48A*Knowledge change with attendance at private courses*

Rating of effectiveness in changing knowledge	Number	%
No response	16	10
1	3	2
2	4	3
3	11	7
4	40	25
5	70	44
6	14	9
Total	158	100

Mean = 4.0

Mode = 5

Median = 5

Table 3.49A*Knowledge change with attendance at conferences*

Rating of effectiveness in changing knowledge	Number	%
No response	19	12
1	6	4
2	19	12
3	46	29
4	48	30
5	17	11
6	3	2
Total	158	100

Mean = 3.0

Mode = 4

Median = 3

Table 3.50A*Knowledge change with attendance symposia*

Rating of effectiveness in changing knowledge	Number	%
No response	33	22
1	7	4
2	21	13
3	33	21
4	39	25
5	22	14
6	2	2
Total	158	100

Mean = 2.7

Mode = 4

Median = 4

Table 3.51A*Knowledge change with reading journals*

Rating of effectiveness in changing knowledge	Number	%
No response	2	1
1	1	1
2	15	9
3	39	25
4	51	32
5	45	28
6	5	3
Total	158	100

Mean = 3.8

Mode = 4

Median = 4

Table 3.52A*Knowledge change with viewing a video*

Rating of effectiveness in changing knowledge	Number	%
No response	7	4
1	4	3
2	21	13
3	28	18
4	53	34
5	36	23
6	9	6
Total	158	100

Mean = 3.6

Mode = 4

Median = 4

Table 3.53A*Knowledge change with using a CAL program*

Rating of effectiveness in changing knowledge	Number	%
No response	64	41
1	15	9
2	13	8
3	22	14
4	28	18
5	11	7
6	5	3
Total	158	100

Mean = 2.2

Mode = 4

Median = 2

Table 3.54A*Knowledge change with attending a study group*

Rating of effectiveness in changing knowledge	Number	%
No response	16	10
1	9	6
2	5	3
3	19	12
4	53	34
5	43	27
6	13	8
Total	158	100

Mean = 4.2

Mode = 4

Median = 4

Table 3.55A Effect of continuing dental education mode on change in knowledge (%)

Rating of effect in changing knowledge	S63	Private course	Conference	Symposia	Reading journals	Videos	CAL	Study group
1 (not at all useful)	3	2	4	4	1	3	9	6
2	5	3	12	13	9	13	8	3
3	7	7	29	21	25	18	14	12
4	22	25	30	25	32	34	18	34
5	47	44	11	14	28	23	7	27
6 (very useful)	15	9	2	2	3	6	3	8
No Response	1	10	12	22	1	4	41	10

Table 3.56A showing χ^2 – square and P- values for knowledge-change ratings given by dentists

	Sex		S/H		DistPGDC		HQ		Age(2by2)	
	χ^2	P-val	χ^2	P-val	χ^2	P-val	χ^2	P-val	χ^2	P-val
S63	2.510	0.113	3.062	0.080	3.359	0.187	7.654	0.006	0.408	0.523
PRC	0.246	0.620	0.001	0.975	0.251	0.882	14.249	0.000	0.334	0.563
Conf	0.226	0.635	0.001	0.976	0.135	0.935	7.435	0.006	0.033	0.856
Sym	1.516	0.218	0.006	0.937	1.852	0.396	3.896	0.048	3.789	0.052
Jour	0.450	0.502	0.307	0.580	3.802	0.149	1.686	0.194	2.373	0.123
Vid	3.024	0.082	0.117	0.732	1.567	0.457	0.001	0.972	3.606	0.058
CAL	0.701	0.403	2.350	0.125	0.793	0.673	0.019	0.889	3.933	0.047
SG	3.844	0.050	1.444	0.229	0.882	0.644	0.753	0.385	2.280	0.131
PR	3.664	0.056	1.867	0.172	2.848	0.241	0.027	0.870	0.005	0.942

d.f. =1 for all except distance from postgraduate centre , which was 2

Table 3.57A*Practice change with attending a Section 63 course*

Rating of effectiveness in changing practice	Number	%
No response	2	1
1	5	3
2	12	8
3	22	14
4	48	30
5	56	35
6	13	8
Total	158	98

Mean = 4.7

Mode = 5

Median = 4

Table 3.58A*Practice change with attending a private course*

Rating of effectiveness in changing practice	Number	%
No response	18	11
1	8	5
2	8	5
3	22	14
4	46	29
5	44	28
6	12	8
Total	158	100

Mean = 4.7

Mode = 4

Median = 4

Table 3.59A*Practice change with attending a conference*

Rating of effectiveness in changing practice	Number	%
No response	23	15
1	18	11
2	24	15
3	44	28
4	25	22
5	11	7
6	3	2
Total	158	100

Mean = 2.6

Mode = 3

Median = 3

Table 3.60A*Practice change with attending symposia*

Rating of effectiveness in changing practice	Number	%
No response	34	22
1	14	9
2	20	13
3	44	28
4	29	18
5	17	11
6	0	0
Total	158	101

Mean = 2.5

Mode = 3

Median = 3

Table 3.61A*Practice change with reading journals*

Rating of effectiveness in changing practice	Number	%
No response	5	3
1	3	2
2	23	15
3	50	32
4	48	30
5	24	15
6	5	3
Total	158	100

Mean = 3.5

Mode = 3

Median = 4

Table 3.62A*Practice change with watching videos*

Rating of effectiveness in changing practice	Number	%
No response	12	8
1	10	6
2	21	13
3	32	20
4	48	30
5	28	18
6	7	4
Total	158	99

Mean = 3.4

Mode = 4

Median = 4

Table 3.63A*Practice change with using CAL Programs*

Rating of effectiveness in changing practice	Number	%
No response	66	42
1	23	15
2	15	9
3	20	13
4	21	13
5	10	6
6	3	1
Total	158	99

Mean = 1.7

Mode = 1

Median = 1

Table 3.64A*Practice change with attending study groups*

Rating of effectiveness in changing practice	Number	%
No response	19	12
1	14	9
2	13	8
3	22	14
4	42	27
5	36	23
6	12	8
Total	158	101

Mean = 3.3

Mode = 4

Median = 3

Table 3.65A Effect of continuing dental education mode on change in practice (%)

Rating of effect in changing practice	S63	Private course	Conference	Symposia	Reading Journals	Videos	CAL	Study Group
1 (not at all useful)	3	5	11	9	2	6	15	9
2	8	5	15	13	15	13	9	8
3	14	14	28	28	32	20	13	14
4	30	29	22	18	30	30	13	27
5	35	28	7	11	15	18	6	23
6 (very useful)	8	8	2	0	3	4	1	8
No Response	1	11	15	22	3	8	42	12

Table 3.66A showing χ^2 -square and P- values for practice-change ratings given by dentists

	Sex		S/H		DistPGDC		HQ		Age(2by2)	
	χ^2	P-val	χ^2	P-val	χ^2	P-val	χ^2	P-val	χ^2	P-val
S63	0.013	0.910	0.105	0.746	1.491	0.474	7.589	0.006	0.564	0.453
PRC	3.861	0.049	0.466	0.495	2.925	0.232	0.108	0.743	2.174	0.140
Conf	0.005	0.943	0.050	0.823	5.242	0.073	1.938	0.164	0.301	0.583
Sym	0.639	0.424	0.833	0.361	1.816	0.403	1.082	0.298	0.264	0.607
Jour	0.317	0.574	2.918	0.088	2.278	0.320	2.720	0.099	3.347	0.067
Vid	2.132	0.144	10.002	0.002	1.481	0.477	0.172	0.678	0.931	0.335
			(8.104)							
CAL	0.004	0.947	0.233	0.629	2.635	0.268	2.054	0.152	4.147	0.042
SG	1.095	0.295	0.747	0.387	0.575	0.750	1.774	0.183	0.162	0.687
PR	2.439	0.118	0.375	0.540	1.656	0.437	0.023	0.879	0.944	0.331

Table 3.67A χ^2 cell values for knowledge change against sex

Activity		1 –3	4 –6			χ^2 total	P-val
S63	M	21	102	0.453	0.078	2.510	0.113 *
	F	2	31	1.688	0.292		
P.Course	M	15	97	0.045	0.007	0.246	0.620 *
	F	3	27	0.169	0.025		
Conference	M	54	54	0.025	0.026	0.226	0.635
	F	17	14	0.086	0.090		
Symposia	M	51	47	0.162	0.156	1.516	0.218
	F	10	16	0.609	0.584		
Journals	M	45	78	0.062	0.034	0.450	0.502
	F	10	23	0.230	0.125		
Videos	M	38	82	0.403	0.218	3.024	0.082
	F	15	16	1.559	0.843		
CAL	M	39	31	0.084	0.095	0.701	0.403
	F	11	13	0.244	0.278		
Study Gp	M	22	90	0.623	0.189	3.844	0.050
	F	11	19	2.327	0.705		
P. R.	M	9	116	0.693	0.073	3.664	0.056
	F	6	27	2.624	0.275		

* = One cell value less than 5

Table 3.68A χ^2 cell values for knowledge change against age

Activity		1 –3	4 –6			χ^2 total	P-val
S63	45+	9	43	0.232	0.040	0.408	0.523
	<45	14	90	0.116	0.020		
P.Course	45+	5	43	0.193	0.028	0.334	0.563
	<45	13	81	0.099	0.014		
Conference	45+	24	47	0.011	0.005	0.033	0.856
	<45	22	46	0.011	0.006		
Symposia	45+	21	40	0.926	0.683	3.789	0.052
	<45	24	21	1.255	0.926		
Journals	45+	14	38	1.024	0.512	2.373	0.123
	<45	41	63	0.558	0.279		
Videos	45+	13	38	1.517	0.798	3.606	0.058
	<45	40	57	0.846	0.445		
CAL	45+	21	10	1.234	0.607	3.933	0.047
	<45	29	34	1.402	0.690		
Study Gp	45+	15	34	1.146	0.604	2.280	0.131
	<45	18	75	0.347	0.183		
P. R.	45+	5	49	0.003	0.002	0.005	0.942
	<45	10	94	0.008	0.000		

Table 3.69A χ^2 cell values for knowledge change against possessing a higher qualification

Activity		1 –3	4 –6			χ^2 total	P-val
S63	Y	12	32	4.685	0.810	7.654	0.006
	N	11	101	1.840	0.318		
P.Course	Y	13	34	8.324	1.208	14.249	0.000
	N	5	90	4.118	0.598		
Conference	Y	15	29	2.486	2.596	7.435	0.006
	N	56	39	1.151	1.262		
Symposia	Y	15	26	1.325	1.283	3.896	0.048
	N	46	37	0.654	0.634		
Journals	Y	19	25	0.784	0.427	1.686	0.194
	N	36	76	0.308	0.168		
Videos	Y	15	28	0.001	0.000	0.001	0.972
	N	38	70	0.000	0.000		
CAL	Y	13	12	0.007	0.008	0.019	0.889
	N	37	32	0.002	0.003		
Study Gp	Y	12	31	0.403	0.122	0.753	0.385
	N	21	78	0.175	0.053		
P. R.	Y	4	41	0.017	0.002	0.027	0.870 *
	N	11	102	0.007	0.001		

* = One cell value less than 5

Table 3.70A χ^2 cell values for knowledge change against distance from a postgraduate centre

Activity	Distance (miles)	1 –3	4 –6			χ^2 total	P-val
S63	0-6	4	49	1.862	0.322	3.359	0.187 *
	7-26	9	42	0.292	0.050		
	27+	10	42	0.710	0.123		
Private Course	0-6	6	41	0.000	0.000	0.251	0.882
	7-26	5	41	0.118	0.017		
	27+	7	42	0.100	0.015		
Confer- -ence	0-6	25	25	0.043	0.047	0.138	0.933
	7-26	22	22	0.010	0.011		
	27+	24	21	0.013	0.014		
Sym- -posia	0-6	19	27	0.582	0.564	1.852	0.396
	7-26	23	19	0.265	0.256		
	27+	19	17	0.094	0.091		
Journals	0-6	17	37	0.218	0.119	3.802	0.149
	7-26	23	27	1.637	0.891		
	27+	15	37	0.606	0.330		
Videos	0-6	16	34	0.137	0.074	1.567	0.457
	7-26	21	29	0.678	0.367		
	27+	16	35	0.202	0.109		
CAL	0-6	15	12	0.028	0.032	0.793	0.073
	7-26	15	17	0.240	0.273		
	27+	20	15	0.103	0.117		
Study group	0-6	12	37	0.302	0.122	2.572	0.276
	7-26	12	33	0.065	0.026		
	27+	9	12	1.468	0.591		
P. R.	0-6	8	46	2.106	0.206	3.529	0.171#
	7-26	3	47	0.477	0.047		
	27+	3	50	0.063	0.062		

* = One cell value less than 5

= Two cell values less than 5

Table 3.71A χ^2 cell values for knowledge change against practising alone

Activity		1 –3	4 –6			χ^2 total	P-val
S63	Y	3	41	1.875	0.324	3.062	0.080 *
	N	20	92	0.736	0.127		
P.Course	Y	5	34	0.001	0.000	0.001	0.975
	N	13	90	0.000	0.000		
Conference	Y	20	19	0.000	0.000	0.001	0.976
	N	51	49	0.000	0.000		
Symposia	Y	18	19	0.002	0.002	0.006	0.937
	N	43	44	0.001	0.001		
Journals	Y	17	27	0.143	0.078	0.307	0.580
	N	38	74	0.056	0.031		
Videos	Y	16	27	0.055	0.029	0.117	0.732
	N	37	71	0.022	0.012		
CAL	Y	16	8	0.819	0.931	2.35	0.125
	N	34	36	0.281	0.319		
Study Gp	Y	7	35	0.781	0.236	1.444	0.229
	N	26	74	0.328	0.099		
P. R.	Y	2	43	1.208	0.127	1.867	0.172 *
	N	13	100	0.481	0.050		

* = One cell value less than 5

Table 3.72A χ^2 cell values for practise change against sex

Activity		1 –3	4 –6			χ^2 total	P-val
S63	M	31	92	0.002	0.001	0.013	0.910
	F	8	25	0.008	0.003		
P.Course	M	26	86	0.580	0.214	3.861	0.049
	F	12	17	2.240	0.827		
Conference	M	68	39	0.000	0.001	0.005	0.943
	F	18	10	0.001	0.003		
Symposia	M	64	35	0.048	0.081	0.639	0.424
	F	14	11	0.189	0.321		
Journals	M	62	60	0.032	0.032	0.317	0.574
	F	14	17	0.127	0.125		
Videos	M	47	70	0.241	0.183	2.132	0.144
	F	16	13	0.971	0.737		
CAL	M	44	26	0.000	0.001	0.004	0.947
	F	14	8	0.001	0.002		
Study Gp	M	36	73	0.153	0.083	1.095	0.295
	F	13	17	0.556	0.303		
P. R.	M	32	93	0.364	0.145	2.439	0.118
	F	13	20	1.380	0.550		

Table 3.73A χ^2 cell values for practise change against age

Activity		1 –3	4 –6			χ^2 total	P-val
S63	45+	15	37	0.281	0.094	0.564	0.453
	<45	24	79	0.142	0.048		
P. Course	45+	17	32	1.029	0.383	2.174	0.140
	<45	21	70	0.554	0.206		
Conference	45+	29	17	0.070	0.136	0.301	0.583
	<45	67	32	0.032	0.063		
Symposia	45+	29	15	0.063	0.107	0.264	0.607
	<45	49	31	0.035	0.059		
Journals	45+	20	31	1.123	1.108	3.347	0.067
	<45	56	46	0.561	0.534		
Videos	45+	18	30	0.355	0.270	0.931	0.335
	<45	45	53	0.174	0.132		
CAL	45+	24	7	1.016	1.734	4.147	0.042
	<45	34	27	0.516	0.881		
Study Gp	45+	18	30	0.069	0.037	0.162	0.687
	<45	31	60	0.036	0.020		
P. R.	45+	12	40	0.454	0.177	0.944	0.331
	<45	32	73	0.225	0.088		

Table 3.74A χ^2 cell values for practise change against possessing a higher qualification

Activity		1 –3	4 –6			χ^2 total	P-Val
S63	Y	18	27	4.050	1.350	7.589	0.006
	N	21	90	1.642	0.547		
P.Course	Y	10	30	0.056	0.021	0.108	0.743
	N	28	73	0.022	0.008		
Conference	Y	25	20	0.469	0.823	1.938	0.064
	N	61	29	0.234	0.412		
Symposia	Y	25	19	0.259	0.439	1.082	0.298
	N	53	27	0.142	0.242		
Journals	Y	27	18	0.966	0.954	2.720	0.099
	N	49	59	0.403	0.397		
Videos	Y	17	25	0.070	0.053	0.172	0.678
	N	46	58	0.028	0.021		
CAL	Y	14	13	0.536	0.915	2.054	0.152
	N	44	21	0.213	0.380		
Study Gp	Y	19	25	0.785	0.427	1.774	0.183
	N	30	65	0.364	0.198		
P. R.	Y	13	32	0.012	0.005	0.023	0.879
	N	31	81	0.005	0.002		

Table 3.75A χ^2 cell values for practise change against distance from a postgraduate centre

Activity	Distance (miles)	1 –3	4 –6			χ^2 total	P-val
S63	0-6	11	42	0.382	0.127	1.491	0.474
	7-26	12	39	0.044	0.015		
	27+	16	36	0.692	0.231		
Private Course	0-6	14	33	0.140	0.052	2.925	0.232
	7-26	8	37	1.405	0.518		
	27+	16	33	0.591	0.218		
Confer- -ence	0-6	33	16	0.102	0.179	5.242	0.073
	7-26	21	21	1.238	2.173		
	27+	32	12	0.562	0.987		
Symposia	0-6	27	19	0.148	0.254	1.816	0.403
	7-26	24	16	0.065	0.111		
	27+	28	11	0.456	0.783		
Journals	0-6	23	30	0.420	0.415	2.278	0.320
	7-26	24	26	0.028	0.028		
	27+	29	21	0.698	0.689		
Videos	0-6	19	30	0.217	0.165	1.481	0.477
	7-26	19	28	0.081	0.061		
	27+	25	25	0.544	0.413		
CAL	0-6	17	8	0.166	0.166	2.635	0.268
	7-26	16	15	1.096	1.096		
	27+	25	11	0.234	0.399		
Study Gp	0-6	17	30	0.011	0.006	0.575	0.750
	7-26	17	27	0.143	0.078		
	27+	15	33	0.218	0.119		
P. R.	0-6	18	36	0.543	0.211	1.656	0.437
	7-26	11	39	0.648	0.252		
	27+	15	38	0.001	0.001		

Table 3.76A χ^2 cell values for practise change against practising alone

Activity		1-3	4-6			χ^2 total	P-val
S63	Y	3	11	0.71	0.024	0.105	0.746 *
	N	36	106	0.007	0.002		
P.Course	Y	2	9	0.314	0.116	0.466	0.495 *
	N	36	94	0.027	0.010		
Conference	Y	8	4	0.017	0.029	0.050	0.823 *
	N	78	45	0.002	0.003		
Symposia	Y	9	3	0.279	0.473	0.833	0.361 *
	N	69	43	0.030	0.51		
Journals	Y	10	4	1.334	1.317	2.918	0.088 *
	N	66	73	0.134	0.133		
Videos	Y	11	52	5.180	0.506	10.002	0.002@ *
	N	2	81	3.932	0.384		
CAL	Y	7	3	0.077	0.131	0.233	0.629 *
	N	51	31	0.009	0.016		
Study Gp	Y	6	7	0.438	0.239	0.747	0.387
	N	43	83	0.045	0.025		
P. R.	Y	3	11	.244	0.097	0.375	0.540 *
	N	42	102	0.024	0.009		

@ = 8.104 after Yate's continuity correction

* = One cell value less than 5

Table 3.77A*How useful peer review was*

<i>Keywords</i>	<i>Number</i>	<i>%</i>
<i>Communication (include-awareness, comparing contact, discussion exchange, pooling relief of isolation, sharing</i>	66	42
<i>Change</i>	31	20
<i>Learning</i>	16	10
<i>Problems and Solutions</i>	15	9
<i>Awareness</i>	11	7
<i>Knowledge</i>	10	6
<i>Isolation</i>	4	3
<i>Unclassified</i>	4	3
<i>Useful</i>	3	2
<i>Led to Audit</i>	1	1
<i>Not Useful</i>	2	1
<i>Visits to other dentists</i>	1	1
<i>No Response</i>	33	21
<i>Total</i>	196	
<i>Number in 2 categories</i>	31	
<i>Number in 3 categories</i>	4	

Table.3.78A*Disadvantages and problems with peer review*

<i>Keywords</i>	<i>Number</i>	<i>%</i>
<i>None</i>	<i>31</i>	<i>19</i>
<i>Lack of funding</i>	<i>32</i>	<i>19</i>
<i>Difficulty arranging meetings</i>	<i>15</i>	<i>9</i>
<i>Lack of time</i>	<i>5</i>	<i>3</i>
<i>Motivation difficult</i>	<i>9</i>	<i>5</i>
<i>Straying from subject,</i>	<i>5</i>	<i>3</i>
<i>Distance</i>	<i>4</i>	<i>2</i>
<i>No response</i>	<i>65</i>	<i>39</i>
<i>Total</i>	<i>166</i>	<i>99</i>
<i>Number in 2 Categories</i>	<i>6</i>	
<i>Number in 3 Categories</i>	<i>1</i>	

Table 3.79A Paired alternatives for McNemar's test on peer review and other education activities

	Section 63	Peer Review	Pairs of responses
Change in knowledge	Y	Y	137
Change in knowledge	Y	N	14
Change in knowledge	N	Y	4
Change in knowledge	N	N	0
			Total 155

	Private courses	Peer Review	Pairs of responses
Change in knowledge	Y	Y	125
Change in knowledge	Y	N	13
Change in knowledge	N	Y	3
Change in knowledge	N	N	0
			Total 141

	Conferences	Peer Review	Pairs of responses
Change in knowledge	Y	Y	119
Change in knowledge	Y	N	13
Change in knowledge	N	Y	6
Change in knowledge	N	N	0
			Total 138

	Symposia	Peer Review	Pairs of responses
Change in knowledge	Y	Y	106
Change in knowledge	Y	N	10
Change in knowledge	N	Y	7
Change in knowledge	N	N	0
			Total 123

	Journals	Peer Review	Pairs of responses
Change in knowledge	Y	Y	141
Change in knowledge	Y	N	14
Change in knowledge	N	Y	1
Change in knowledge	N	N	0
			Total 156

	Videos	Peer Review	Pairs of responses
Change in knowledge	Y	Y	133
Change in knowledge	Y	N	13
Change in knowledge	N	Y	4
Change in knowledge	N	N	0
			Total 150

	CAL	Peer Review	Pairs of responses
Change in knowledge	Y	Y	74
Change in knowledge	Y	N	4
Change in knowledge	N	Y	14
Change in knowledge	N	N	1

Total 93

	Study group	Peer Review	Pairs of responses
Change in knowledge	Y	Y	120
Change in knowledge	Y	N	12
Change in knowledge	N	Y	9
Change in knowledge	N	N	0

Total 141

	Section 63	Peer Review	Pairs of responses
Change in practise	Y	Y	108
Change in practise	Y	N	42 (n ¹)
Change in practise	N	Y	3 (n ²)
Change in practise	N	N	2

Total 155

	Private courses	Peer Review	Pairs of responses
Change in practise	Y	Y	91
Change in practise	Y	N	41
Change in practise	N	Y	7
Change in practise	N	N	1

Total 140

	Conferences	Peer Review	Pairs of responses
Change in practise	Y	Y	85
Change in practise	Y	N	31
Change in practise	N	Y	9
Change in practise	N	N	9

Total 139

	Symposia	Peer Review	Pairs of responses
Change in practise	Y	Y	77
Change in practise	Y	N	32
Change in practise	N	Y	10
Change in practise	N	N	4

Total 124

	Journals	Peer Review	Pairs of responses
Change in practise	Y	Y	106
Change in practise	Y	N	43
Change in practise	N	Y	3
Change in practise	N	N	0
			Total 152

	Videos	Peer Review	Pairs of responses
Change in practise	Y	Y	96
Change in practise	Y	N	39
Change in practise	N	Y	8
Change in practise	N	N	2
			Total 145

	CAL	Peer Review	Pairs of responses
Change in practise	Y	Y	50
Change in practise	Y	N	18
Change in practise	N	Y	17
Change in practise	N	N	6
			Total 92

	Study group	Peer Review	Pairs of responses
Change in practise	Y	Y	92
Change in practise	Y	N	32
Change in practise	N	Y	9
Change in practise	N	N	5
			Total 138

APPENDIX IV**Free form comments from end of questionnaire**

000 Peer review is along with Clinical Audit very good way of keeping up to date in a non-threatening and very open way. I belonged to a study group which evolved into peer review and audit. This meant we got paid for doing something we up till then did on an ad-hoc basis.

001 If continual increase in types of training and audit/peer review required some funding must come into profession to encourage wider uptake.

003 Section E.Q1.2 - very difficult to answer this as sometimes a score of 6 could be judged (illegible) on other occasion. I would be (illegible) it really depends on each individual course. Every one has potential to score 6.

007 Reaccreditation as with vocational training, must remain firmly under the control of one's peers. Reaccreditation will lead to higher standards of care, higher job satisfaction, higher prestige, higher pay?

011 I shall not be involved in a further peer review project until funding of at least twice the current level is payable.

I spent considerable time over and above the time agreed for the project, and this seems to be a general finding. Payment at a higher rate should be introduced.

028 Very useful but must be readily available and funded.

038 Sorry, not time to fill in fully or neatly. There are too many questionnaires around and regrettably I usually put them in the bin. However, I am strongly in favour of reaccreditation so wish you well.

040 Peer review in some ways is the most informative as you have general dental practitioner's sharing the practical problems associated with practical dentistry as opposed to the idealistic teaching given in formal courses.

041 Continuing education relies on the dentist having an open mind; being able to change; considering that change is possible, funding is crucial for adequate recompense.

046 More funding please - it is good fun and very useful for practitioners who can be isolated especially single-handed general dental practitioners.

051 There is general apathy towards continuing dental education. When attempts are made to follow any recommendations it is usually found that they are simply time-consuming and not cost-effective within the National Health Service.

053 Peer review is the most enjoyable money I have ever earned from the National Health Service.

059 Peer review is vital for single - handed practitioners

063 1. Highly valuable

2. Sensible access to other practitioners need

066 Very useful

067 Specialist orthodontic practice has different priorities to those in general practice and so some of the answers may be slightly bizarre. There are very few (if any) worthwhile section 63 courses which are relevant. (illegible) videos and Computer Assisted Learning and so be carried out at the generalist area.

075 In specialist / general practice it is actually quite difficult to gain 50 Continuing Dental Education credits per year unlike when hospital -based and attending monthly journal clubs, audit meetings etc. (For which time is often allocated)

Once again I think quite a lot of it comes down to money /loss of earnings and the way in which practice is funded

Although fairly active (in fact very active) in comparison to other general dental practitioner's, I have not managed to fulfil 50 Continuing Dental Educations this year. I think combined post-grad education is vital but the level set for practitioners must be realistic to their working environment if it is to succeed and be acceptable to the profession.

076 Postgraduate education very important in general practice, grossly under funded so encouragement poor.

After your 2 session entitlement you always have to weigh up the cost of loss of work with education ,not very good basis.

078 Dentists should be under the same system as doctors where they are financially

penalised if they do not take up a minimum Continuing Dental Education. This would hopefully (illegible) the trough of dead wood in the profession who are only interested in making money.

080 If reaccreditation is to be introduced it must be funded and not be a further drain on the practice expenses budget

090 We are bombarded by too many journals, but have little time to read them

Any form of postgraduate education must have funding commensurate with the loss of time in the practice.

102 I feel there should be structured intensive accredited learning courses.

105 Peer review done properly and well organised is really excellent and providing the group is not too large good for interpersonal responses.

Perhaps a visit from an outside observer from time to time to see format and assess progress would be a good idea.

110 I attend mainly private courses, though expensive they are geared to the general dental practitioner to improve knowledge, techniques and the ability to adapt to our changing practising lives. Time and money does preclude attendance at all courses that appeal. A scheme for reaccreditation would need to be funded with new money.

200 NB only if adequate funding available especially for single-handed practitioners.

201 Health Board practice inspections should be linked to reaccreditation and carried

out by practitioners wholly outwith the geographical area of the subject.

It should include the observation of the practice at work.

203 Reaccreditation for the younger practitioner with a growing family will be a burden. I would like to do Diplomas etc - I do not have enough time to run the practice, do the dentistry and study to the extent required to do the Diploma properly.

I object to those in ivory towers who are about to retire who have seen their family grow up dictate how the younger generation of dentists should practice.

Reaccreditation should be brought in without adding further stress to dentistry. as a partner I do 40 hours clinical work a week and an average of 10-15 hours administration out of hours . I leave the house at 7.45 a.m. and rarely return before 6.30 p.m. with Local Dental Committee meetings on top of that I'm lucky if I see the kids for 1 hour a day. O.K. I chose dentistry. Given another chance I'd choose accountancy!

205 Excellent way of Continuing Dental Education is to become a Vocational Trainer. Keeps you on your toes. More money should be available for have (illegible) to do on Vocational Trainees. In Scotland 1997 many more potential trainees than places available, therefore pressure on trainees to get jobs - not useful as choice is reduced.

207 Funding is essential

209 More funding must be made available to encourage greater attendance. Bring our

system more in line with medical general practitioner's

211 I feel peer review is useful in bringing general dental practitioners together. Of course the general dental practitioners who attend and make the effort are the ones who make the effort and attend other forms of postgraduate education.

I personally prefer peer review to audit because I feel it is more relaxed about the subject under examination.

A strong chairman is necessary to prevent meetings going off course /dragging on and being wasteful of precious time.

215 With regard to Q1 above : This should only be enforced if a substantial amount of money is allocated to postgraduate education. Fees similar to those of general medical practitioners (i.e. £2-£3K).

The present amount of £200 is a joke!

Alas, if the powers that be want quality etc. they should really pay realistically as well.

“Informal” peer review is very useful in that it allows comparisons and contrasts the feeling of being closely scrutinised or criticised.

218 More funding required to encourage more practitioners.

306 Continuing Dental Education is good provided it is easily available having to take 3 days of to go on a course on the mainland with travelling expenses approx £250 + 3 days lost working time is not ideal and we have problems getting lectures to

come to us though that would be cheaper.

309 Peer review generally is very useful-it is based on planet earth & not on cloud 9!

Audit on the other hand tends to be a bit too academic to have practical significance to general practice. I'm not talking about the continual self assessment and critical appraisal work done, treatment modes, techniques employed, laboratory work done, etc. But the rather rigid ,formal collation of data to prove or measure a situation that instinctively is already known by the practitioner - to that extent I'm not an audit fan as a general dental practitioner!

316 Insufficient info on setting up groups - If you do not know the "right " people you are unlikely to proceed.

321 I think salaried clerics are interfering enough at present without giving them more power.

324 I am keen on peer review and consider Continuing Dental Education essential I think that reaccreditation and the issue of a practising certificate should be most definitely linked to keeping up to date and regularly attending courses. I also think that the existing funding for only 32 sessions of post grad education at he moment is inadequate and should be increased to at least 6 sessions of post grad sessions and this will bring us into line with the Faculty of General Dental Practitioner's.

326 There must be proper funding that genuinely reflects the time and cost of being out of the practice.

329 I do not like any “ big brother “system. However, having said that I think there should be financial incentives to further education and qualifications Freedom is the essence but encouragement for advancement essential.

330 In my experience, most general dental practitioners have little interest in Continuing Dental Education. This is hardly surprising when one considers the system under which they have to work. Leaving the National Health Service system behind does seem to stimulate dentists to improve their knowledge and skills as they are no longer rewarded for mediocrity.

331 If compulsory reaccreditation is introduced it must be properly funded.

403 Peer review was one of the most pleasant ways of experiencing Continuing Dental Education. A lot was learned in the unofficial conversations that went on as well as that which we had planned on discussing. Our plan is to hold another session in 97-98.

407 Peer review was a worthwhile exercise as it brought together practitioner's from several different types of practice and allowed us to use a frank exchange of view as, specifically with regard to peer review but also other problems which we encounter in every day dentistry.

With regard to postgraduate education I am firmly committed to this concept , whatever the age of the general dental practitioner. However, accumulating relevant knowledge and information and then implementing it in the surgery one needs to use

a combination of all the modes mentioned bring them all together then discard that which is of no benefit to you. Taking one mode on its own however good it is would still not be sufficient.

409 It is always beneficial to increase one's knowledge /skills - But often you cannot apply knowledge/skills learnt once you get back to the surgery. Reality of practising within National Health Service means that due to time constraints /economic reality many sessions of postgraduate study /especially in one or two specialisations are futile.

410 Peer review is no longer funded -Is this research project - a project too late?

411 Trade stands at courses often trigger interest in new techniques e.g. rectangular collimation - better to see than to read!

412 Reaccreditation should not involve assessment, but rather a certain level of postgraduate activity e.g. number of courses provided that it is funded

Peer review is a good thing and should be continued.

413 Peer review is an excellent way to learn and it is essential that funding continues as I believe it is in England.

Reaccreditation - fails as you can take a horse to water but you cannot make them drink.

414 I am not up to date with the issues of reaccreditation and what it may entail I feel

as a gut reaction opposed to it and feel that I have kept up to date with general dentistry quite well but feel that some dentists have not re-educated themselves and there should be some means to have minimum postgraduate sessions or other postgraduate education - not just in practice management and topics but must be of clinical nature (i.e. not necessary hands on but of clinical nature).

418 The most advantageous thing about peer review was the opportunity to discuss treatment or other dental matters with other dentists.

419 Continuing Dental Education should be compulsory up to 6 sessions /year and properly funded /compensations for time off.

423 Before reaccreditation could be introduced the thorny issue of quality and funding has for quality dentistry) would have to be grasped the issue would /will require to widespread consultation within the profession and should be profession - led only!

428 I think the concept of Section 63 courses being free to National Health Service practitioners is excellent although I have found (illegible) I have attended so far to be only of only moderate quality and use.

437 Peer review and clinical audit are 2 separate entities. The move away from group peer review towards clinical audit (especially performed by individuals in isolation) is detrimental.

Clinical audit performed by groups of dentists and properly funded would retain the

advantages of peer review and audit.

Peer review is accessible by many .Clinical audit as presently happening in Lothian lacks attraction and is likely to be performed by a minority.

448 I am not continuing in dental practice as I absolutely loath the job so my responses are not probably typical of most practitioners I did enjoy peer review .I found the discussions refreshing and stimulating . Evening lectures I find difficult to attend due to family commitments .books and magazines are the quickest ways for falling asleep I know.

459 There should be a greater requirement on general dental practitioner's to upgrade their skills throughout their careers however such mandatory education must be funded so that general dental practitioner's can take time out their surgery. Same level of minimum staff training (at least in resuscitation should also be mandatory and funded .

I think peer review could benefit from a resource of materials to be sent should peer review require them, (questionnaires, survey forms etc) to form a starting point for the group further peer review merits encouragement and funding control of which should stay with the profession.

465 I feel that adequate funding for all modes of Continuing Dental Education is vital to encouraging practitioners to give up practice time. I also feel that a more cohesive structure for postgraduate education would be further encouragement to all.

467 I think that Continuing Dental Education is vitally important and is best achieved

by using many and varied methods e.g. courses/reading journals /study groups /discussing cases and developments with colleagues etc. The problem is one of time and motivation when one is busy running a practice, The lack of funding for courses does not help and it is very expensive to take days off - 2 sessions per year is nonsense. Personally I need to bridge the divide between my desire to do more in a Continuing Dental Education sense and the time /financial restraints that are present (real v imagined).

472 Excellent and funding should be kept available and funding for audit too.

475 I very much enjoyed taking part in a peer review study and would like to take part in another. However in rural areas it can be a problem getting in contact with other interested dentists if priority is given to groups with different people (i.e. not the same group twice).

477 Peer review excellent for nurturing inter - colleague relationships. Extending knowledge but the best for the practice patients. Myself was becoming a trainer - great opportunity to examine knowledge, ideas ,techniques etc.

479 I do not consider enough credit is given to the educational advantages of reading dental material and watching informative and well-presented videos, which can be referred to many times and at the convenience of the practitioner. Too much emphasis is placed on attendance at courses which are not always easy to fit into general dental practice.

483 Peer review is an excellent way of postgraduate education, it is unfortunate that

in Scotland we have not been given the same funding timescale as England. No questions on the Internet? - I have found the DERWEB site of interest, but on trying to download some Computer Assisted Learning programs I required an English health number and my Scots number was not acceptable I was unable to download the programme.

489 I have found peer review to be particularly helpful in the management side of practice. Little difference was discovered amongst participants in clinical practice.

Reaccreditation and Continuing Dental Education are extremely important for ourselves and for patients, and of course public perception of the profession. As with other professions -in service training should be possible, and should be funded accordingly.



THE SCOTTISH OFFICE

Department of Health

NHS Management Executive
St. Andrew's House
Edinburgh EH1 3DG

2305

Telephone 0131-244
Fax 0131-244 2683

Mr Y Maidment
Centre for Dental Education
Lister Institute
11 Hill Square
EDINBURGH
EH8 9DR

13 January 1997

Dear Yann

Thank you for sight of your questionnaire which I shown to Management Executive. They are content for it to be distributed to peer review participants in Scotland, provided their promised anonymity can be maintained. To this end they are happy for you to receive the names of those that have undertaken peer review, but will not allow questions to them about their own individual peer review schemes. Repeated reminders to those failing to send in their questionnaires is also not acceptable.

I will copy this letter to the Chairman of the Local Peer Review Committees enabling them to provide you with a list of participants.

Yours sincerely

M R YEWE-DYER
Deputy Chief Dental Officer

cc. Mr B Broadfoot
Mr O Nicol
Mr R Donald
Mr C Yule