

THE ACQUISITION OF PROFESSIONAL COMPETENCE

GRAHAM CHEETHAM

Thesis submitted for the Degree of Doctor of Philosophy

**University of Sheffield
Division of Adult Continuing Education**

June 1999

THE ACQUISITION OF PROFESSIONAL COMPETENCE

Abstract

The research began by examining professions, both historically and as they are today. It went on to investigate the nature of professional practice and professional competence. In particular, it attempted to throw fresh light on how professional competence is acquired and maintained.

The research consisted of an extensive literature study and empirical work which included in-depth interviews with practitioners from 20 different professions. This was followed by a series of larger-scale postal surveys across six of these. The chosen professions ranged from traditional ones, including the Church, the Bar and Medicine, to newer professional-type occupations, such as Training, Personnel Management and Information Technology Consultancy. A total of 80 people were interviewed and a further 372 completed survey questionnaires.

Following a review of existing models of competence, a new, 'provisional model of professional competence' was developed. This drew on a number of earlier models and related concepts, and was influenced by both reflective practitioner and competence based approaches to professional development. The new model was exposed to expert and academic criticism through a series of conference and journal papers, comments being received from a total of 70 people. The model was also tested empirically, after which a revised version was developed.

The empirical stage of the research had a number of strands, in addition to being used for testing the model. It examined the nature of modern professions and tested the validity of certain characteristics traditionally associated with professions - altruism, autonomy, self-regulation, etc. It also examined the nature of professional practice and tested the validity of two competing epistemologies - 'technical-rationality' and 'knowing-in-action' (reflective practice). It investigated how professional competence is acquired, examining the contribution made by both formal development programmes and various kinds of informal experience to which practitioners are exposed. It sought to identify the conditions and environments that are important to professional learning, especially in early practice. Finally, it looked at how professionals maintain their competence through personal learning and continuing professional development (CPD). Both qualitative and quantitative methods were employed throughout.

Analysis of results led to the identification of 12 general learning processes or 'learning mechanisms'. These formed the basis of a taxonomy which was used to classify the range of informal learning experiences and events reported by respondents.

Outputs from the research included:

- a new model of professional competence;
- a taxonomy of informal professional learning methods;
- a proposed new (or modified) epistemology of professional practice;
- a proposed new paradigm of professional development, together with a linked self-development paradigm;
- an exemplar professional development model; and
- a number of practical suggestions for improving professional development programmes.

The research has contributed to knowledge by throwing new light on the nature of both professional practice and professional competence, and providing insights into the ways in which people become effective in their professional roles.

Publications Resulting from this Research

- Cheetham, G. & Chivers, G. (1996a) 'Professional Competence: harmonising reflective, practitioner and competence-based approaches'. Paper presented at Professional Capability Conference, London (January 1996).
- Cheetham, G. & Chivers, G. (1996b) 'Towards a Holistic Model of Professional Competence', *Journal of European Industrial Training*, Vol. 20., No. 5, pp. 20-30.
- Cheetham, G. & Chivers, G. (1997) 'Formação Profissional - Um Modelo Provisório de Competência Profissional', *Formação e Inovação*, Vol. 2, No. 3, Lisbon, NOVA ETAPA, pp. 47-58.
- Cheetham, G. & Chivers, G. (1998) 'The Reflective (and competent) Practitioner', *Journal of European Industrial Training*, Vol. 22, No. 7, pp. 267-276.
- Cheetham, G. & Chivers, G. (1999) 'Professional Competence: Harmonising Reflective Practitioner and Competence-based Approaches', in L. Cunningham, S. Lester and D. O' Riley (Eds), *Developing the Capable Practitioner*, London, Kogan Page, pp. 215-228.

Acknowledgements

My grateful thanks are offered to the numerous people who have helped with this research: the hundreds of busy professionals who gave up their time to be interviewed or respond to questionnaires; the many expert colleagues and associates who offered advice and information; the staff of the Department for Education and Employment Moorfoot Library for their help in obtaining large numbers of publications through the Inter Library Loan Service; my supervisor, Professor Geoff Chivers, for his wise counsel; Mac Stephenson and Brian Champness for their helpful comments on draft chapters; Paul Kingslan and Neil Ross for their advice on statistical methods; Rob Poell in Holland, Peter Miller in Australia and Graham Deblin in Canada for their help in locating relevant overseas publications; and finally to my family, my wife Lynne and sons Andrew, Matthew and Jonathan, for their huge forbearance over a number of years during which much of my home time was spent shut away in my study.

Contents

	Page	
Chapter 1	Professions at the Millennium	
	Changes and Challenges	2
	When is a job a Profession?	10
	Changing Models, Paradigms and Epistemologies	20
	Professional Bodies and Professional Development	23
	Educational Institutions and Professional Development	27
	Continuing Professional Development	30
	Chapter Summary and Implications for this Research	33
	Research Aims, Objectives and Outline Method	34
Chapter 2	A Brief History of Professions: Literature Study, Part 1	
	Introduction to Literature Study	37
	The Origin of Professions	39
	Early Pre-entry Requirements	46
	Developing, Testing and Accrediting Professionals	48
	Professional Education Provision	55
	Some Lessons for this Research	58
Chapter 3	Competence: Literature Study, Part 2	
	A Problematic Concept?	60
	The Reflective Practitioner Approach	62
	Functional Approaches to Competence	70
	Personal Competence Approaches	82
	Meta-competencies	88
	Assessing Professional Competence	89
	Chapter Summary	94
Chapter 4	Professional Learning and Development: Literature Study, Part 3	
	General Theories of Development	96
	Theories of Adult Development	104
	Professional Development: Concepts and Techniques	111
	Previous Cross-professional Research	129
	Chapter Summary	134
Chapter 5	The Empirical Methodology	
	Modelling Professional Competence: Outline Method	136
	Guiding Empirical Theory	140
	Practitioner Interviews: Preliminary Stages	144
	Piloting of Interviews and Instruments	148
	Practitioner Interviews: Administration Stage	151
	The Postal Surveys	158
	Competence Model: Developing Profession-specific Versions	164
	Critique of Overall Empirical Method	165
Chapter 6	Towards a New Model of Professional Competence	
	Confirming the Need for a New Model	170
	Major Influences on the Model	172
	Other Influences	175
	Building the New Model	178
	The Provisional Model	179
	Expert Criticism of Provisional Model	193

	Testing through the Practitioner Interviews	197
	The Revised Model	199
	Feed-back on Revised Model	205
	Critique of Model Development Method	208
Chapter 7	Professional Practice: Presentation and Analysis of Empirical Results, Part 1	
	Respondent Profiles	212
	Sample Size and Reliability	214
	The Nature of Modern Professions	218
	The Nature of Professional Practice	228
	The Nature of Professional Competence	234
	Chapter Summary	242
Chapter 8	Pathways to Professional Competence: Presentation and Analysis of Empirical Results, Part 2	
	Contribution to Competence of Formal Learning	246
	Strengths and Weaknesses of Programmes	249
	Informal Professional Learning Methods	257
	Other Formative Experiences	258
	A Taxonomy of Informal Professional Learning Methods	276
	Learning Environments	280
	Continuing Learning/Continuing Professional Development	283
	Chapter Summary	286
Chapter 9	Professions into the Third Millennium: Practical Implications and Conclusions of Research	
	Professions Today and Tomorrow	288
	A Modified Epistemology of Professional Practice	296
	A New Paradigm of Professional Development	298
	Practical Implications for Professional Development Programmes	303
	Research Achievements against Aims	307
	Conclusions	313
	Areas for Further Investigation and Development	316
	Epilogue	319
References		321
Appendices		342

List of Appendices

	Page	
Appendix 1	Provisional Model of Professional Competence: Expert Critique Questionnaire	342
Appendix 2	Practitioner Interviews: Interview Schedule and other Instruments	343
Appendix 3	Postal Surveys: Questionnaire and Sample Covering Letter	361
Appendix 4	Occupational Competence Mix Diagrams based on Interviews (20 professions)	366
Appendix 5	Model of Professional Competence: Profession-specific Versions (in framework format)	369
Appendix 6	Statistical Calculations	378

List of Figures

		Page
Figure 1	Boyatzis Model of Effective Performance (Boyatzis, 1982)	86
Figure 2	Kolb Learning Cycle (Kolb, 1984)	107
Figure 3	Facets of competence	171
Figure 4	Professional competence - core components	180
Figure 5	Relationship of meta-competencies to core components	182
Figure 6	Relationship of constituents to core components	182
Figure 7	Relationship of outcomes to constituents	185
Figure 8	Relationship of reflection to outcomes	186
Figure 9	Provisional Model of Professional Competence	187
Figure 10	Example of Provisional Model applied to a medical GP	189
Figure 11	Occupational competence mix	190
Figure 12	Occupational competence mix - hypothesised comparison of contrasting professional roles	191
Figure 13	Individual competence mix	192
Figure 14	Dimensions of work environment	201
Figure 15	Revised Model of Professional Competence	204
Figure 16	Distribution of interviewees - by age range	212
Figure 17	Distribution of interviewees - by time in profession	212
Figure 18	Distribution of interviewees by organisation size (numbers employed)	213
Figure 19	Distribution of survey respondents by age range	214
Figure 20	Inter-relationship between objective competence, subjective competence and self-perceived competence	236
Figure 21	Occupational competence mix diagrams for surveyed professions	241
Figure 22	Contribution to competence of various informal experiences	257
Figure 23	A Model of Professional Development - 'The Star Professional Model'	304

List of Tables

		Page
Table 1	'Modes of Being' (Boydell, 1990)	110
Table 2	Summary of Dreyfus model of skill acquisition	122
Table 3	Methods of sample selection for postal surveys	160
Table 4	'Elements of Professional Competency' (Jarvis, 1983)	177
Table 5	Correspondence of results - interviews versus surveys	216
Table 6	Sample sizes for different data source combinations	216
Table 7	Ratings of traditional characteristics	218
Table 8	Highest qualification on entry by proportion of interviewees	223
Table 9	Regular reflection - by gender	231
Table 10	Regular reflection - by age range	231
Table 11	Ratings of potentially generic attributes	237
Table 12	Ratings of potentially generic attributes - comparison between professions	238
Table 13	Occupational competence mix of surveyed professions - segment angles	241
Table 14	Time to reach full professional competence	247
Table 15	Levels of role modelling	263
Table 16	Taxonomy of Informal Professional Learning Methods - Part 1	277
Table 17	Taxonomy of Informal Professional Learning Methods - Part 2	278
Table 18	Taxonomy of Informal Professional Learning Methods - Part 3	279
Table 19	Professions - Comparison of traditional and modern generic characteristic	290
Table 20	Planned versus actual research outputs	311

Glossary

Abbreviations/acronyms Used within this Dissertation

ACA	Association of Chartered Accountants
BS	British Standards
CD ROM	Compact Disc Read Only Memory
CID	Criminal Investigation Department
CPD	Continuing Professional Development
CVCP	Committee of Vice Chancellors and Principals
DfEE	Department for Education and Employment (UK Government)
ED	Employment Department (UK Government, forerunner to DfEE)
EITB	Engineering Industry Training Board
FE	Further Education
GP	General Practitioner
HE	Higher Education
HEO	Higher Executive Officer
HMSO	Her Majesty's Stationery Office
ICT	Information and Communications Technologies
ILO	International Labour Office
ISCO	International Standard Classification of Occupations
IT	Information Technology
MB	Bachelor of Medicine degree
MCI	The Management Charter Initiative
MSC	Manpower Services Commission
NASA	National Aeronautics and Space Administration
NCVQ	The National Council for Vocational Qualifications (forerunner to QCA)
NHS	National Health Service
NLP	Neuro-linguistic Programming
NSM	Non-stipendiary Minister (Anglican Church)
NVQ	National Vocational Qualification
PGCE	Post Graduate Certificate in Education
QCA	The Qualifications and Curriculum Authority
QSC	Quality Support Centre (linked to Higher Education)
RICS	Royal Society of Chartered Surveyors
SCOTVEC	Scottish Vocational Education Council (forerunner to SQA)
SOC	Standard Occupational Classifications
SPSS	Statistical Package for Social Science
SVQ	Scottish Vocational Qualification
UK	United Kingdom
USA	United States of America

Key Definitions Generated and Used within the Research

an Attribute	<i>any personally-possessed characteristic which may contribute to effective performance</i>
a Competency	<i>an acquired proficiency within a discrete but relatively broad area of a psychomotor or mental activity which may require mastery of a range of skills</i>
an Epistemology of professional practice	<i>an understanding of how professionals operate</i>

a Meta-competency (initial definition)	<i>a competency that assists in developing other competencies or is capable of enhancing or mediating other competencies</i>
a Meta-competency (revised definition)	<i>a competency that is beyond other competencies, and which enables individuals to monitor and/or develop other competencies</i>
a Paradigm of development	<i>a general approach to development within which a range of more detailed models of development may operate</i>
a Trans-competency	<i>a competency which spans other competencies, enhancing or mediating them</i>
a Skill	<i>an acquired proficiency within a discrete and relatively narrow area of psychomotor and/or mental activity</i>
Coaching	<i>one to one learning support tailored to the needs of an individual</i>
Context of work	<i>the particular working situation in which an individual is required to operate</i>
Competence	<i>overall, effective performance within an occupation which may range from the basic level of proficiency through to the highest levels of excellence</i>
Core Knowledge	<i>knowledge which is essential to all practice within a particular domain</i>
Framework Knowledge	<i>knowledge which is fundamental to the acquisition of further knowledge within a particular domain</i>
Functional Competence	<i>the ability to perform a range of work-based tasks effectively to produce required outcomes</i>
Instruction	<i>the inculcation of specific knowledge or skill-related principles to one or more individuals at the same time</i>
Knowledge/Cognitive Competence	<i>the possession of appropriate work-related knowledge and the ability to put this to effective use</i>
Personal/Behavioural Competence	<i>the ability to adopt appropriate, observable behaviours in work-related situations</i>
Profession	<i>an occupation based upon specialised study, training or experience, the purpose of which is to apply skilled service or advice to others, or to provide technical, managerial or administrative services to, or within, organisations in return for a fee or salary</i>
Professional Competence	<i>the possession of the range of attributes necessary for effective performance within a profession and the ability to marshal these consistently to produce the desired overall results</i>

Values/Ethical Competence *the possession of appropriate personal and professional values and the ability to make sound judgements based upon these in work-related situations*

Work environment *the physical, cultural and social conditions which surround an individual at work*

Chapter 1

Professions at the Millennium

Chapter 1

Professions at the Millennium

Introduction

Professions have become a fundamental element of modern civilisation. There is hardly a single part of our lives that is not affected in some way by the work of professional people. Professionals perform some of the most critical roles in society and, in developed countries, make up a significant proportion of the workforce. Almost daily, we rely on the specialist knowledge, wise counsel or skilled performance of one or other kind of professional. Sometimes we even trust them with our lives. But what makes a professional effective? How does he or she acquire the knowledge, the skill, the wisdom and the ability to bring all of these things together to perform competently? An obvious answer might be - "as a result of undergoing professional training". But what makes professional training effective? How do professionals continue to develop once their initial, formal training has ended? What sorts of experience and what kinds of environment help people to become fully competent?

These issues were central to this research, but before exploring them empirically, professions were examined through the literature both from an historical perspective and a contemporary one in order to ground the study in a broad understanding of professions; of what they were in the past, what they are at present, and what they may be becoming. The literature linked to professional development was also explored in depth.

The empirical elements of the research included an examination of the extent to which existing hypotheses about professional practice and professional development, were borne out by the experiences of practitioners. The starting point on each hypothesis was one of neutrality. Other parts of the empirical study were hypothesis-free, seeking to throw new light on how professionals develop. The research examined the extent to which professionals felt their competence development had been facilitated by formal education and training programmes. Equally it sought to identify the types of informal experience professionals had found particularly formative, and the environments they had found conducive to their professional learning. The empirical study covered a total of 20 professions.

The term 'competence' has become value-laden, particularly in the UK where it is often associated with occupational standards and National Vocational Qualifications, or with particular approaches to training (more will be said about this in Chapter 3). It is

important to state here that this investigation adopted a broad view of professional competence. The research was about how people become fully effective and rounded professionals, not just how they acquire the functional skills of their vocation.

The aims and objectives of the investigation, the key research questions and the planned outputs are set out formally at the end of this chapter.

Chapter layout and content

The first section of this chapter will examine the central position of professions in modern society. It will look at some of the factors leading to changes in professions, the kinds of changes these are effecting and the challenges they present. The second section will address the thorny issue of which occupations should be seen as professions and, after looking at a variety ways in which professions might be identified, will present the definition used within this research. The third section will examine different epistemologies of professional practice and associated paradigms of professional development, considering how these may have changed over time. The fourth and fifth sections will look at the role of professional bodies and educational institutions in developing professionals, examining some of the changes and challenges each is currently facing. The sixth section will focus on continuing professional development (CPD) and will identify some of the issues and dichotomies in this area. The penultimate section will consider the implications of the chapter for the research as a whole. The final section will formally spell out the aims and objectives of the research, and will outline the methodology.

Changes and Challenges

The latter half of the twentieth century has seen profound changes both within the labour market and in society as a whole. Many of these have had significant effects, both on the numbers of people employed in professional occupations, and on the nature of professions themselves. This section will take a look at professions as they are today. It will consider the ways in which they are changing in response to a variety of social, technological and economic pressures, and it will identify unresolved issues, some of which are addressed within this research.

Growth in professional employment

As economies around the world become more complex and knowledge based, they are becoming increasingly dependent upon higher level occupations (Rajan, 1988; DTI, 1998). In the UK, record numbers of people now hold 'professional qualifications' and a greater proportion of the workforce than ever is employed in professional roles (Watkins

et al., 1992; DfEE, 1997a; Watkins, 1998). Between 1981 and 1996 the number of people in jobs officially classified as 'professional' increased by 20%. In the same period, the number of people in jobs classified as 'associate professional'¹ rose by 47%. At the time of writing (November 1998), the number of *professionals* and *associate professionals* in the UK totalled around 5 million, about one fifth of the workforce. According to government forecasts, these two groups taken together will expand by a further 17% in the decade between 1996 and 2006 (DfEE, 1997a). Over the same period, the total size of the workforce is expected to remain fairly static (Wilson, 1991), meaning that the proportion of professionals in the UK workforce will continue to increase.

Not only have the ranks of many of the older professions, e.g. the Law, Medicine and Accountancy, steadily increased in size since the 1960s, but new 'professional-type' occupations in, for example, Financial Services, Information Technology, Communications and Broadcasting have emerged, thrown up by the increasing sophistication of society, new technology and more complex divisions of labour (Watkins et al., 1992; McGuire, 1993; Watkins, 1998).

Societal dominance of professions

Professionals, if viewed as a whole, are now arguably the most influential group in society. Both Renner (1978) from a Marxist perspective, and Dahrendorf (1969) from the less radical, Weberian tradition, see the rise of this group as nothing less than the emergence of a powerful, new class - 'the service class'. Watson (1992), echoing the views of a range of sociologists, describes the growth in professions as, "... the most salient feature of modern society ... associated with a characteristically modern mode of production, division of labour and set of cultural relations" (ibid., p. 2). He cites, in particular, Parsons (1968) who writes:

It is my view that the professional complex, though obviously still incomplete in its development, has already become the most important single component in the structure of modern societies. It has displaced first, the 'state', in the relatively modern sense of the term, and more recently, the 'capitalistic' organisation of the economy. The massive emergence of the professional complex, not the special status of capitalistic or socialistic modes of organisation, is the crucial structural development in twentieth century society.

(ibid., p. 545; cited in Watson, 1992, p. 2)

Whilst such a claim is debatable, there is no doubt that professionals are a very significant force both within the economy and the state. Professional occupations

¹ The terms 'professional' and 'associate professional' are used within Standard Occupational Classifications, discussed in a later section (pp. 16-17). These are normally used within official government statistics.

contribute significantly to industry, commerce, education, public health and government. They have become an essential part of societal infrastructure. Most of the people who run the state - politicians, civil servants, local government officers, the judiciary, and senior police and army officers - may all be seen as professionals of one kind or another. Individual professionals are often amongst the most articulate and influential members of society, and professions acting collectively form powerful lobby groups.

But despite their ubiquity, it is important to recognise that professionals are not a single homogenous block. There is considerable heterogeneity both between and within professions (Johnson, 1972; Watson, 1992). Different professions have different self-interests and these may sometimes be competitive or contradictory to one another.

And, notwithstanding their undoubted influence, professions may be just as much the slave of economic, social and technological forces as they are their author.

Paradoxically, just as professions have reached a high point in their collective hegemony, individual professionals are facing disruption, insecurity, loss of autonomy and a range other challenges. Both older and newer professions are being forced to adapt to the changing demands and attitudes of society, as well as to technological and commercial change (Watkins and Drury, 1995).

Changing professional environments

New technologies are rapidly colonising many areas of professional work. Computers, for example, have impacted on almost all professions. 'Teleworking', the Internet, video-conferencing and mobile communications are changing the way many others operate. There appear to be few exemptions, even amongst older, more traditional and perhaps more staid professions. A trivial but telling example that came to light during this research was the number of clergy with e-mail addresses, and even churches with Internet 'websites'. In the next few years, the continuing development of Information and Communications Technologies (ICT) seem certain to impact further on professions.

Many professions are experiencing a rapid and accelerating expansion in their knowledge bases. In some specialist fields, these are said to be doubling in size every five to eight years and, in a few cases, may soon be doubling every year (McGuire, 1993).

Professionals in private practice, for example solicitors, accountants, architects and surveyors, are having to adapt to market conditions which are more commercial and competitive than ever before. This may require them to develop a whole raft of new skills, including management, business and even entrepreneurial skills, on top of their

profession-specific skills (Radford, 1995; Kennie and Price, 1997). Yet professional development programmes often fail adequately to cover such areas, in their concentration on profession-specific technical formation (Grover, 1998).

In the USA, McGuire (1993) observes a growth not only in competition between professionals, but in aggressive, and sometimes negative, advertising. This seems a far cry from the days when Carr-Saunders, a distinguished English professor of sociology, wrote, "Some features of codes of professional practice are common to all professions. A universal rule is that against advertising" (ibid., 1928, p. 9). McGuire (1993) believes the current trend is eroding 'collegiality' (the traditional bond of unity and co-operation between professionals). He suspects it is also raising doubts in the public's mind about professional integrity.

Such doubts may not be without foundation. Following an extensive study of medicine in the USA, Freidson (1970) writes, "A highly competitive practice setting seems to encourage sharp economic practices, the cutting of technical corners and other undesirable elements of performance" (ibid., p. 361). Freidson observes that the traditional safeguard of self-regulation is failing to prevent such malpractice, and predicts this is bound to lead to increasing demands for legal regulation.

Watkins et al. (1992) argue that in the last few years, there has been a shift in the relations between the public and professionals as the public has become more educated and increasingly sceptical. They characterise this as a shift from 'trust' to 'accountability'.

Organisational and structural changes

Many professionals are becoming affected by organisational changes of various kinds. Some are being absorbed into large, commercial organisations, a process sometimes referred to as 'corporatisation' (Child and Schriesheim, 1979; Freidson, 1985).

Examples of this are the growth in chain store opticians and high street share shops. Other professions are experiencing a similar trend, sometimes called 'bureaucratisation'- the take-over and/or control of professional roles by bureaucracies (McKinlay, 1982).

Bureaucratisation is already well advanced in, for example, Health Care but some argue that, even in this sector, its effects are becoming more pronounced as clinical decisions are increasingly tempered by budgetary and procedural constraints (Oni, 1996).

Three decades ago, Freidson (1970) predicted that the combined effects of corporatisation and bureaucratisation would undermine the autonomy and discretion of professionals, and erode private practices in their traditional form. It is certainly the case that relatively few professionals now work in small private practices. Around 80% of all professionals are employed by large organisations (Watkins and Drury, 1995, p. 29).

Many such professionals are being affected by a range of structural changes which include 'downsizing', 'de-layering' and contracting out (Engineering Council, 1993; Martin, 1995; Watkins et al., 1992). Some have seen their job security and guaranteed salaries threatened by the imposition of more flexible pay arrangements and looser employment contracts (Martin, 1995; Caulkin, 1995; Coe, 1995). Caulkin (ibid.) believes that 'de-layering' (the reduction of hierarchies) has curtailed the prospect of an upwardly-moving career for many professionals. Coe (ibid.) notes an increased incidence of organisations employing a small core of key professionals and a floating periphery of others. The latter are often ex-employees, contracting back their services on a flexible and irregular basis. This is similar to the 'core and periphery' tendency within the workforce as a whole, described by Leadbeater (1989).

Traditional demarcation lines between professions are being eroded and some organisations now expect their professional employees to become multi-skilled, acquiring competencies previously within the domain of other professions. Leveson (1996) provides an example of civil engineers within a certain large construction company being required to undertake work normally done by surveyors and architects.

Responding to such organisational changes and the growing insecurity they have generated among large company professionals, one major professional body, the Engineering Council, is now advising its members to broaden their portfolio of skills in order to improve their career prospects, or simply to better their chances of survival. The Council suggests that engineers need to supplement their technical competencies with managerial, business and language skills (The Engineering Council, 1993).

Changes affecting public sector professionals

In the UK, large numbers of professionals work in the public sector. The National Health Service, for example, is by far the largest single employer of professionals (Burley, 1997) with approximately half of its 1 million employees in this category.

Many such professionals are experiencing the tightening of supervisory and financial controls as a result of what Pollitt (1990) characterises as 'managerialism', an attempt to

apply the techniques and language of business to 'not for profit' organisations often, as Pollitt argues, without appropriate adaptation.

This process may have increased efficiency, though this is debatable, but it appears also to have resulted in professionals, such as hospital doctors, suffering a reduction in autonomy as some of their authority has been transferred to managers and administrators (Oni, 1996). Watkins et al. (1992) suggest that such changes may have caused a switch from self-accountability to accountability instead to government, employing organisations and consumers. They may have also contributed to the sense of disillusionment which seems currently to exist amongst some Health Care professionals, as witnessed by a 1991 survey of doctors who qualified a decade earlier. This indicated that 46% regretted having gone into medicine (cited in Watkins et al., 1992. p. 45). The finding seems to be supported by a more recent survey which showed that nearly one in five doctors leave the National Health Service within 10 years of qualifying (Ellis, 1998).

Other public sector professionals in the UK have suffered a loss of benefits and privileges, or had tighter contractual conditions imposed. For example, some university lecturers have had their tenure removed. Further Education lecturers have had holidays reduced and class contact time increased. School teachers now face annual appraisals and performance-related pay. Civil servants have their pay increases geared strictly to their appraisal marks. Teachers and Health Care professionals, have seen the introduction of targets and league tables. Opticians, have had their monopolies removed by anti-restrictive practice legislation (Watkins et al. 1992). New quality measures such as the Patient's Charter, customer satisfaction surveys and service level agreements have imposed a stronger focus on standards of professional performance (Watkins and Drury, 1995). Pressures to reduce bad practice have led to an increasing demand for 'whistle blowing', with all its associated ethical dilemmas.

Challenges to professional authority and competence

The strengthening of consumer legislation, greater public awareness of rights, a decline in deference amongst clients and an increased tendency to challenge expert opinion are all exerting further pressures on professionals, especially those offering personal or medical services (Watkins et al., 1992). In the USA, there has been a steep rise in client litigation (McGuire, 1993) and there is evidence that this trend may be spreading to the UK. For example, in 1996 the National Health Service paid out £200 million in claims against Health Care professionals and, according to the Health Ombudsman, the figure is rising by about 20% every year (Simanowitz, 1998). In response, NHS managers

have intensified the monitoring and 'benchmarking' of treatment outcomes through procedures such as medical audit (Nixon and Vimpany, 1994).

Fragmentation and sub-division of professions

Growing complexities and expanding knowledge-bases have led some professions, for example Medicine, the Law and Accountancy, into increased sub-division and specialisation, a trend which Child and Schriesheim (1979) identify as 'horizontal differentiation'. Sometimes the process can lead to specialisms which are narrowly focused, yet deep - i.e. 'specialisms within specialisms'. For example, one hospital doctor interviewed as part of this research was a consultant orthopaedic surgeon, but within that specialism worked only on knee joints.

An alternative response to increasing complexity has been what Child and Schriesheim (1979) call 'vertical differentiation'. This is where new tiers of professionals (or assistant professionals) are formed within a professional area to deal with certain types of work - e.g. the 'practice nurse' who now administers blood pressure and other basic health checks on behalf of a GP.

Some professions have experienced 'deskilling', as services within their domain have been taken over by unqualified, or more narrowly qualified, people (Child and Schriesheim, 1979). This has often led to competition and undercutting from outside the profession. Examples of this trend in three different professional areas are:

- optometry - self-prescription of spectacles at chemists shops;
- the Law - conveyancing done through conveyancing agencies; and
- stock broking - the growth of high street share shops.

A number of writers see deskilling as part of a broader process of 'deprofessionalisation', i.e. the take-over of professional roles by lay workers (McGuire, 1993; Haug, 1975; Rothman, 1984), or even by computerised knowledge bases (Haug, 1977). Others predict, more extremely, that the trend could lead to 'proletarianisation' (Oppenheimer, 1973; Larson, 1980; McKinlay, 1982) - i.e. the reduction of professionals to mere cogs within the capitalist machine. Shaw (1987) sees the current manifestations of deskilling amongst professionals as similar to the deskilling that occurred during the Industrial Revolution which he argues led to the demise of the master craftsman.

But such predictions may be too extreme. Although some professional functions are undoubtedly being deprofessionalised, professions seem still to have a firm foothold in society, and professional roles in general appear to be on the increase. Paradoxically,

while some occupations are experiencing deprofessionalisation, others are being professionalised - i.e. they are being turned into professions (Wilensky, 1964; Vollmer and Mills, 1966). More will be said of this process later.

Challenges to traditional entry routes

Within the UK, some professions have been affected by changes in the national vocational education and training system. These have led to the introduction of a framework of National Vocational Qualifications (NVQs) linked to competence based occupational standards. NVQs offer accreditation of competence at various vocational levels including, to a growing extent, the higher levels associated with professional occupations - i.e. NVQ levels 4 and 5. Development towards these is usually done in the workplace, rather than an academic institution, and accreditation is based on the assessment of a candidate's ability to perform particular work-based functions, rather than on the results of written examinations (Jessup, 1991; Fletcher, 1991).

The NVQ system is seen by some as undermining established professional development practices, and traditional routes to accreditation, by offering an alternative way of becoming qualified (Smith, 1995). This subject will be revisited later in this chapter (p. 18; pp. 26-27; pp. 28-29) and is discussed in greater depth in Chapter 3 (pp. 71-81).

A further challenge to the monopoly of established professional qualifications comes from Europe, in the form of a succession of 'Directives' which call for the mutual recognition of qualifications across the European Union.

Accelerating change?

Change has perhaps always been a feature of professions. Indeed, Bucher and Stelling (1977, p. 21) observe, "... professions are never fixed, but should be viewed as continuously in flux, changing in one or another aspect of their internal or external relationships". Few would disagree that the rate of change in most professions is greater now than ever before. But what have all of these changes, challenges and pressures to do with this research?

All of them are impacting, or have the potential to impact, on professional development. They affect not only what professionals need to know and do, but also how they are to be recognised as competent and, importantly for this research, how they are to acquire and maintain their professional competence. If the nature of professions is changing so radically, then the nature of professional development may also need to change, perhaps equally radically.

Some of these issues will be discussed in greater detail later in this chapter and in following chapters, but first it might be useful to examine the term 'profession' in some detail.

When is a job a Profession?

Any research which investigates professional competence needs to start from some notion of what constitutes a profession. At the most basic level, this is necessary in order to select suitable occupations for study.

In earlier times (prior to the mid-eighteenth century), the number of occupations recognised as professions was extremely small - the Law, Medicine, the Church, Architecture, commissioned service in the Armed Forces and, perhaps, Teaching. Now, any list of professions would run into dozens, if not hundreds, and would need to be continually expanded as new professions emerge. Most people would accept that there are now large numbers of jobs which are professional in nature. However, there is little consensus amongst specialist writers about which occupations should be regarded as professions, or on how terms such as 'profession' and 'professional' should be defined.

The concept of 'profession' tends to be culture-specific. For example, in Britain and the USA it embraces a much narrower range of jobs than in France and Germany (Haug, 1977). But even within Anglo-American society there is no general consensus on how professions should be recognised.

Some definitions

The Oxford Dictionary defines a profession as, "A vocation or calling, especially one that involves some branch of advanced learning or science". The Universal Dictionary offers, "An occupation or vocation requiring *training*, as in law, theology and the sciences". However, these definitions serve only to highlight the difficulty, since most occupations require some degree of *training*, while many occupations, not commonly regarded as 'professions', contain *qualified* people and draw on some form of *science* - for example, a whole range of technical and craft jobs.

More specialist authors have also attempted definitions. For example, one of the earliest writers on professions, Carr-Saunders (1928) in a published lecture states:

A little reflection shows that what we now call a profession emerges when a number of persons are found to be practising a definite technique founded upon a specialised training. A profession may perhaps be defined as an occupation based upon specialised intellectual study and training, the purpose of which is to apply skilled service or advice to others for a definite fee or salary.

(ibid., p. 5)

However, he acknowledges the difficulty of drawing a clear boundary around professional jobs, even from his 1920s perspective when the labour market was considerably less complex than it is today. Curiously, in a later work in which he and a fellow researcher record the results of their broad survey of professions, Carr-Saunders seems to have backed away from his earlier definition. He and his collaborator write, "We shall not offer, either now or later, a definition of professionalism". However, they continue, "Nevertheless, when we have completed our survey, it will emerge that the typical profession exhibits a complex of characteristics, and that other vocations approach this condition more or less closely, owing to the possession of some of these characteristics fully or partially developed" (Carr-Saunders and Wilson, 1933, p. 4).

Reader (1966, p. 1) also avoids a straightforward definition of the term profession, preferring instead, "... to let the definition emerge rather hazily - as it does in real life - from the discussion of particular cases". More recently, Welsh and Woodward (1989) have suggested a loose definition of the related term 'professional', namely :

... a person who makes his/her livelihood by the application of a particular and unique set of knowledge and skills.

(ibid., p.13)

Such a broad definition could embrace many jobs normally regarded as crafts. Dinham and Stritter (1986, p. 952) add a further dimension to try to rationalise the distinction between crafts and professions. They state, "Reliance on theory is among the most telling distinctions between a profession and a trade or craft. Moreover, theory development ... is one mark of a profession itself...". But this distinguishing feature is also open to challenge. There are crafts, such as that of electrician, which depend quite heavily on theory, and acknowledged professions, such as the Civil Service, that have little or no theoretical base. There are professionals who are concerned with the development of knowledge and others whose work involves its routine application.

The learned nature of an occupation, i.e. the degree of training and education required, is considered by some to be a defining factor, but there are others which are often considered to be of equal, if not greater, importance.

Freidson (1970; 1986) sees 'autonomy' - i.e. the freedom enjoyed both by individuals and occupations collectively in directing actions and priorities, as a key characteristic of professions, though he is troubled by the concept, believing that professional autonomy can often run counter to the interests of society. He uses the absence of autonomy to argue against the military being a profession, stating:

... by my usage, it is not. If the military were a profession by my usage, it would be free to set its own ends and do to us what it felt was appropriate from its point of view.

(Freidson, 1970, p. 351)

Freidson (1970, p. 75) uses the term 'paraprofessional' to describe occupations such as Nursing which, whilst they possess some of the characteristics of the medical profession with which they are closely associated, are nonetheless subordinate to it. In his view, nurses are not full professionals because they, like the military, lack autonomy. However, as discussed earlier, autonomy levels are falling even for doctors, so this indicator may be less significant now than it once was. It could of course be argued that the doctors' decline in autonomy is simply a symptom of deprofessionalisation.

Closely linked to the characteristic of autonomy is 'self-regulation'. This is also seen by some as a defining factor. Thus, Starr (1982), drawing on the definitions used by a number of sociologists, suggests that a profession may be seen as:

... an occupation that regulates itself through systematic, required training and collegial discipline that has a base in technological, specialised knowledge and that has a service, rather than profit orientation enshrined in its code of conduct.

(ibid., p.15)

It is questionable, however, whether either self-regulation or collegiality were ever truly common to all professions. Both, in any case, appear to be on the wane, as noted in the last section.

The latter half of Starr's synthesis, 'service rather than profit orientation', may also appear unduly idealistic, though others (e.g. Wilensky, 1964) also argue that conforming to a service ideal, along with a set of moral norms, are key defining features of professions. Wilensky supports this rather weakly by stating, "... the norm of selflessness ... is probably acted out in the established professions at a somewhat higher rate than in other occupations" (ibid., p.140). But as reported in the last section, the notion of service, rather than profit, if it ever was a true characteristic of professions, is now being eroded by increasingly commercial and competitive environments.

The very idea of altruism amongst professionals is flatly rejected by some writers who take a more sceptical or even cynical view of professional motivation, stressing instead - their concern to protect their monopolies (Ilich, 1977), their power over clients (Freidson, 1970; Haug, 1977), their desire to maximise the financial rewards on which their status may partly depend (Millerson, 1973), or their control of specialist knowledge (Goodlad, 1984) and its exploitation to their own advantage (Freidson, 1970; 1986).

Referring to the exploitation of specialist knowledge, Freidson (1970, p. 337) states, "... I believe that expertise is more and more in danger of being used as a mask for privilege and power rather than, as it claims, as a mode of advancing the public interest" . In relation to professionals' power over their clients, he writes even more graphically, "On entering the professional domain the citizen is expected to give up all but the most humble rights, to put himself into the hands of the expert and trust his judgement and good intentions" (ibid., p. 355). However, the latter comment in particular may betray a narrow view of professions since only certain types of profession, perhaps those linked to medicine, could be said to require such a complete divestment of rights by clients and, even in this area, such a view could now be seriously challenged.

Other discriminators

Despite the difficulties in defining professions, Millerson (1973, pp. 1-2) suggests there are three alternative methods that can be used for identifying professions:

- i) using a set of characteristics or traits associated with professions;
- ii) looking for evidence of professionalisation - the process through which occupations become professions; and
- iii) developing a model of professionalism based on certain sociological aspects of professional practice.

Three further methods could be added to Millerson's list:

- iv) adopting a rational classification system based on socio-economic factors - e.g. Standard Occupational Classifications;
- v) examining the complexity of competencies involved (which may have some relationship to an NVQ level); and
- vi) following the societal view of which jobs are professions.

These six approaches will each be considered briefly in turn.

Characteristics approach

The *professional characteristics* approach seems to be the most popular and a number of writers offer lists of such characteristics (e.g. Carr-Saunders and Wilson, 1936; Millerson, 1973; Waddington, 1985; Downie, 1990; Watson, 1992). A synthesis drawn from a range of sources yields the following composite list:

- confers status within society;
- is organised (into some sort of professional body);
- is learned - i.e. requires prolonged and specialised training and education;
- is altruistic (orientated towards service, rather than profit);
- offers autonomy within job role;
- is controlled by ethical codes;
- is non-commercial;
- has collective influence within society;
- is self regulating;
- is collegial;
- is client-focused.

Such lists represent ideals and most writers accept that not all professions would possess all of the characteristics. Even so, there is no clear consensus about what ought to be included. It is also likely that any list will contain a built-in bias of some kind, either because it is based on the older professions - such as the Law, the Church, Medicine - or due to the selectivity of the author (Millerson, 1973). Freidson (1970, p. 4) asserts, "... people frequently draw up definitions first by deciding that certain occupations 'are' professions and then by attempting to determine the characteristics these occupations have in common". And as argued earlier, many of the characteristics typically included are now being eroded.

Professionalisation approach

The *professionalisation* approach is based on the belief that occupations go through a number of common stages as they become professions. Thus, if there is evidence that an occupation has passed through these, it may be classified as a profession. Vollmer and Mills (1966, p. 19) refer to this approach as "the sequence of professionalisation" and, after Caplow (1954), suggest that the stages follow a predictable sequence.

Caplow himself highlights the following stages as typical:

- the establishment of a professional association;
- a change in the occupational name;
- the development of a code of ethics;

- the use of prolonged political agitation for recognition and support for entry barriers;
- the establishment of compulsory training requirements (concurrent with fourth stage) (ibid., pp. 139-140).

Caplow's second stage, 'a change in the occupational name', seems a rather curious and questionable generalisation. However, he argues this reduces identification with the previous occupational status and helps create a monopoly.

Wilensky (1964, pp. 142-145) sees *professionalisation* as progressing through the following slightly different stages:

- the need for a full-time occupation is recognised;
- the establishment of training schools;
- the combination of practitioners to form a professional association;
- political agitation to win legal support for restriction of entry - licensing, etc.;
- the formulation of a code of ethics.

Wilensky goes on to analyse a range of occupations (in the USA) based on the degree to which they have proceeded through these stages, classifying them as - *established, in process/marginal, new, or doubtful* professions.

Like the *professional characteristics* approach, the *professionalisation* approach may be seen as over-prescriptive, tautological (in the sense of being based on a particular type of profession) and even rather dated. It would be likely to exclude some of the newer occupations that otherwise might seem to be clear candidates for professional status. Certain of the factors, e.g. legal backing/licensing, are likely to be country-specific. The approach also ignores the social dimension - e.g. status, legitimacy within society and public recognition.

Professional practice model

The *professional practice (or sociological) model* approach is typified by Marshall (1939). It is based on the image of professions as providing a special kind of service to society. It stresses particular features which are said to typify professional practice - altruism, objectives based on the needs of others, etc. Professions are seen as, "... occupations in which *caveat emptor*¹ cannot be allowed to prevail", as Hughes (1960, p. 54) so elegantly puts it. These are viewed as contrasting sharply with the more mercenary or proletarian occupations within

¹ *caveat emptor* ('let the buyer beware') a long standing British legal principle that maintained it was up to the buyer of any commodity to ensure he or she got what they wanted (see Frank, 1966, p. 73) now to some extent ameliorated by various pieces of consumer protection legislation.

capitalist society. Others, such as Greenwood (1957) add community sanction [legitimacy], authority, and a distinct occupational sub-culture to the sociological model.

However, there are serious problems also with this approach. It would seem to exclude occupations linked to industry and commerce, such as managers, management accountants, personnel managers, training officers, etc. It also ignores evidence of commercialism, restrictive practices and professional self-interest within professions. In late 1990s society, it may appear as a decidedly old fashioned model.

Socio-economic classifications

The *socio-economic* approach is typified by the Standard Occupational Classifications or SOCs (HMSO, 1990). These are produced by the UK Government's Office of Population Censuses and Surveys. They attempt to identify those occupations which may be seen as professions using SOC general classification criteria. The two main criteria used for all occupations are:

- *skill level* - this is arrived at where possible by reference to the level of formal qualifications currently required for a person to be recognised as fully competent in the occupation concerned, and in other cases by reference to the duration of training and/or experience recognised in the field of employment concerned as being "normally required to pursue the occupation competently"; and
- *nature of work activities* - this focuses on the type of work done, rather than the status of the occupation.

Using such criteria, around 40 occupations have been classified as within the 'Professional Occupations' major group'. These have been organised into nine minor (or sub) groups. Alongside this group, sits a second major group made up of what are termed 'Associate Professional and Technical Occupations'. A set of qualifications, training and experience descriptors make the following distinction between Professional Occupations and Associate Professional and Technical Occupations:

Professional Occupations

A degree or equivalent qualification, with some occupations requiring postgraduate qualifications and/or a formal period of experience-related training.

Associate Professional and Technical Occupations

An associated high-level vocational qualification, often involving a substantial period of full time training or further study. Some additional task-related training is usually provided through a formal period of induction.

A third major group - *Managers and Administrators* might also be seen as 'quasi professional'.

Similar classifications have been produced by the International Labour Office. They are known as 'International Standard Classification of Occupations', or ISCO - 88 (ILO, 1990). These are also made up of major and minor groups but also have additional intermediate sub-divisions known as 'sub-major groups' and 'unit groups'. One of the major groups is entitled 'Professionals', and another 'Technicians and Associate Professionals'. A further group is entitled 'Legislators, Senior Officials and Managers'. Associated with these classifications are five skill levels, categorised according to level and period of education and, in some cases, the amount of training received. The preamble to the ISCO - 88 publication acknowledges limitations in the methodology used, stating:

Unavoidably, some subjective judgement was involved in determining the skill levels of occupations, or of occupation groups.

(ibid., p. 3)

Comparisons between the ISCO -88 classifications and SOC reveal a number of discrepancies. For example, nurses have been placed within the 'Professionals Group' of ISCO - 88, whereas they are within the 'Technicians and Associate Professionals' group of SOC. Personnel officers appear as 'Associate Professionals' in SOC but sit within the 'Legislators, Senior Officials and Managers' group of ISCO - 88.

These differences serve to underline the fact that even such dispassionate and carefully structured approaches cannot avoid elements of subjectivity and cultural bias.

Also within the *socio-economic* genre, Watkins et al. (1992, p. 8) offer a classification system for professions based partly on the era that spawned them, and partly on their societal function. These are:

- i) *pre-industrial* (lawyers, clergy, doctors);
- ii) *industrial* (civil and mechanical engineers, chemists, accountants, bankers);
- iii) *welfare* (teachers, social workers);
- iv) *enterprise* (business, management specialists);
- v) *post-industrial* (knowledge workers, including media, broadcasting, IT and public relations).

This may be a useful typology for some purposes, but it does not assist in deciding which occupations ought to qualify as professions or bring us any nearer to a definition.

Complexity of competencies approach

The *complexity of competencies* approach is typified by the UK system of occupational standards and National Vocational Qualifications. This uses the term 'higher level occupation' in place of 'profession' (Otter, 1994). Higher level occupations are said to involve more complex competences¹ than 'lower level' ones. They are the occupations for which NVQs at levels 4 and 5 are considered to be appropriate.

Despite the air of rationality offered by the NVQ framework, a subjective judgement still has to be made as to which level of NVQ is appropriate for a particular occupation. This can sometimes lead to disputes between representatives of occupational groups, standard setting bodies and the Qualifications and Curriculum Authority, and decisions may also be coloured by political and pragmatic considerations. The approach may therefore be as likely as any other to suffer from selectivity, tautology and subjectivity.

The societal view

Despite the various rational attempts to find a suitable definition, the classification of particular jobs as professions, at least in common parlance, may be more of a social, than a technical judgement. Society itself seems to have well entrenched views on the status of various occupations. These may cause some to be accepted as professions while others are seen simply as jobs.

Starr (1982) suggests that the legitimisation of professional authority by society requires three conditions:

- that the knowledge and competence of professionals is validated by their peers;
- that this knowledge and competence rest on rational, scientific grounds; and
- that the judgement and advice offered is orientated towards a set of substantive values (ibid., p. 15).

This seems a rather idealistic view which again harks back to the more traditional professions. It also assumes a degree of knowledge and rationality on the part of society which seems unrealistic. There is of course a difference between the legitimisation of professional authority and the recognition by society of a particular occupation as a profession. The latter may be influenced as much by the political strength of particular occupations, as their contribution to the health and well-being of society. It may also be linked to the perceived class position of typical members of the occupation. Such perceptions may have strong roots in the past when entry into the

¹ It is the convention in the UK to use the plural 'competences' when referring to Occupational Standard and NVQs.

traditional (and only) professions was restricted to people (usually men) from the upper classes. Thus, it can be argued, it was not so much the profession itself, or even its utility to society which conferred status, but rather its association with people who already had status as a result of their birth (see Chapter 2, pp. 42-44).

The societal view may, of course, be at odds with the image practitioners have of their own position. It may also bear little or no relation to the learned nature of an occupation. For example, the Engineering profession has for many years felt underrated by British society which did not recognise engineers as of similar status to doctors, lawyers or architects (or even as professional at all). This does not occur in Germany, France and many other countries where engineers seem to be fully accepted as professionals. To the author's own knowledge, Engineering professional journals have been heavily pre-occupied with this issue for at least three decades (see, for example, Greek, 1994) and considerable effort has been put into trying to change the public image of Engineering. Yet, despite these efforts, there seems little evidence that the societal view has changed appreciably since the campaign began. Engineers should perhaps take heart from the fact that surgeons had to struggle for many years to be recognised as medical professionals on a par with physicians (Reader, 1966). In their case, they faced not just the prejudice of society, but that of established professionals in other branches of the same profession.

Society's way of defining professions is likely to be unreliable, and even arbitrary, if for no other reason than its lack of accurate information about what particular occupations entail. Yet in pursuing a more rational approach to defining professions, it is impossible to ignore the social dimension.

Into the lion's den: a working definition

This section has demonstrated the problematic nature of the term 'profession'. This dilemma has prompted McGaghie (1993, p. 231) to write, "... there is no gold standard to separate true professionals from aspirants. Distinctions are arbitrary ...". Freidson (1983) is even more pragmatic, stating:

There is no single, truly explanatory trait or characteristic ... that can join together all occupations called professions beyond the actual fact of coming to be called professions.

(ibid., p. 33)

Nonetheless, it was necessary for the purpose of this research to have at least a working definition in order to place some boundary around the work. Too narrow a definition has deliberately been avoided. The aim was to be as inclusive as possible,

attempting to avoid rigid preconceptions or stereotypes. After considerable thought, it was decided to adopt a modified version of the Carr-Sanders (1928) definition, quoted earlier in this section. Thus, the working definition for this research became:

... an occupation based upon specialised study, training or experience, the purpose of which is to apply skilled service or advice to others, or to provide technical, managerial or administrative services to, or within, organisations in return for a fee or salary.

Changing Models, Paradigms and Epistemologies

For the purpose of this research an *epistemology of professional practice* will be taken to be an: *understanding of how professionals operate*; how they 'do what they do'. A *paradigm of development* will be seen as: *a general approach to development within which a range of more detailed models of development may operate*. It is useful to see these as to some extent linked. Thus, a particular epistemology of professional practice may lead to one or more paradigm of professional development, which in turn may lead to a variety of models of development. Some authors use the term 'model' more broadly to cover what here is referred to as a paradigm.

Looking back over the history of professions, as Chapter 2 will do, it becomes apparent that approaches to professional development are very much creatures of their time. At a detailed level, i.e. model level, there have been a number of changes over the years and there is today a range of different models in use, involving a variety of modes of development and different combinations of academic study and practical work. However, at a more general, or paradigm, level there have been surprisingly few changes over the centuries. Bines (1992) argues there have been just three paradigms of professional development from early times up to the present (though she refers to them as 'broad models'). These are classified as:

- the apprenticeship [paradigm];
- the technocratic [paradigm];
- the post-technocratic [paradigm].

Although it will be argued later that this analysis is over-simplistic, it does at least provide a useful starting point for discussion. Each of the paradigms will first be explained, after which the shortcomings of the analysis will be discussed.

Apprenticeship paradigm

Until well into the nineteenth century, the 'training' of professionals was similar to that for skilled craftsmen. This is not surprising, since a number of professions, including surgery, could be seen as having evolved from crafts. New entrants typically learned

their art through a system of apprenticeship or pupillage (Reader, 1966). This involved the 'pupil' working alongside an experienced practitioner for a specified period (often around 5 years). During this time, the pupil was expected to pick up from the 'principal' all the necessary practical and intellectual skills. In some cases, it was assumed that the pupil would also find time to study suitable books in order to absorb the relevant theory, but this was rarely tested. The training was largely unplanned and unstructured. The quality of outcome was therefore likely to be variable and heavily dependent on the erudition of the 'principal' and the tenacity of the 'pupil'. It is because of the similarity of this approach to the system traditionally used for craft training that it may be referred to as the 'apprenticeship paradigm'.

The technocratic paradigm

As Chapter 2 will show, by the end of the nineteenth century important changes had taken place in the professions. Most of them required candidates to pass written qualifying examinations, most began to identify a discrete body of specialist knowledge which entrants were expected to master, and a few achieved the backing of the law for their issue of licences to practice.

Once the notion of mastery of a specialist body of knowledge became established, the dominant paradigm of professional development also changed. The emphasis switched from the acquisition of practical skills (at least in the early stages of training) to the learning of associated principles and theory. Although the idea of pupillage still persisted in some professions, the *apprenticeship paradigm* essentially gave way to what both Bines (1992) and Astley (1992) call the 'technocratic model' [paradigm]. This was linked to a particular epistemology of professional practice which Schön (1983; 1987) refers to as 'technical-rationality'. This views professional practice as primarily the application of technical or specialist knowledge. The paradigm of development associated with this view (the technical-rational paradigm) saw the prime purpose of professional formation as giving candidates the knowledge and theory they would later be able to apply in practice.

The *technocratic paradigm* offered structured, formalised education based on a scientific or specialist curriculum. This was broadly linked to some form of professional knowledge base. The paradigm assumed that every profession (whether major or minor) had a core of related theory which needed to be mastered by would-be entrants. Every emerging profession made it a priority to develop such a core, and thus began a kind of didactic imperative, a belief that the inculcation of knowledge was a necessary precursor to effective practice in each and every profession.

The *technocratic paradigm* became dominant for most of the twentieth century. As new professions evolved, they sought to develop a body of specialist knowledge and identify associated academic disciplines which the next generation of would-be entrants was expected to pursue. The paradigm did not deny the need to develop practical skills, but this aspect of professional training tended to take a back seat to the teaching of subject knowledge, and often played little or no part in relation to assessment and accreditation.

Within the broad *technocratic paradigm*, there was a variety of developmental models. These exhibited differences in both the modes of study and in the extent and nature of practical elements. In some cases, the latter were informal and unstructured periods of practice-based experience. In other cases, they were more formally designed and monitored (Millerson, 1973). The *technocratic* approach, which became widely adopted in both Britain and America, remained largely unchallenged until the early 1980s.

The post-technocratic paradigm

Schön (1983), in his seminal work on the epistemology of professional practice, challenged the foundations on which the technical-rational approach had been based. He questioned the view that professional practice relies solely on the logical application of a body of rational or scientific knowledge and that professionals solve day-to-day problems by making use of the principles and theories they have learned through their formal training. He was also sceptical of the belief that practical know-how could be elicited and codified into teachable principles. In its place, Schön offered a new epistemology of professional practice, 'reflection-in-action'. This involved 'knowing-in-action', a form of tacit knowledge, and reflection of various kinds. This led to a new approach to professional development which Bines (1992) and others have called the 'post technocratic paradigm', but is probably better known as the 'reflective practitioner approach' (the approach will be described more fully in Chapter 3, pp. 62-63).

Schön's work has undoubtedly been influential on both sides of the Atlantic and some, like Bines, argue that the *post-technocratic paradigm* has now become dominant within professional development.

Critique of the three paradigm analysis

The least controversial of the three paradigms described above is the first. There seems little doubt that something approximating to an apprenticeship existed in most early professions, though professions such as the Law and Medicine also expected pupils to read related literature in their own time (Reader, 1966; Russell, 1980). The *technocratic paradigm* also seems a fair encapsulation of the approach that replaced apprenticeship

at the end of the nineteenth century, though since a number of professions, most notably the legal professions (barristers and solicitors), retained apprenticeship elements, the paradigm shift was not as complete as the analysis suggests.

The main problem with the three paradigm approach is the assertion that a *post-technocratic paradigm* has now taken the place of the technocratic paradigm. There is no doubt that the 'reflective practitioner' concept now underpins professional education programmes in a number of areas - e.g. Teaching, Nursing and Social Work (Zeichner, 1990; Champion, 1992). However, in other professions such as Engineering, Surveying and the Law, Schön's ideas have been less widely adopted. It is also arguable that away from the educational sector, and particularly in the models of development favoured by professional bodies, the *technocratic paradigm* is still dominant. This may be partly because Schön's ideas are not widely known outside of education, and partly (as will be argued later in this thesis) because they fall short of offering a comprehensive model of professional competence or a clear paradigm of professional development.

Schön's ideas began to take hold in the UK at around the same time as competence based approaches were being promoted by the Government. Both approaches stressed the importance of practice skills, but each came at these from different directions. For Schön, the basic competencies required by any professional were reflection and knowing-in-action. For the competence movement, each profession had a range of discrete competencies which needed to be identified, carefully described and somehow acquired (Chapter 3 will provide detailed descriptions and critiques of both approaches).

The *technocratic paradigm* has therefore been challenged by two apparently competing sets of principles - those linked to competence and those relating to reflective practice. It is not yet clear which, if any, of these will gain the upper hand. It will be argued later in this thesis that professional development has much to learn from both new approaches and indeed from the *technocratic paradigm*. An attempt will be made to draw on the strengths of each to suggest a further paradigm.

Professional Bodies and Professional Development

Many professions have associated professional bodies. Indeed, according to Carr-Saunders and Wilson (1933) being 'organised' in this way is one of the distinguishing features of professions. Even quite recently established professions often have professional associations of some kind and these are frequently modelled loosely on the learned societies associated with the more traditional professions (Medicine, the Law,

etc.). According to Watkins (1998) there are now around 400 such organisations with a membership of more than 1,000 in the UK.

Role of professional bodies

Official publications (e.g. DfEE, 1997b), tend to make a distinction between statutory, regulatory and professional bodies. The first group includes organisations such as the General Medical Council, which have powers backed by law to permit or prevent an individual from practising. The second group includes bodies, like the Engineering Council, which regulate entry, educational and other requirements, e.g. ethical codes, across a profession. The third are straight-forward membership bodies. In practice, however, there are overlaps between these functions and many membership bodies also have regulatory functions. Some sociologists (e.g. Russell, 1980) use the term 'professional body' more generally to refer to the community or sub-culture within a profession. However, for the purpose of this research, the term 'professional body' will be used to refer to some kind of formal professional association.

According to Carr-Saunders and Wilson (1933) professional associations may have a number of functions including:

- defining and upholding professional ethics;
- protecting and improving the status of the profession;
- protecting the profession and its members;
- protecting the public.

Much more recently, Shuttleworth (1993) offers the following slightly different list of roles:

- promoting the status of members;
- establishing and maintaining professional codes of conduct;
- licensing of practitioners; and
- promoting or regulating professional development.

To these might be added, the disciplining of members who step out of line and the dissemination of information of common interest to members (often through a professional journal).

Professional bodies like to stress their 'watch dog' role; that of ensuring that their profession acts in the best interest of society within a clear code of ethics (see, for example, Smith, 1995). However, Millerson (1973, p. 5) more sceptically observes,

"Ethical codes, if they do exist are concerned more with the protection of the professional than the client ... They are often more concerned with preserving the professional image than with exposing incompetence or professional failure". Others argue that the main aim of professional bodies is to regulate entry and maximise economic advantage to members, and in this vein, Freidson (1970, p. 367) comments, "... so far as terms of work go, professions differ from trade unions only in their sanctimoniousness". Some professional associations do of course have an explicit trade union role, as Watkins (1998) points out.

Professions may indeed seek to regulate entry, but their ability to be totally effective in this regard is often limited in the case of all but a minority of professions. This is because for many jobs in the UK, the possession of appropriate qualifications is not a legal pre-requisite. Thus, anyone can be employed as an engineer, or an accountant, or an architect, though in each of these areas there are certain categories of work that require specific qualifications.

The educational requirements of membership

The lack of legally-protected licensing has not stopped many professional bodies from laying down strict conditions for membership. Indeed it has become characteristic of professional bodies that, once firmly established, they stipulate a minimum academic requirement for entry, often coupled with a period of work-based experience. Some professional bodies, e.g. within the construction area, specify broad course content and/or accredit particular academic institutions for delivery. Others, e.g. within Accountancy, run their own examinations (Watkins, 1998). On the whole, professional bodies tend to favour developmental models based on the *technocratic paradigm*, described earlier, often with the professional education element being followed by a specified period of practice experience, prior to full accreditation.

Professional bodies have therefore played a pivotal role in the formulation of models of professional development. According to Johnson (1984, p. 22), "... British professional associations have enjoyed a much firmer control over the forms and content of training than has been the case elsewhere [in the world]". Yet their specification of development procedures as well as pre-entry requirements may not simply be aimed at ensuring that new entrants have the right mix of knowledge and skills to enable them to practice effectively. It is also likely to be influenced by considerations of status and the desire to limit the numbers entering the profession, as discussed earlier. It may ever have been thus for, as early as the 14th century, one Guy de Chaulice wrote:

... if doctors have not learnt geometry, astronomy, dialectics, or any other good discipline, soon the leather workers, carpenters and furriers will quit their own occupations and become doctors.

(cited in Charlton, 1973, p. 24)

There appears to be evidence that professional bodies tend progressively to tighten their entry requirements as they become more established (Rice and Richlin, 1993). The specification of higher level academic qualifications (particularly degrees) may be seen as a way of improving the profession's image and status. Such motivations are unlikely to lead to selection of the most suitable entrants and may sometimes act against the public interest. For example, it can be argued that the crisis in nursing recruitment, current in the UK at the time of writing, is partly the result of raised entry barriers in furtherance of the Nursing Colleges' aim to make Nursing an 'all graduate profession'.

Where professional bodies control, or are influential over, programme content, questions arise as to how curricula are developed and refreshed at appropriate intervals. Watkins (1998, p.12) argues, "The syllabus for many professional examinations does not reflect the rapid social, technological and economic changes that characterise life and work today". Often, for example, management and commercial elements appear to be neglected. Where programmes include practical elements, questions arise as to how appropriate these are, how rigorously they are monitored and consequently, how effective they are in developing the necessary skills and competencies.

The challenge from NVQs

As suggested earlier, the emergence of occupational standards and National Vocational Qualifications have, in a number of professions, fundamentally challenged established approaches to professional development and accreditation. Some see this as a serious threat to professional bodies, one which may lead to their demise or, at least, competition between those who have received their accreditation via professional bodies, and those who have qualified via the NVQ route. Smith (1995, p. 12) argues that NVQs are, "... the most serious threat to the professions in their chartered existence". He further unambiguously declares, "The NVQ system is designed to render professional institutes obsolete".

Others suggest that professional bodies can best rise to the challenge by coming to terms with NVQs and adjusting their entry requirements to accept them as at least partially qualifying candidates for membership (Shuttleworth, 1993), or by recognising their utility within continuing professional development (Farmer, 1994; QCA, 1998). But for most professional bodies, as Watkins (1998, pp. 13-14) writes, "The implications of

moving towards a competence based approach in professional education are still not clear ... they are reluctant to abandon the tried and tested route of academic professional qualifications”.

At the time of writing (November 1998), professional areas in which NVQs are available include Accountancy, Construction, Engineering, Chemistry, Psychology, Training, Personnel Management, Librarianship, Social Work and Management.

Educational Institutions and Professional Development

As each profession has laid down formal entry qualifications, so institutions of Higher Education (HE), and to some extent Further Education (FE) have assisted individuals to acquire these through related degree or other courses. Certain professions (such as Medicine, Teaching and Engineering) often have dedicated schools or departments within universities. In other cases, as stated in the last section, professional bodies approve or accredit particular courses as suitable for aspiring entrants. There has therefore been a considerable degree of collaboration between professional bodies and educational institutions in providing professional education. Nonetheless, the latter often enjoy considerable autonomy in deciding course content and philosophy. In some cases, this has led to wide variations in syllabus content across institutions for essentially the same qualifications (Probate, 1995). There are also persistent claims both of inconsistencies in qualification level between institutions and of a general decline in examination standards (Sim, 1995).

Education's responsibility: theory or practice?

Until relatively recently, educational institutions have tended to concentrate on the theoretical and knowledge based aspects of professional formation. The development of practice skills was often seen as something that would happen, more or less naturally, through placements (if offered) or after the completion of initial professional education.

A number of writers are critical of this approach, arguing, for example, that much of undergraduate education produces only 'surface learning'¹ (e.g. Ramsden, 1992; Gibbs, 1992). Ramsden (ibid., p. 60) claims that this produces graduates who have, "... an inability to apply academic knowledge to the real world" (cited in Watson, 1996, p. 462). Watson, himself, believes that many postgraduate, professional courses are similarly divorced from the real needs of professional practice. Others have argued that professional development courses often pay little or no attention to the development of

¹ The term 'surface learning' is used by Marton and Säljö (1976) to distinguish between what they call 'surface level' processing (reliant on memory/recall), and 'deep level' processing (in which knowledge is turned into understanding).

management skills, though most professionals find themselves managing others; or business skills, though many professional environments are becoming increasingly commercial (Grover, 1998).

In the last few years, educational institutions have placed a much greater emphasis on the acquisition of practice skills with 'sandwich'¹ type courses, or those containing placement elements, becoming common. But even where practice elements have been included within courses, they have been criticised for being unstructured, with expected outcomes vague and learning left largely to chance. Attainment within placements has rarely been rigorously assessed and, where assessment has taken place, its contribution towards overall grade or class of degree has often been minimal (Murphy and Reading, 1992). There are of course a number of notable exceptions - teacher training, for example, where as much as 80% of certain courses is now spent on teaching practice (Kyriacou, 1993, p. 80), and trainees are assessed by a mentor against a list of competencies. Nursing too has adopted competency frameworks to support practice-based elements (Champion, 1992), but these are sometimes criticised for adopting a simplistic 'tick box' approach.

Competition from competence base qualifications

Like professional bodies, educational institutions have started to face competition from the alternative routes to accreditation offered by NVQs in some professional areas. A few, mainly within the management and business areas, have responded by offering NVQs alongside more traditional courses, either as an alternative qualification or to provide an opportunity for dual certification² (Randall, 1995). Others have sought to make their existing courses more competence based, sometimes by drawing on relevant occupational standards in curriculum design (MCI, 1997a). Some institutions are now using standards to structure work placements (Edmunds et al., 1997).

The advent of NVQs at higher levels has also caused some institutions to look critically at their previous assessment methods and sometimes reappraise their procedures. However, across professional education courses as a whole, competence based approaches are not well embedded and in some areas, are viewed with scepticism or even hostility.

¹ The term 'sandwich' is often used in the UK to describe courses containing work placement elements situated between periods of academic study.

² An example of dual certification is where a student obtains both an academic award and an NVQ on completion of a course.

Caskie and Walker (1997) perceive a polarisation in the literature between those who advocate outcomes-based approaches and the development of competence, and those who stress the importance of inputs and the development of capability. Yet the authors believe that, in practice, a more pragmatic attitude may be leading to the emergence of a new or "third paradigm" (ibid., p.18); one which draws on both academic and competence based approaches; a paradigm which acknowledges the importance of both *capability* (as indicated by academic achievement) and *competence* (as indicated by work based performance), and of both learning *inputs* and *outcomes*.

A new emphasis on practice

The education sector (especially HE) has been caught up in recent debates about epistemologies of professional practice and their implications for professional education. Some professional educators have tried to move from the more traditional 'technical-rational' approach (where professional practice is seen as the application of specialist knowledge) to ones which offer a greater emphasis on 'reflective practice', following Schön (1983; 1987) and others (see Chapter 3, pp. 66-69).

In the last few years, the combined effects of consumer demands and the need to respond to new models of competence and new epistemologies of practice have been responsible for a pronounced shift towards a greater concentration on the practical aspects of professional development within professional education. However, there is no clear consensus about the most suitable paradigm of professional education, or of professional development more generally.

Reviewing the literature on teacher training, Zeichner (1990), like Caskie and Walker (1997), finds considerable polarisation. In Zeichner's case, the polarisation relates to the epistemology of teaching practice. It was between those who saw teaching as an applied science and those who saw it as reflective practice. He notes, "... what I didn't come across in my reading, were attempts to bridge the two traditions ... by combining elements of both worlds" (ibid., p. 116). He continues, "... almost none of the existing literature ... cuts across these two paradigms and tries to benefit from the strengths of each perspective" (ibid., p. 122).

There would thus appear to be polarisations on two separate axes - *competence* versus *capability*, and *technical-rationality* versus *reflective practice*. It may be argued, therefore, that any new paradigm of professional development needs to address both dichotomies. That will be the approach adopted later in this thesis.

Education, especially Higher Education, has undoubtedly made an important contribution towards the codification of underlying knowledge bases and the general theoretical underpinning of professions, through research and other forms of scholarship. Indeed, it has been suggested that HE institutions sometimes attach greater importance to these than to teaching. Scholarship in professional areas has nonetheless been criticised for being too narrow in its view of knowledge, often neglecting research into the practical elements of professional activity (Rice and Richlin, 1993). But in this area too, changes may now be taking place.

For all these reasons, professional education, as facilitated by educational institutions, might reasonably be said to be in a state of flux. New paradigms and approaches seem to be needed but have not yet fully emerged

Continuing Professional Development

The last few years have seen a growing concern for continuing professional development (CPD). This has been driven by organisational and technological change, the rapid expansion of professional knowledge bases, and changing operating environments (Todd, 1987; Madden and Mitchell, 1993). It is now widely accepted amongst professional bodies that initial professional development is only the beginning of a lifelong process of learning. Many have put considerable effort into encouraging their members to participate in CPD. Between them, professional bodies have adopted a variety of approaches to promotion, delivery, and persuasion or enforcement (Madden and Mitchell, 1993). However, there seems little agreement at present as to which approaches are the most effective.

It can be argued there are currently three main dichotomies within CPD:

- technocratic versus reflective approaches;
- voluntary versus mandatory policies; and
- inputs versus outputs modes of measurement.

These will each be discussed in turn.

Technocratic versus reflective approaches

Todd (1987) suggests there are two ways of viewing professional practice - i.e. two camps:

- i) "... those who see professionals as emotionally neutral technical experts ... [who] do something *to (or for)* a client"; and

- ii) "... those who view professional practice as an arena for personal engagement between professional and client ... in other words a professional works *with* a client". (ibid., p. 217)

Todd argues that in the first view, personal qualities are seen as irrelevant, whereas in the second, they are critically important. The first gives power to the professional, the second shares power between the professional and client. Todd asserts that these two perspectives give rise to differing views of CPD. The first sees CPD as primarily the acquisition of new technical skills. The second sees CPD as primarily a process of reflection and self-evaluation. The first regards CPD providers as transmitters of technical knowledge, the second as facilitators of reflection on professional practice (ibid., pp. 217-218).

Such fundamental differences in philosophy would imply different kinds of CPD programme. However, in the real world, as Todd herself accepts, the dichotomy is not as clear cut and CPD programmes probably require a combination of approaches.

Voluntary versus mandatory policies

The second dichotomy concerns the philosophy behind CPD policies. A number of surveys have shown that most professional bodies have some form of CPD policy (Vaughan, 1991; Welsh and Woodward, 1989; UK Inter-professional Group on CPD, 1994). However, these differ widely in terms of their rigour and precision. Some have made CPD mandatory - i.e. a practitioner will be debarred from membership if he or she does not provide evidence of CPD. Others take a slightly less strident position, but nonetheless regard CPD as obligatory¹ - i.e. practitioners are obliged to update by an ethical requirement in the profession's code of conduct. The majority of bodies have so far settled on voluntary policies, possibly fearing that to take a harder line might lose them members.

Madden and Mitchell (1993) see the dichotomy as being between a 'sanctions model', which involves monitoring compliance and taking sanctions against members who fall short of requirements, and a 'benefits model', which stresses the advantages of CPD, both to individuals and the profession, and relies on the goodwill of members to participate. They note that older, more established, professional bodies tend to adopt the 'sanctions model', whereas newer and developing bodies are more likely to adopt the 'benefits model'. This difference may be linked to necessity of membership - i.e. how essential it is to be a member in order to practice.

¹ The distinction between 'obligatory' and 'mandatory' policies is that offered by the UK Inter-professional Group on CPD (1994).

In some cases, especially in the UK Health Care sector, CPD is becoming a legal requirement. For example, new legislation bringing more practitioners under state registration and reviewing the regulatory requirements of nurses and other professions 'supplementary to medicine' all stipulate the necessity for CPD in order to 'protect the public' (Burley, 1997). Similar legislation may soon be extended to doctors.

In the USA, there is now a growing trend towards compulsory re-qualification within those professions which licence practitioners (Norcini and Shea, 1993). In the UK, the British Dental Association is planning to re-accredit dentists every five years. Although there are currently no plans for re-examination, re-registration will require clear evidence that the profession's CPD requirements have been met (Gordon, 1997).

A few professions, such as NHS doctors and dentists, are having their practice outcomes evaluated through clinical audits and some are using these to help identify CPD needs (Nixon and Vimpany, 1994). But the majority of professions seem to be leaving it to individual practitioners to identify their own training needs.

It is clear that the voluntary versus mandatory dichotomy is set to continue, though the trend seems to be towards a gradual tightening of requirements by professional bodies.

Inputs versus outputs

The dichotomy between inputs and outputs approaches is less evenly balanced at present. Most professional bodies currently specify CPD requirements in terms of inputs - for example, the hours of training members are expected to accumulate each year or through some kind of points system linked to different types of training (UK Inter-professional Group, 1994). A few are encouraging members to pursue award-bearing courses (Vaughan, 1991).

Up to the time of writing, only a small number have adopted outputs, or competence based, approaches - i.e. those which seek to measure improved performance or additional skills acquired through CPD. One notable example of this approach is the Competence Based Management CPD scheme developed by the Management Charter Initiative (MCI) in partnership with a number of professional associations (MCI, 1997b). This is aimed at helping professionals develop their management skills. The Qualifications and Curriculum Authority have recently suggested that NVQ Units could provide a basis for more output based CPD. Their publication, *Standards and Vocational Qualifications in CPD*, argues: "NVQ Units might help people draw together

some of their informal learning, reflect on it and bring it more under the control of their self-evaluative capability..." (QCA, 1998, p. 10).

Clearly, if CPD is to fulfil its intended purpose of maintaining and expanding professional knowledge and competence, it is important that the most effective policies, strategies and delivery methods are adopted. Can such an ideal be found? Probably not, because circumstance vary between professions and individuals. But what is clear is that in developing a new paradigm of professional development, the imperative of CPD will need to be borne in mind.

Chapter Summary and Implications for this Research

Apart from providing a contemporary context for this research, this chapter has identified a number of controversial or unresolved issues, several of which would benefit from a closer empirical investigation.

Professions appear to be changing in a number of important respects. These changes seem likely to have implications for the attributes required by professionals. The empirical stage of this research will test the extent to which the characteristics traditionally associated with professions apply under modern conditions. It will also attempt to identify the types of knowledge and skill needed for effective performance in today's professions.

There are conflicting hypotheses about the nature of professional practice, i.e. different epistemologies. There are also opposing views on the importance of 'competence' versus 'capability' for professionals. These each have implications for how professionals are developed.

The research will test different hypotheses of practice by investigating how professionals, themselves, perceive the way in which they operate. A method of modelling professional competence/capability will be developed, then tested empirically.

There are currently a number of alternative paradigms of development and a diversity of models of formal professional development programmes. These place different emphases on the development of practice skills, use a variety of developmental methods and rely on different forms of assessment. The strengths and weaknesses of different approaches will be assessed through the research. The results will be drawn on, along with other elements of the empirical work, to produce a new paradigm of professional development.

Professional associations and some major employers are currently placing considerable emphasis on Continuing Professional Development. The research will investigate the importance professionals, themselves, attach to CPD, what methods they used to keep themselves up to date and how likely they are to participate in CPD.

Research Aims, Objectives and Outline Method

To clarify the purpose of this research, the aims, objectives and outline methodology are formally set out below:

Aims:

- i) to inform understanding of professions, professional practice and professional competence and the ways in which the latter is acquired;
- ii) to inform the design of approaches to professional development, including practitioner self-development.

Objectives

- i) to examine the nature of professions and professional practice;
- ii) to investigate the nature of professional competence and, if appropriate, represent this through a suitable model;
- iii) to investigate the ways in which practitioners acquire the various aspects of their professional competence;
- iv) to examine formal methods of initial professional development (including examination/assessment) and assess their effectiveness in developing professional competence;
- v) to develop (if appropriate) a new paradigm, (or paradigms) of professional development and practitioner self-development;
- vi) to suggest improvements that could be made to professional development programmes, and ways in which professionals might better help themselves to develop.

Research Questions

The research has addressed five key questions which emanate from the objectives:

- Question No. 1:** *What is the nature of a) professions and b) professional practice?*
- Question No. 2:** *What is the nature of professional competence and how might this be modelled?*
- Question No. 3:** *How do professionals acquire and maintain their professional competence?*
- Question No. 4:** *How effective are initial professional development arrangements?*
- Question No. 5:** *How might professional development be improved?*

Research outputs sought

- a comprehensive literature review;
- a new or modified model of professional competence which can be used to inform professional development programmes and provide a framework for eliciting the key attributes of professions;
- a new or modified paradigm of professional development;
- recommendations on how professional development might be improved;
- recommendations on how individuals might maximise their professional learning and development; and
- a replicable research methodology.

The combination of the nature of professional competence and its modelling in Research Question 2 is deliberate since in practice the two factors are closely inter-linked. For example, in order to develop a model it is necessary to have some understanding of the nature of professional competence. Equally, the process of developing a model would itself be likely to enhance such an understanding. It was therefore decided that the two issues should be addressed together.

It can be seen from the formal aims and objective that the aspirations of the research were essentially practical. They were to find ways of improving professional development programmes and the other processes which lead to professional competence.

Methodology outline

The research was a combination of literary study in related fields, and empirical work of various kinds. The latter involved the use of a number of different research techniques, including interviews, postal surveys and consultative groups.

No single, discrete method was used to address each of the research questions. Rather, the questions were continuously addressed throughout various stages of the research, with each stage contributing towards the answers.

The chronological stages of the research were:

- i) conduct initial literature study;
- ii) develop a provisional model of professional competence;
- iii) test the model;
- iv) conduct interviews with 80 practitioners from 20 different professions (4 from each);

- v) analyse and review interview and model testing data;
- vi) produce and publish a revised model of professional competence;
- vii) conduct postal surveys across 6 of the 20 professions (120 postings per profession, 720 in total) to validate and extend interview data;
- viii) analyse and review survey data;
- ix) conduct consultative group work to produce exemplar versions of the model;
- x) conduct follow-up literature study;
- xi) write up.

In practice, there was some degree of overlap between the stages. Chapter 5 provides a more detailed description of the empirical methodology, together with a critique. The literature search methods are explained at the beginning of Chapter 2, the first of three chapters devoted specifically to the literary elements of this research.

Having provided the essential background to the research and reviewed the professional scene as it is today, the next chapter will examine professions from an historical perspective.

.....

Chapter 2

A Brief History of Professions: Literature Study, Part 1

Chapter 2

A Brief History of Professions: Literature Study, Part 1

Introduction to Literature Study

Before taking a look at the historical literature, some explanation should be offered about the literature study as a whole. The literature connected to professions and professional development is considerable. It includes historical and sociological texts, writings on adult and professional education, learning theories, and expositions of both professional development techniques and approaches to competence. All of these have relevance to this research, and it was considered important to conduct as thorough a literature search as possible in each area, summarising representative writings, identifying key debates and offering critiques as necessary.

Because the literature study is quite extensive, it is presented in three parts, each of which has been allocated its own chapter. Part 1 (this Chapter) offers an historical perspective, Part 2 (Chapter 3), looks at the concept of competence, and Part 3 (Chapter 4) looks at developmental theories and methods, and also reviews previous research of relevance to this work.

Literature search method

The literature search was conducted in two main phases. The first, at the beginning of the research, was used to provide background and inform the design of the empirical work, including the underpinning model of professional competence; the second, conducted after most of the empirical work had been completed, was used to help locate or explain the research findings, and also to pick up any work published in the eighteen months or so since the end of the first phase. Of course, a reasonable level of reading continued throughout the research, in order to keep abreast of current issues and inform the writing of various articles linked to the investigation. The cut-off date for the literature search was November 1998.

A number of different search techniques was used, including library-based computer searches, CD ROM and Internet searches. Academic sources explored included USA, UK and Irish theses and dissertations. Extensive use was made of the Inter-library Loan Service for obtaining more obscure publications and for getting back to primary sources. Information and some published papers were also obtained via academic associates in the UK, Canada and Australia.

Consideration of non-English language materials was more limited, though some exploration of the German and Dutch literature was done through an associate in Holland.

All significant publications were summarised and stored within a computerised database, together with the necessary referencing details. In some cases the summaries extended to several pages. The method allowed automated word searches of the large volume of accumulated material, a facility which proved invaluable when the review was being written up. The summaries also proved a useful resource for colleagues.

Due to the large field, it was not feasible to exhaust every possible search route. Nor is it possible, in the space available here, to include every relevant piece of literature found. In many cases, the authors cited are representative only of a particular theoretical perspective, philosophical stance, or body of research. Both the depth of exploration and the selection of material for inclusion within this thesis involved difficult judgements concerning relevance and added value to the research. Selection was on the basis of its ability to provide useful contextual information or to illuminate different aspects of the research domain. It is readily acknowledged that in attempting to achieve the necessary breadth, the literature study may at times have sacrificed depth.

In order to avoid duplication, where an area has already been covered in reasonable detail in Chapter 1, for example CPD, it has not been included within the literature chapters. However, where it was felt further expansion was required, for example, the competence and reflective practitioner debates, it is re-visited.

The study now begins with an examination of the historical literature.

Why an historical perspective?

An examination of the history of professions and professional development was considered to be an important element of this research. Looking at where professions have come from can help to explain the position of professions in society today. It can also provide some insights into why professions are as they are, including some of their quirks and anachronisms, and it can perhaps offer some lessons for the future. Since the research aims in particular to throw light on how professional competence is acquired, the historical review includes the changing patterns of professional development over the years.

Chapter layout and content

The chapter as a whole does not follow a strict chronological sequence. Rather it is broken down into a series of key themes, each of which has its own chronology. Each theme has its own section. The first section looks at the origin of professions, including some of the disagreements around this area. The second examines changes in both the sociological and educational qualifications for entry into professions. The third section reviews the methods of developing, testing and accrediting professionals, tracing their transition from informal and voluntary arrangements through to more regulated and systematic ones. The fourth section examines the emergence of formal professional educational provision. The final section considers some tentative lessons for this research which may be drawn from the review.

The Origin of Professions

A number of writers catalogue the emergence of professions. In some cases the accounts are descriptive, in others the authors attempt to explain the phenomena in economic or sociological terms. Just as there is controversy about how professions should be defined (as Chapter 1 demonstrated), so there is some disagreement over the origin and development of professions.

Disputed roots

Reader (1966, p. 2), a sociologist in the broadly functionalist tradition, argues that, "... the professions as we know them today are very much a Victorian creation, brought into being to serve the needs of an industrial society ...". However, both Hughes (1952) and Russell (1980) place their origin as a century or so earlier, in response to economic changes linked to land ownership and to social changes associated with the shift from rural to urban communities.

Russell points out that in the 'gemeinschaft'¹ (ruralised, agrarian) societies which were common prior to the eighteenth century, the distinctions between institutional spheres of society - economic, judicial, political, civic, familial - were less clearly defined than in later 'gesellschaft' (industrialised and urban) societies. Therefore, in the former occupational roles were not as differentiated as in the latter. Consequently, Russell argues, clear cut professions were less common. However, as urbanised, gesellschaft societies developed, increasing occupational differentiation led to the emergence of a growing number of new professions.

¹ The terms gemeinschaft and gesellschaft follow Tönnies (1855-1935) the German sociologist.

This seems an over-simplification, given that the transition to *gesellschaft* societies was itself the result of a combination of complex social and economic factors, not least those resulting from the Industrial Revolution.

A few authors claim that the origin of professions lies much further back in history - i.e. medieval times and even beyond. In this vein, Herbert Spencer, writing in *The Principles of Sociology* (1896, vol. iii, part vii), attempts to trace professions back to earlier civilisations and even to primitive peoples (cited in Russell, 1980, p. 9). Russell himself is sceptical of the exercise as is Carr-Saunders (1928), who cites the same work. Carr-Saunders points out that Spencer adopted a particularly wide definition of professionals which included philosophers, actors and even dancers.

Whilst adopting a much narrower definition than Spencer, Charlton (1973) argues that a few professions were well established by the sixteenth century. These were - doctor, lawyer, cleric and teacher. He acknowledges that the inclusion of teaching is open to challenge but, in support, he cites various contemporary writings about teaching methods and standards. These include: 'The Petie Schole' (Clements, 1576) and 'The English Schoolmaster' (Cootes, 1596). The latter apparently took the form of an early teachers' manual, the popularity of which seems to be affirmed by the fact that it was published in its 54th edition in 1737. However, this example does not necessarily prove that teaching was seen as a profession in its own right, clearly differentiated from the other roles of its acknowledged progenitor, the Church. They simply suggest there was a concern then, as now, for effective teaching.

Charlton (*ibid.*) also points to a number of other occupations which, he argues, were emerging as professions during the sixteenth century, even if not fully formed. Amongst these he includes: architect, land surveyor, map maker, navigator and engineer.

A rather narrower view of early professions is taken by both Carr-Saunders and Wilson (1933) and Millerson (1973). Carr-Saunders and Wilson cite and concur with Addison who in 1711 spoke of, "... the three great professions of divinity, law and physic" (cited in Carr-Saunders and Wilson, 1933, p. 294). However, revealing something of a hostility to the Church, they observe:

Divinity found a place in the list because it was at one time the only profession, or the basis on which the other professions were built ... men had not observed that, since it had divested itself of duties relating to the ordinary business of life, its position in the list was anomalous.

(*ibid.*, p. 294)

Discrepancies and anomalies

Despite having a more expansive view of early professions than some authors, Charlton (1973) accepts that in the sixteenth century such professions as did exist were rudimentary. He also highlights heterogeneity both within and between professions. "In the medical profession", he states, "a very sharp distinction was drawn by members of the profession themselves between the physician on the one hand, and the barber-surgeons, the apothecaries and the herbalists on the other" (ibid., p. 21). The same anomaly is noted by Carr-Saunders and Wilson (1933) but, according to them, surgeons had ranked equal in status to physicians prior to 1540. But in that year, the former undermined their status by merging with the Barbers' Guild, a move which the authors comment:

... marked the descent of the art of surgery to a trade, and two centuries elapsed during which there was a wide gulf between the high estate of physician and the low position of the surgeon.

(ibid., p. 69)

This case provides a useful example of the role of extraneous social factors in determining professional status and illustrates how such status can be raised or lowered by association with other groups.

Size of early professions

Not only were there relatively few fully fledged and recognised professions, prior to Victorian times, but their ranks were small and geographical distribution uneven. Indeed, the Church was the only profession which, in the eighteenth century, had numbers that ran into four figures and was spread across the whole country (Russell, 1980). The other professions were tiny in terms of practitioner numbers and tended to be concentrated on London and a few other major cities. The following statistics for the Royal College of Physicians illustrate the point:

- in 1745, they had only 52 Fellows, 3 Candidates and 23 Licentiates (Hughes, 1952, p. 53);
- between 1771 and 1833 only 168 Fellows were admitted (Russell, 1980, p. 18).

Hughes (1952) also provides interesting information on the number of commissions in the Armed Forces and the size of the Civil Service. He tells us, for example, that in 1739 there were only 367 lieutenants in the Navy, though by 1783 this had risen to 1,349 (ibid., p. 50). In 1745, the entire establishment of the Treasury, including the housekeeper, doorkeepers and messenger, was just 23. There were just thirteen clerks in the War Office, ten at the Board of Trade, and eight at the Admiralty (ibid., p. 54).

The ubiquitous Church

Many professions, with the obvious exception of the armed services, were originally branches, or rather functions, of the Church. This included Medicine, Teaching, the Law and the Civil Service. Over time, these functions began to separate out. However, the Church continued to maintain a strong influence over a number of professions. In the sixteenth century, grammar school masters (and ushers) needed a licence to teach from the Church. A distinction was made between a licence 'to teach grammar' and a licence to teach children to 'read, write and cast accounts'. Many teachers, particularly of grammar, were themselves clerics, typically curates (Charlton, 1973). In the medical profession, for some years after the formation of the Royal College of Physicians, the College's presidents and other prominent members, were largely in holy orders (Carr-Saunders and Wilson, 1933).

Dominance of landed gentry

Recruits to early professions came almost exclusively from landed families (Hughes, 1952; Reader, 1966; Russell, 1980). These were the only people who could readily secure the necessary patronage and afford to finance a pupil through his training (professionals at that time were exclusively male). In addition, a 'premium' or entry fee had to be paid which, in the middle of the eighteenth century, could be as much as £600 or £700 (Hughes, 1952, p. 55). This was a very substantial sum in those days.

There was also another factor which favoured the better off. In the times before universal education, the general level of literacy would have prevented most young men from taking up any occupation which required a reasonable degree of competence in reading and writing, and possibly the ability to undertake some specialised study.

In and before the eighteenth century, English society drew most of its wealth from the land. Thus, the main societal distinction was between those who had ownership of land and property (the leisured class), who did not need to work for an income, and those who owned nothing and therefore did have to work for a living (Reader, 1966). The main hallmarks of the gentry were independence, leisure, and freedom from manual labour, all of these being conferred [mainly] by land.

Russell (1980) argues it was the importance of land that led to the emergence of professions. For example, lawyers were needed for land transactions and contracts, and surveyors for mapping the territory owned and for the assessment of tithes. However, he acknowledges that the growth in the merchant class and development of the tariff system in

the mid-eighteenth century also added to the demand for lawyers and created the need for basic financial institutions.

Returning to the landed families, the sons of the gentry needed what was called a 'competence' - the term simply meant an income to enable them to live as a 'gentleman', rather than the possession of specialist skills, as we might understand the word today. Such an income would originally have come from the land or from patronage of some kind. But as economic conditions became tighter due to progressive inflation, enclosures and the development of large estates, many of the lesser gentry began to struggle financially. It became necessary for some members of each landed family to look elsewhere for a living.

Increasingly, the younger sons of the gentry were forced either to seek government office or service, take a commission in the Army, or enter the Church. As Hughes (1952) rather quaintly puts it (adapting Lord Chesterfield's phrase), it was necessary to find, "... professional pasture for the beasts that must feed" (ibid., p. 48).

Thus, Russell (1980) argues that land was the single most important factor that created both the *demand* for professions, and the *supply* of entrants. But this analysis seems to be too simplistic; other key factors must also have been at work. On the demand side, for example, population growth, progressive industrialisation, the expansion of trade and commerce, and scientific discoveries which led to new technological applications must all have played their part. And not all the social forces would have been top down, as Hughes (1952) points out, arguing that, "... any study of the professions in the eighteenth century must take account of social pressure from below" (ibid., p. 47). Such social pressure would have included a growing demand for the services of doctors and teachers as incomes rose and, in the case of the poorer classes, as charitable organisations became established.

Another factor which contributed to demand for specialist, professional services was the growing complexity of government and especially of taxation and tariffs. Hughes (ibid.) writes:

... such was the bewildering complexity of the tariff system, that many merchants did not feel equal to the task of calculating the amount of customs duty payable on a normal consignment of imports: they had recourse to an expert in the Long Room at the Custom House ... just as modern firms make use of chartered accountants to prepare their income tax returns.

(ibid., p. 47)

Land may therefore not have been the most important factor leading to the demand for professional-type services, at least not by the mid-eighteenth century. Legislation and trade were perhaps even more important factors. However, the argument offered by

Russell (1980) on the supply side is less debatable. The gentry seem initially to have provided most of the recruits for the principal professions, though in time some entrants would no doubt have been several generations removed from their landed forebears - e.g. the sons of clergy, military officers or other professionals. These and others may be seen as members of the 'lesser gentry'.

Hughes (1952) offers an amusing extract from a letter which Lord Chesterfield wrote to a lesser gentry associate of his in 1756:

I entirely agree with you in your resolution of breeding up all your sons to some profession or other. ... I would recommend the Army and Navy to a boy of warm constitution, strong animal spirits and cold genius; to one of a quick, lively and distinguished parts - the Law; to a good, dull and decent boy - the Church, and Trade to an acute, thinking and laborious one.

(cited in Hughes, 1952, p. 47)

Some among the merchant class may also have been in a position to put their sons into a profession, providing they could secure the necessary patronage. But Russell is right to the extent that ownership of land was at the heart of belonging to the gentry and, in practice, belonging to the gentry was the best guarantor of entry into a profession, at least until professions had expanded much further.

Blossoming of professions and broadening of entrant bases

There seems little disagreement that the great blossoming of professions started in the nineteenth century. The main trigger seems to have been the Industrial Revolution and its associated economic and social changes. But land reforms, the growth of trade, the demands of an expanding Empire and other factors such as population increases also contributed. These led progressively to the opening up of entry into the professions to a wider cross section of society as 'who you were' and 'whom you knew' became slightly less important.

According to Reader (1966, pp. 98-99), "Between 1855 and 1873 the old official world of patronage, purchase, nepotism and interest was turned upside down". Reader was referring to the introduction of more rational entry requirements which will be discussed in the next section. His acclamation does rather exaggerate the speed with which professional entry became possible for all but a well educated, and reasonably wealthy, élite. Indeed Reader later concedes that even after the reforms in entry requirements had taken place, fees for tuition and examinations and/or pupillage put most professions out of the reach of all but the better off families. He points to two notable exceptions - the Civil Service, where entry was by open competition, and Engineering, "... if only because no one could draw a hard and fast line between any of the rungs of the ladder which ran upwards

from dirty-handed fitters like the young George Stephenson to the proudest consulting engineer who ever graced the Institution [of Mechanical Engineers]" (ibid., pp. 123-124).

By the reign of Victoria, a wide range of professions had become established and their influence on many aspects of life was considerable, as Russell (1980) relates:

... the archetypal Victorian men - the doctor, the clergyman, the lawyer, the civil servant, the colonial administrator, the architect, the army officer, the schoolmaster were all professional men and it was these men that had such a profound influence on the shaping of Victorian society and a significant influence on national affairs ... Whereas in the eighteenth century, the professions had been small, high status élites, they rapidly developed in the nineteenth century into large organisations whose numbers were measured in thousands, rather than hundreds.

(ibid., p. 22)

Evidence of the rapid growth in professions during the Victorian era is supplied by Reader (1966, p. 149). By the year 1881 (two thirds of the way through Victoria's reign) there were:

- 15,100 physicians, surgeons and other medical doctors;
- 3,600 dentists;
- 17,400 lawyers; and
- 15,000 home based army and naval officers.

If these are compared with the figures quoted earlier for little more than a hundred years before, the rate of expansion becomes obvious.

Growth in professional associations

The Victorian period also saw the establishment of a number of key professional bodies, some of them with Royal Charters. These included the Law Society (1825), Royal Institute of British Architects (1834), Royal College of Veterinary Surgeons (1844), Institution of Mechanical Engineers (1847), British Medical Association (1856), the Surveyors' Institute (1868) and the Institute of Chartered Accountants (1880) (Carr-Saunders 1928, pp. 4-5; Vollmer and Mills, 1966, p. 3). A number of these quickly expanded beyond the shores of Britain, becoming effectively Empire-wide bodies (Johnson, 1984). Many soon began to concern themselves with issues of professional behaviour as well as qualifications, making explicit the ethical dimension of professional practice.

Thus, the scene was set for the continuing expansion of professions which became a dominant feature of the twentieth century. A template had been created, or rather consolidated, which would influence the form and structure of a succession of new professions as they emerged in response to the needs of an ever more complex and technologically based society.

Early Pre-entry Requirements

Before the late nineteenth century, none of the prototype professions looked for specific educational attainments as a precursor to admission. In earlier times, the main entry requirements were the ability to secure the necessary patronage, plus the 'where with all' to pay the necessary fees and support the pupil through a long period of apprenticeship. This typically lasted around five years (Reader, 1966). The only academic requirements were a liberal education, consisting of the classics (Greek and Latin literature) with some mathematics. The common view of the time was that such an education would so train the mind of a young person as to enable him to master any other subject in the future. A scientific or vocational education (where available) was considered to be inferior to a liberal one, and unnecessary for entry into the professions (Silver and Brennann, 1988). Such an education was reserved for those destined to become merchants or artisans.

Thus, whether entry was sought to the Law or Medicine, before the nineteenth century the requirements were exactly the same. They were:

- having the necessary social standing;
- having a basic liberal education;
- having the right contacts to enable a patron/principal to be found; and
- being able to afford the fees and long period of little or no earnings.

Similarly, admission to the Church relied more on having the right social background, being able to command the trust of a patron and, perhaps, being of appropriate character, than on any knowledge of divinity or scripture (Russell, 1980). This may seem somewhat ironical, given the Church's historical links with education, to say nothing of its central role of divine teaching.

The paucity of scriptural learning is borne out by Hoare (1911) who cites a 'visitation'¹ report by Hooper, a Bishop of Gloucester in the late sixteenth century. Apparently, the Bishop decided to administer a simple oral test to each of his 311 clergy and seems to have been somewhat perturbed, if not entirely surprised, to find:

... no less than 168 unable to repeat the Ten Commandments, 31 ignorant of whence the said Decalogue came, 40 who could not repeat the Lord's Prayer and about the same number who did not even know to whom it should be ascribed.

(cited in Hoare, *ibid.*, pp. 131 -132)

Confirming the often poor standard of entrants to the ministry, Betty (1979, p. 71) relates that between the years 1562 and 1569, a Lancashire prelate, Bishop

¹ A visitation is a tour of inspection conducted by a Bishop or other senior Churchman.

Downham, ordained 176 priests, of which none was a graduate and 56 were noted as being 'tolerantia domini episcopi' which, according to Bettey, indicates they were ordained in spite of their educational shortcomings.

Heterogeneity

It would be wrong to suggest that all clerics in the sixteenth and seventeenth centuries lacked learning. They did not. There was in fact a considerable variation in education levels within the Church. According to Charlton (1973), parish priests were, "... sometimes university graduates, sometimes illiterate" (ibid., p. 22). This may be an exaggeration so far as the claim of illiteracy is concerned. Reader (1966) is rather less strident in stating:

A parson need not be a scholar. Many men of no intellectual pretensions at all who sought a decent unexciting livelihood, and whose consciences did not strain at the general acceptance of the doctrines of the Church of England, found the prospect of holy orders very agreeable. For a few the Church was a compelling vocation: for a few at the other end of the scale of sincerity it looked like a road to riches and power. For most, it offered a leisured life in the country, lived in very much the same way as the parson's lay neighbours of his own social standing.

(ibid., p. 12)

In 1662, new conditions for entry into the priesthood were laid down in the Book of Common Prayer. This specified that before admitting a man to the office of deacon, a Bishop should satisfy himself that the candidate was, "... a man of virtuous conversation, and without crime ... learned in the Latin Tongue, and sufficiently instructed in Holy Scripture" (ibid. p. 528). But, this requirement was rarely taken seriously for at least another 200 years. Indeed, Charlton (1973) tells us there was a serious debate within the Church during the seventeenth century as to whether or not it was necessary for a priest to be educated at all, beyond basic literacy, in order to fulfil his prime function. Charlton sums up the arguments on both sides with the words:

If the function of a priest was to go through a pre-ordained ritual laid down in the Prayer Book and to read a chosen piece from the Book of Homilies, then obviously he had no need for higher education. If his main function, however, was preaching and, in particular preparing his own sermons rather than reading a homily, and interpreting, rather than reading scriptures, then a learned clergy was essential.

(ibid., p.25).

Charlton relates that some, especially amongst the sectaries¹, argued that higher learning could actually form a buffer between the priest and his flock, making it difficult to reach out to them. The argument was more than simply a technical one. It was also linked to status and politics. Of those who took the anti-higher learning view, Charlton says:

¹ Sectaries were 17th and 18th century dissenters from the Established Church.

... their attack was not only on learning as such, but on the institutions providing that learning, the universities, filled as they were with dissolute dons corrupting their willing students with the examples of their own life style, emphasising hierarchy by their distinctions of academic dress, academic degrees, academic ritual and ceremony, basing their teaching on pagan philosophy, and even putting forward the heathenistic notion of learning for the pleasure of learning"

(ibid., p. 25)

Charlton adds that even the wearing of vestments and surplices was seen by some as a continuation of academic ritual and the reinforcement of a hierarchy based on learning.

The other professions seem largely to have been spared such controversies, their traditional (and narrow) recruitment practices remaining unchallenged until well into the nineteenth century.

So much for early requirements for entry into the professions. What of the process of professional development and the testing of professional competence once a profession had been entered? This is an even more complex and fragmented story.

Developing, Testing and Accrediting Professionals

Informal approach

From early times, professional development in all professions took the form of apprenticeship. Little formal training was available and, where this did exist, was not compulsory. Equally optional was the element of related reading or self-study.

Although there were a few minor exceptions (discussed later), the pre-nineteenth century attitude towards professional development could be characterised as one of 'voluntarism'; things were left largely to the trainee himself - and his principal. However, a number of professions did require practitioners to be licensed.

Licensing

Sometimes practitioners were licensed by the Church, sometimes by a learned body such as the Royal College of Physicians. But the issue of a licence does not seem to have depended on the completion of any elaborate course of theoretical instruction, or rigorous examination. The controlling authorities, as Millerson (1973) puts it, "... required only limited evidence of competence, only attachment to traditional [apprenticeship] forms of training" (ibid., p. 8). Competence testing was virtually non-existent in most professions until well into the nineteenth century.

Even within Medicine, arguably the most developed and learned profession of its day, there was an absence of written qualifying examinations or formal practical tests prior to licensing (Reader, 1966). In relation to the Royal College of Physicians, there was a short interview or viva voce, sometimes conducted in Latin, but apparently very few candidates failed. Between 1823 and 1833 a total of 126 licentiates were admitted and only seven were rejected. In respect of fellowships, the rigour does not appear to have been much greater. Between 1771 and 1833, the College admitted 168 fellows and rejected only four (Reader *ibid.*, pp. 44-45). But even these requirements were tighter than for the Law. As Reader puts it, "At the Inns of Court ... there was no pretence of examining intending barristers. The call [to the Bar] depended on eating the right number of dinners and paying the right fees" (*ibid.*, p. 45).

Earlier rigours eroded?

Paradoxically, Carr-Saunders and Wilson (1933) claim that both training and testing had been features of certain professions in earlier times, but by the eighteenth century had fallen into disuse. They state:

Training through apprenticeships and testing at the time of admittance to full membership were characteristic of the Guild system. In the Middle Ages, surgeons and apothecaries, no more and no less than other vocations organised in this way and were thus trained and tested.

(*ibid.*, p. 307)

In relation to the legal profession, they tell us that the practice of moots (or mock trials) organised by the Inns of Court were an early feature. However, these too had 'fallen by the wayside' by the time of the Civil War [1660]. It was then, the authors claim, two centuries, i.e. not until around 1860, before legal education was again taken seriously. They report that the physicians suffered a similar dislocation of their training and competence testing, and write:

By the 18th. century, the Royal College of Physicians and the Inns of Court had ceased to interest themselves in training, and tests imposed upon entrants were of no value; in the case of the former, they were little more than tests of social accomplishments. The surgeons and apothecaries, however, so far from allowing their systems of training and testing to decay, were devoting themselves to improvements.

(*ibid.*, p. 309)

The comment about surgeons and apothecaries is interesting. It seems to conflict with the writings of other authors, who speak of a general lack of training and testing amongst professions. It is possible that these authors simply exclude such groups, concentrating instead on physicians, lawyers and clerics. Unravelling this discrepancy would seem to be an unnecessary diversion, but Carr-Saunders and Wilson's wry comment is worth relating. Of surgeons and apothecaries they observe, "Since these professions were not 'fit for

gentlemen', social accomplishments played no part, and technical competence was [therefore] demanded" (ibid., p. 309).

Within the general era of voluntarism, there were other isolated examples of professions, usually more minor ones, attempting to formalise the testing, if not the development, of competence. One such can be found within a branch of the legal profession where, as early as 1739, the Society of Gentleman Practitioners in the Courts of Law and Equity was established by Act of Parliament (2 Geo. II, 1.23). This sought, amongst other things, to regularise entry by requiring a five year apprenticeship, followed by an examination by a judge (Russell, 1980). Russell does not comment on the rigour with which the latter was carried out.

Educational preparation

Millerson (1973) asserts that the general ambivalence towards professional qualifications, common until the second half of the nineteenth century, was largely the fault of the general educational system. This, he argues, consisted of, "... an uneven system of primary education, a rudimentary form of secondary education, mainly catering for the functionless gentlemen of the future, and an archaic and underdeveloped structure of higher education" (ibid., p. 8). However, this may raise something of a 'chicken or egg' question - were the professions ambivalent about relevant qualifications because the educational system did not offer these, or did the educational system not offer them because the professions did not demand them? In truth, there was probably an element of both.

Russell (1980) suggests that it was the public schools that in the late nineteenth century led the way in introducing subjects that would more readily fit pupils for entry into the professions. More controversially, he argues they were also influential in, as he puts it, "... imparting the professional ethic, the notion of 'duty' and 'principles', to those aspiring to the professions" (ibid., p. 25).

Whether this argument is accepted would be very much dependent upon whether one accepts the view that individual professionals were imbued with such motives. Some no doubt were, but it is unknowable whether this was a general trait. What is known is that, collectively, professional bodies did start to concern themselves with professional conduct and ethics though the reasons for this are debatable. The fact that professions felt it necessary to have written codes of conduct and disciplinary procedures suggests that there were significant numbers of individuals who had not absorbed Russell's public school ethos.

Did informality equate to incompetence?

The early reluctance of the three leading professions to specify compulsory, formal training requirements or test the competence of would-be practitioners may seem strange to modern eyes, yet it has to be remembered that these professions were themselves rudimentary. They lacked established and coherent knowledge bases, and issues of public protection and quality of service were probably not high on their agenda.

Nevertheless, the absence of formal requirements should not be seen as indicating a lack of recognition of the importance of professional competence. There was certainly a belief that if a man was not to be seen as a charlatan, he needed to be good at his art, and a vague recognition that appropriate study might be important to this. But it was assumed that a diligent, prospective practitioner would undertake any necessary study on his own, without the need for compulsion, and that the apprenticeship arrangements within his profession would ensure that, in time, he developed the necessary skills.

From the public's point of view, there was often no benchmark against which professional competence could be judged. Providing a man sounded plausible, the public were in no position to distinguish between barmy hypothesis and scientific fact.

The relaxed attitude towards professional qualifications, common in the eighteenth century, inevitably led to a fragmented take up of such specialist educational opportunities as were on offer, as Millerson (1973) writes:

Clergy of the Church of England were not required to undertake courses in theology or show successful completion of any courses taken. Doctors could attend some form of training in hospitals or private medical schools, but qualifications were not insisted on before practice. While the universities of Oxford and Cambridge provided degrees in medicine and the Royal Colleges of Physicians and Surgeons offered membership as qualifications, these measures of tested competence, such as they were, did not seem to be readily sought or expected. Only in the central area of London was there some restriction over practice exercised by the Royal College of Physicians.

(*ibid.*, p. 8)

Within the legal profession there was a similar ambivalence to formal study. There was also what to our eyes might appear to be a somewhat naive belief in a kind of natural selection process which would allow only the competent to practice. Referring to barristers in the early nineteenth century, Carr-Saunders and Wilson (1933) remark:

It was felt that the keen competition at the Bar, combined with other circumstances, was such as to make it impossible for the incompetent to establish themselves in Practice. So the student was left to himself to learn the principles of the Law out of text books and its practice from attendance at court.

(*ibid.*, p. 48)

According to the authors, Bar examinations were not instituted until 1872. However, the lack of formal examination does not, in itself, mean there was an ignorance of developmental processes. It may be that senior professionals of the day accepted intuitively what we appear now to be rediscovering - that competent practice involves a considerable amount of practical or tacit knowledge, or what Schön (1983 and 1987) calls 'knowing-in-action', and that this may best be learned by working with more experienced practitioners.

Of the period before Bar examinations were introduced, Reader (1966) is rather more sympathetic than some other writers in stating:

... the usual method of learning to be a barrister was a mixture of apprenticeship and private reading ... and virtually the only formal requirement, apart from the payment of fees, was to appear at one's Inn often enough to eat a stipulated number of dinners, which was not so eccentric as it sounds since, in theory at least, it was a method by which all the members of the profession, senior and junior, could get to know each other.

(ibid., p. 22)

The eating of dinners at the Inns of Court may have also aided the process of professional socialisation which, as Millerson (1973) points out, is an important aspect of the development of any professional. It is through such a process, he argues, "... the student acquires the values, the beliefs, the attitudes and assumptions associated with the right and wrong ways of behaving as a professional. This may require unlearning previous patterns of behaviour and extending existing ones" (ibid., p. 12). He suggests that the process of professional socialisation is often informal and sometimes non-verbal.

This is another area in which the insights of earlier generations on what it means to be a professional, and how this can best be acquired, may have been lost in the process of 'curriculising' everything, though it should be noted that the tradition of eating dinners has survived to this day for trainee barristers, perhaps for good reason.

The consolidation of formal educational requirements

Gradually as the nineteenth century unfolded, partly as a result of pressure via various quasi-governmental bodies, e.g. 'The Select Committee on Medical Education' (1834), the medical and legal professions began to introduce formal qualifying examinations. The practice soon began to snowball through other professions such that by the end of the nineteenth century, the scene had changed radically. Most of them had formal entry requirements and most had formal qualifying examinations. Some examples are:

- from 1874 onwards all officers of cavalry and infantry had to take a course of professional education at Sandhurst before they took up their first appointments;

- in 1870, by Order-in-Council, open competition was laid down as the method of entry to nearly all branches of the Civil Service (Russell, 1980, pp. 96-98).

As Reader (1966, pp. 98-99) puts it, "Between 1855 and 1873 ... examinations, both qualifying and competitive [entry], came to the centre of the stage ..." . The age of the written examination had arrived. Of this new era, Carr-Saunders and Wilson (1933) write:

Since the beginning of the nineteenth century there has grown up a new system of training and testing. The main features of the new system have been the abandonment by professional organisations of the responsibility for providing training, the rise of institutional education, the recapture of part of the field by the universities, and, most important of all, the invention, for it is nothing less, of the modern examination mechanism.

(ibid., p. 310)

They continue, "... examinations of the type with which we are familiar hang about us almost from birth. We are apt to regard them as a necessary evil of the flesh, as a kind of primitive curse. But they are modern ..." (ibid., p. 310).

The authors believe that what they describe as the 'invention' of the examination system had two separate roots. These were:

- the desire by universities to force students into greater diligence;
- the need by professions to test the competence of those to be allowed to carry out certain tasks.

On the latter point, the authors do not discuss the suitability of examinations for actually testing competence. They seem to take it for granted that they were capable of doing so, perhaps equating theoretical knowledge with professional competence. Be that as it may, they tell us that the idea of the examination paper was first introduced in 1828, the most novel feature being its 'extemporaneous nature' - i.e. the fact that candidates did not know in advance what questions they would be asked.

Despite this radical innovation, Reader (1966, pp. 117-118) claims that, "... in nearly all professions when examinations were introduced, a period of apprenticeship or pupillage was required as well, and it was assumed that the study required for examinations would be fitted into the interstices of work in the office or workshop". In other words, the studying could be done part-time. Displaying at least a tacit attachment to the 'technical-rational' paradigm, Reader remarks, "It is in the depth of theoretical knowledge, as much as in anything else, that a professional man differs, or ought to differ, from a tradesman. And theoretical knowledge is not easily acquired by apprenticeship ..." (ibid., p. 117).

In certain professions things were moving 'at a pace' and in 1858 an Act of Parliament required all doctors to have degrees (Eraut, 1994). By the middle of the 1870s, in the medical profession, apprenticeship had been replaced by full-time studentship (Reader, 1966). It might be argued that the age of 'technical-rationality' had truly begun. However, in other professions a university based education was still not seen as essential. For example, only 70% of barristers were graduates in 1875, and graduate status did not become compulsory for another hundred years (Eraut, 1994, p. 8). Clearly, the Bar examinations, which had been introduced in 1872, were considered adequate.

Remaining permissiveness

Even as the traditional professions were introducing entry qualifications, studentships and qualifying examinations, Engineering, was displaying a similar reluctance to stipulate standard requirements as previously the Law and Medicine had done. Reader (1966) comments, "Although theoretical training and formal qualifications ... were desirable, they were not absolutely required, as medical and legal qualifications were ..." (ibid., pp. 123-124). This had the advantage of allowing promising, young mechanics to work their way up. But as Reader puts it, there was a "darker side" to such permissiveness. He cites the writer and poet, Matthew Arnold, who in 1868 quoted a leading public figure as saying:

Our engineers have no real scientific instruction, and we let them learn their business at our expense, by rule of thumb; but it is a ruinous system of blunder and plunder. A man without the requisite scientific knowledge undertakes to build a difficult bridge; he builds three which tumble down, and so learns to build a fourth which stands; but somebody pays for the three failures. In France or Switzerland he would not have been suffered to build his first until he had satisfied competent persons that he knew how to build it, because abroad they cannot afford our extravagance.

(cited in Reader, 1966, pp. 124-125)

A similar view was apparently shared by eminent figures within the Engineering profession. Both Henry Bessemer and Joseph Whitworth were apparently disturbed by the lack of facilities for the professional education of engineers and Whitworth donated substantial sums of money for this purpose (Reader, 1966). Another prominent figure, Sir John Rennie, urged that no one should be allowed to practice as an engineer without a certificate of competence granted after proper examination. "This is the rule", he wrote, "in every other learned profession, and there can be no reason why it should not be adopted by the engineers ... At present ... any man ... competent or not, dubs himself an engineer... and issues a prospectus to the public" (cited in Reader, 1966, p. 125).

Reader (ibid.) points out that the collapse of the newly-built Tay Bridge in 1879 seemed to confirm the worst fears of contemporary critics about the competence of British engineers.

Yet the permissiveness was allowed to continue, partly because of the lack of the same degree of statutory backing for Engineering as had been afforded to the Law and Medicine, and partly because the profession itself was slow to impose formal entry conditions.

Professional Education Provision

As formal qualifications for professionals became established, first within the Law and Medicine, and later within other professions, facilities for providing aspiring professionals with relevant specialist and technical education gradually developed. Initially, these tended to be in places other than the established universities.

Academic inertia

The two main English Universities, Oxford and Cambridge, were initially resistant to the idea of introducing professional courses. Silver and Brennan (1988) suggest that this was largely due to their adherence to the view that vocational education was not an appropriate form of provision for a university. A university should, it was felt, provide learning for learning's sake, rather than for the needs of a particular occupation. But this view was not without its critics.

In 1852 a Royal Commission report on the University of Oxford stated, "The education imparted [there] ... is not such as to conduce to the advancement in life of many persons, except those intended for ministry in the Established Church. Many are now called to the Bar, and raised to the highest judicial functions, who have not been members of any University ... Few physicians are now educated at Oxford. Nor do many persons take a degree with a view to enter into the legal profession as solicitors, though the legislature has given graduates an advantage as regards the duration of their articles" (cited in Reader, 1966, p. 128).

The Commissioners also observed that although the great bulk of Oxford men went into the Church, even in this field, "... no efficient means at present exist in the University for training candidates for holy orders in those studies which belong peculiarly to their profession" (cited in Reader, 1966, p. 128). The Commissioners apparently particularly deplored the neglect of Civil Engineering and Medicine by the University. They noted that over ten years there had been an average of only four MB degrees awarded annually.

Despite such powerful critics, the idea of universities offering professional, rather than the traditional, liberal education remained controversial (Silver and Brennan, 1988). Thus in 1867 the respected philosopher, John Stuart Mill, pronounced:

Universities are not intended to teach the knowledge required to fit men for some special mode of gaining their livelihood. Their object is not to make skilful lawyers or physicians or engineers, but capable and cultivated human beings ... What professional men should carry away with them from a university, is not professional knowledge, but that which should direct the use of their professional knowledge, and bring the light of general culture to illuminate the technicalities of a special pursuit.

(Mill, 1867, pp. 4-5; cited in Silver and Brennan, 1988, p. 8)

Mill apparently neglected to suggest where or how professional knowledge ought to be acquired, if not at a university. The statement was made by Mill during his inaugural address to St Andrews University and, despite his own conservative views, the universities in Scotland (and Ireland) were quicker to take up the challenge of professional education than those in England (Reader, 1966). But, by the end of the nineteenth century, a number of university colleges (often later to become universities) and other specialist colleges or technical institutes were formed around the country, especially in industrial areas.

As new universities began to emerge in the early twentieth century, they also displayed an initial reluctance to teach subjects linked to newer professions, such as Accountancy and Librarianship. Instead they tended to stick to Law, Medicine and sometimes Engineering. This forced a number of professions to look outside the university system for provision, sometimes setting up their own facilities, including correspondence courses (an early form of distance learning) (Millerson, 1973).

Varying patterns of professional education

Considering professions as a whole, Millerson (1973, pp. 8-9) argues that professions adopted three different approaches towards education, sometimes of necessity:

- some were able to work within the general educational system;
- some were able to adapt the system to their needs;
- some were forced to develop their own structures outside the general education system.

He suggests that as professional bodies began to recognise the importance of professional training, they responded in three different ways:

- some, e.g. doctors and vets, strengthened existing training and organised examinations;
- some, e.g. pharmacists and actuaries, provided examinations and specially organised tuition;
- others, e.g. solicitors, architects and engineers, stuck to the apprenticeship/pupillage approach with or without examinations, at least for a while.

In a few areas, government intervention was considered necessary in order to secure adequate provision. One such was Teaching. Here, government action resulted in the first 'day training colleges' for teachers being opened in 1890. By 1899, these were providing one fifth of the country's total supply of teachers. After 1904, all sizeable local authorities were encouraged to set up such colleges and by 1914, twenty two were in existence. In 1911 the British Government first offered grants to teachers in training (Dobson, 1973).

Dobson traces the development of teacher training through a number of 're-examinations' of policy and philosophy. These were reactions in part to the changing needs of the classroom, in part to the supply and demand of teachers, and in part to different political ideologies. This provides a useful illustration of how models of professional development can be influenced by a range of factors, some of which are unrelated to considerations of formative effectiveness.

Across professions as a whole, Millerson (1973) argues that four broad models of professional development have evolved. These are:

- university training including practical work over a prolonged period- e.g. doctors, vets, dentists;
- university degree or equivalent with full-time or part-time training over an extended period - e.g. engineers, architects;
- period of full-time sandwich courses - e.g. accountants;
- no full-time means of qualification but education via part-time study of some kind.

These distinct approaches appear to hold good up to the time of writing.

Professions and the educational system

There has been a two-way interaction between professions and the education system. Professional entry and educational requirements have to some extent evolved to fit in with available facilities and qualifications (especially at the entry level), and educational provision (especially at higher levels) has itself adapted to suit the needs of professions. Of the British education system as a whole, Millerson (1973) observes that:

... since the beginning of the nineteenth century ... there has been a gradual and definite interlocking of the systems of primary, secondary and tertiary or higher education which has affected patterns of entry, curricula, teaching methods etc. Education has largely come to mean some form of institutional training. There has also been a move to almost complete dependence upon written examinations as the main criteria of success at each stage in the system.

(ibid., p. 7)

These developments, Millerson suggests, have led to a number of important changes which have impacted on professions:

- increased opportunity for specialisation in education leading to greater occupational differentiation;
- a move from a reliance on practical training and experience towards a strongly academic, theoretical base;
- a reduction in occupational 'self-recruitment' and a greater openness of entry to professions by different sections of society;
- the erection of barriers or hurdles at various stages in the system which restrict entry to subsequent stages;
- success at different hurdles giving differential access to occupations, and progress through the system gradually restricting choice of career as alternatives open and close;
- education has become the main means of access to high status occupations [i.e. professions] and to social mobility (ibid., p. 7).

Within professions too, important changes have taken place. In certain professions there is not just one qualification available, but a range of qualifications, some in different specialisms, some at different levels. Millerson (1973) illustrates this point in relation to the medical profession:

At the beginning of the nineteenth century, there were a few unimportant qualifications available; education was mainly in the form of practical training through apprenticeship; practice was largely undifferentiated; there was limited contact or overlap with other professions or specialisms. Today, there is increasing sub-specialisation, an intensive expertise and a move away from an emphasis on general practice; there is a greater interaction with other kinds of specialists (academics, administrative personnel, technologists and technicians, researchers); there are more clearly defined career patterns which restrict transfer, and there is an emphasis on a strong academic and theoretical base which is acquired only at university medical schools.

(ibid., pp. 7-8)

Some Lessons for this Research

A number of tentative lessons can be drawn from this historical review which can inform the research.

Professions have evolved in a fragmented and differential manner. This has resulted in considerable heterogeneity both within and between professions. Therefore, any research which seeks to identify generalised characteristics and attributes across professions must exercise caution.

Ideas about professionalism and models of professional development currently in use may be influenced as much by earlier traditions as by the needs of present day practice. Such traditions may inhibit innovation and modernisation.

Dominant paradigms of development have changed over time, though surprisingly little during the past century. As professional development became formalised, the main effect was to establish the dominance of specialist knowledge and theory over practice skills. This may have caused some earlier insights to be lost, e.g. those relating to the acquisition of competence through informal methods, including working alongside experienced practitioners and other features of apprenticeship. Any new paradigm should, perhaps, take account of such learning processes, along with those linked to more formal methods of instruction.

The concern of professional bodies with status may be partly rooted in the identification of early professionals with the gentry. It may reflect a desire to recapture some lost golden age when professionals were a respected and privileged élite. Nonetheless, the social dimension of present day professions cannot be ignored. If professionals are to function effectively, they need the confidence, and perhaps the respect, of the public, and social factors may play a part in these. Earlier concerns with professional etiquette and behaviour, apparent for example in the Inns of Court dinners, may have been justified. Professional socialisation, i.e. the acquisition of appropriate behaviours, including how to interact with colleagues, may still be important elements of professional formation. Any model of professional competence should, perhaps, encourage the development of such behaviours along with more general social skills.

Professional Associations have from early in their history recognised the need for ethical behaviour by their members, at least in so far as professional conduct is concerned. This may have been partly to protect the reputation of the profession, and partly in recognition of the position of power professionals often have over their clients. Whatever the reason, ethical codes have become common among professions. This suggests there ought to be an explicit ethical strand within professional development programmes and a recognition of the importance of ethical judgement and behaviour within any model of professional competence.

Having moved swiftly through 300 years of professional history, the next chapter will look at the concept of competence - the various ways in which it may be understood and some of the debates the concept has generated.

.....

Chapter 3

Competence: Literature Study, Part 2

Chapter 3

Competence: Literature Study, Part 2

Introduction

This chapter will draw on the literature to explore the nature of competence and the various ways in which it may be understood, articulated and recognised. It will also consider the applicability to professional development of several different perspectives on competence.

Chapter layout and content

The first section will discuss briefly the problematic nature of competence. It will identify a number of conflicting views of the concept and will propose an understanding of the term 'competence' for use within this research. Sections two, three and four will examine in some detail three perspectives on competence potentially of relevance to professional development - the 'reflective practitioner' approach, the 'functional competence' approach and the 'personal competence' approach. In each case, critiques will be offered. Section five will consider the concept of 'meta-competence'. The final section will look at ways of assessing professional competence.

A Problematic Concept?

The term 'competence' can have quite different connotations, depending on the circumstances and contexts in which it is used. As Eraut (1994, p. 166) points out, it can have, "... the positive meaning of 'getting the job done' or the negative meaning of 'adequate but less than excellent'".

A number of writers clearly adopt the second of these interpretations, seeing competence as only part of the way along a continuum that leads from novice to expert (Pearson, 1984; Dreyfus and Dreyfus 1986; Cornford and Athanasou, 1995). The UK Government on the other hand, within its occupational standards programme, described later in this chapter (pp. 71-72), sees competence as the goal of all employees, the badge of effective performance, not simply a step along the way to some higher state of proficiency. It defines competence as, "... the ability to perform the activities within an occupation or function to the standards expected in employment" (Stuart, 1989).

More narrowly, Maatsch (1990, p. 103) suggests that competence should be seen as, "... distinct from and somewhere in between knowledge and performance [or as] ... using knowledge to solve problems".

Competence, however defined, is arguably not directly observable but rather, as Holmes and Joyce (1993) point out, is, "... an inference made from observed performance" (ibid., p. 40). The same kind of distinction is made by Gonczi et al. (1990).

Usage of the word 'competence' can be different in different environments. For example, in education, as Barnett (1994) suggests, competence is, "... built around the sense of a student's mastery within a discipline", whereas in vocational settings there is what he calls, "... an operational conception of competence ... essentially reproducing wider societal interests in performance, especially performance likely to enhance the economic performance of UK Inc." (ibid., p. 159).

Therefore, some of the disagreements about the term may stem from the context in which competence is being considered, while others relate to the way competence is perceived and understood. Within this thesis, competence will be understood neither as a mediocre level of performance, nor as a fixed and ultimate goal. Instead it will be seen as a dynamic condition which will be defined as: *overall effective performance within an occupation which may range from the basic level of proficiency through to the highest levels of excellence*. A definition of 'professional competence', adopted for the purpose of this research, is offered at the end of this chapter (p. 95).

Apart from disagreements about the term itself, there are competing views of how competence should be recognised, or through what sort of indicators it should be inferred. Tate (1995) suggests there are currently three broad models of competence in use:

- the *input model* - this focuses on the intellectual, social and emotional attributes of an individual;
- the *output model* - this defines the outputs that need to be achieved; and
- the *process model* - this spells out the functions that need to be performed.

This analysis provides a useful starting point but seems an over simplification. In practice, what Tate refers to as the *process model* is often combined with his *outputs model* to link functions to be performed with desired outputs. This is the case, for example, within the UK occupational standards approach where the functions to be performed are described in the standards, and candidates are assessed against outputs or, as they are more generally called, 'outcomes'. Even inputs and outputs are sometimes combined within a single approach. Thus Gonczi et al. (1990), in Australia, offer the following definition: "A competent professional has the attributes necessary for

job performance to the appropriate standards” (ibid., p. 9). In this definition, attributes may be seen as *inputs* and job performance as *outputs*.

This thesis offers an alternative analysis of the main perspectives on competence. It argues there are three distinct approaches which are of particular relevance to professional occupations. These are:

- i) The Reflective Practitioner approach;
- ii) Functional Competence approaches; and
- iii) Personal Competence approaches.

The first of these is strictly speaking an epistemology of professional practice and perhaps a paradigm of development, rather than a model of competence. However, it has become closely associated with professional competence and undoubtedly offers illumination in this area. In view of the particular relevance of all three perspectives to this research, they will each be examined in some detail.

The Reflective Practitioner Approach

In his seminal work, ‘The Reflective Practitioner’, Schön (1983) challenges the conventional, ‘technical-rational’ view of professional practice. This holds that professionals operate by putting into practice their formally-learned specialist or technical knowledge. Schön rejects the logic of a direct link between basic science, applied science and practice. This, he believes, is a fallacy which has its origins in Positivism, the powerful nineteenth century philosophy that held that all human problems, whether technical or social, were susceptible to the application of scientific principles and methods.

Schön’s view of professional practice

Offering an alternative epistemology, Schön argues that the application of theory is not the only, or even the main, way in which professionals go about solving problems. He believes they use a form of tacit knowledge, i.e. knowledge linked to specific activities, which he calls ‘knowing-in-action’. They also develop ‘repertoires’ of solutions and learn how to ‘re-frame’ and ‘re-name’ difficult problems in order to address them more readily. Schön views professional practice more as a form of ‘artistry’ than applied theory. This is especially important when professionals are operating in ill defined or ambiguous areas - what Schön terms the ‘indeterminate zones’. He argues that factors such as complexity, instability, uncertainty, uniqueness and value-conflict are not readily susceptible to the technical-rational approach and asserts:

... even when a problem has been constructed, it may escape the categories of applied science because it presents itself as unique and unstable.

(ibid., p. 41)

For Schön, the key competence required by all professionals is 'knowing-in-action'. This is a type of knowledge that often defies articulation or formal inculcation, but may be absorbed through close contact with experienced practitioners. According to Schön, one developmental setting in which knowing-in-action may be acquired is what he calls the 'reflective practicum'. This is an environment in which trainee professionals work closely with experienced practitioners to tackle real problems (Schön, 1987). Examples of such a setting may be found in design studios, musical conservatoires and art master classes.

Schön bases the reflective practicum model largely on his work within a School of Architecture but argues that other fields of professional practice are also, "design like" (ibid., p. 173). This should, he suggests, make them susceptible to a variant of the design studio model.

According to Schön, the other crucial competence, professionals require (apart from knowing-in-action) is 'reflection'. This is important for initial development, day to day practice and continuous improvement. Two kinds of reflection Schön identifies are 'reflection-in-action' - i.e. in the middle of an activity, and 'reflection-about-action' - i.e. after an activity. He acknowledges that the notion of reflection-in-action may be a source of concern to some people who may fear it will interfere with a professional's flow of action, which in certain situations could be disastrous. However, he suggests that action can be maintained while reflection is taking place through what he calls 'double vision' - i.e. a capacity both to concentrate on what is being done and observe it, as it were from a distance. He argues, "The fear of a paralysis induced by reflection, like the belief in the indescribability of artistry, comes not from the experience of practice, but from a lingering model of practical [technical] rationality which is [itself] much in need of reflection" (ibid., p. 281).

Schön accepts that the difference between 'knowing-in-action' and 'reflection-in-action' may sometimes be quite subtle. Examples he offers of activities which display a combination of each are sight reading a new piece of music, and jazz improvisation. More mundanely, he suggests that good conversation involves a similar application of these two competencies.

Some shortcomings in Schön's analysis

Schön's 'new epistemology' of professional practice, 'reflection-in-action', and in particular the associated concept of the 'reflective practitioner' have become core doctrine within many professional education programmes, though they have been less pervasive of professional development more generally. His work has also generated a considerable literature, much of it offering uncritical discipleship. However, there are a number of problems with Schön's approach.

As previously noted, Schön offers an epistemology of practice (a hypothesis of how professionals 'do what they do') and a broad paradigm of development, but does not provide a comprehensive model of professional competence. Nor does he offer any detailed analysis of the types of attributes needed by professionals. Knowing-in-action and reflection, alone, would seem too scant a template for developing professionals. To boil all professional competence down, essentially, to two attributes appears overly reductionist.

Schön bases his ideas largely on his work with a narrow group of professionals - i.e. architects, planners and later psychologists. The general applicability of his hypothesis may, therefore, be open to question. The model may work with certain types of profession but not with others, or in certain types of professional activity but not others. His epistemology of professional practice appears to be based on a particular kind of professional practice - i.e. practice which involves a large element of problem solving within 'indeterminate zones'. But there are other, more routine and determinate forms of professional practice. For some professions, these may be in a majority. Nor does the development of all types of competence (and associated skills) necessarily require reflection. Some competencies, for example those involving psychomotor, arithmetic or verbal skills may simply require lots of practice. In professions where these types of competence are dominant, reflection may be less important than in professions which involve a greater element of analysis, diagnosis, creativity or other cerebral activity.

One of the strongest critiques of Schön's analysis is offered by Eraut (1994) who sees in it a number of inconsistencies, weaknesses and unsubstantiated hypotheses. Eraut argues, for example, that Schön:

... does not have a simple coherent view of reflection but a set of overlapping attributes ... He selects whichever subset of attributes best suits the situation under discussion. There is insufficient discrimination between the rather different forms of reflection depicted in his many examples, and this over-generalisation causes confusion and weakens his theoretical interpretations.

(ibid., p. 145)

Munby and Russell (1989) apparently have similar concerns, stating, "... His [Schön's] work is not sufficiently analytical and articulated to enable us to follow the connections that must be made between elements of experience and elements of cognition so that we can see how reflection-in-action might be understood to occur" (Munby and Russell, 1989, p. 73; cited in Eraut, 1994, p. 147).

Much of the literature is, however, supportive of Schön, though little firm evidence is presented to validate his approach. Nor is there much discussion about the possible negative aspects of reflection - for example, the danger of becoming over self-conscious, losing confidence and, perhaps as a result, becoming less, rather than more competent.

Several writers seem to be struggling to turn Schön's ideas, especially those around his concept of the 'practicum', into developmental practices that are fundamentally different from those already in existence. For example, Glenny and Hickling (1992) describe a way of organising the practical aspects of teacher training, which the authors claim is consistent with Schön's approach. Their so called 'practicum' elements include:

- serial and block school experiences;
- individual and group-based practical projects - e.g. curriculum planning, developing school policies;
- development, within the institution, of a 'model classroom' environment (which includes working with children);
- special projects, designed to 'put students back in the pupils' place - to help them see things from their perspective (ibid., pp. 41-42).

Though sound enough, it is arguable that a number of these differ little from pre-Schönerian practices.

A review of 'reflective practice' in teacher education in the USA found a rather confused situation with teacher trainers interpreting the concept in different ways. The project report is rather equivocal in its support of what was found. It concludes:

Each of the seven programmes has unique assumptions and organising principles, some working with little more than a common-sense definition of reflection that seems to come naturally to all teacher educators. The six critiques similarly convey unique senses of 'reflection'. This collection will certainly stimulate productive thinking ... but there is no shared sense of 'reflection' to give direction to future developments.

(cited in Eraut, 1994, p. 148)

Putting Schön's ideas into practice

Few authors question the value of reflection, concentrating instead on ways of encouraging students to be reflective. A few examples of devices advocated as aids to reflection are offered below.

A number of authors recommend reflective writing of various kinds. Powell (1985) commends the use of autobiographical journals to help students reflect both about themselves and their learning experiences. He points out, "It is extraordinarily difficult to identify what one is learning when engaged in a learning task or at a time quite close to that period of activity". But acknowledging that reflection is not always easy, he continues, "At least part of the difficulty lies in the intellectual demand imposed by a sudden switching of attention which is required for immediate reflection on learning" (ibid., p. 45). Gillies and Reading (1992) also advocate the use of professional diaries and argue these not only aid reflection but also encourage students to take responsibility for their own development. They state "... the struggle to engage in this complex task, to identify skills and knowledge required and to critically evaluate personal performance, is a rich source of learning and helps the student to achieve the gamut of skills necessary for a reflective practitioner" (ibid., p. 90).

Walker (1985) too argues that writing can be a valuable aid to reflection, but the technique he advocates is to encourage students to reflect on their experiences from a number of different perspectives using a variety of 'devices'. These include:

- writing for catharsis;
- making descriptions of events
- free writing from intuition;
- use of lists;
- construction of portraits;
- sketch map of consciousness
- use of guided imagery;
- seeing things from an altered perspective;
- writing unsent letters;
- imaginary dialogues with someone else (ibid., pp. 56-57).

The use of debriefing as an aid to reflection is advocated by Pearson and Smith (1985). In describing the process, they state, "... debriefing is not a therapy, counselling or encountering, although sometimes elements of these types of activities are present ... Neither is debriefing simply 'having a chat'..." (ibid., p. 70). Reflective debriefing should, in their view, be a purposeful and planned activity undertaken with the aid of a facilitator. They

recommend that the time allocated to debriefing should not, as a general rule, be less than the time taken for the activity itself. They believe the key to successful debriefing is a high level of, "interpersonal, interventionist and timing skills" on the part of the facilitator and suggest the following simple questioning framework be used:

- What happened ?
- How did the participants feel ?
- What does it mean ?

They also advocate adoption of the following principles:

- debriefing should be given a central role in experience-based learning;
- adequate debriefing time should be deliberately planned into the learning process;
- clear objectives should be set at the outset of the activity which can later form a framework for debriefing;
- the establishment of a debriefing environment based on trust, willingness to take risks and mutual respect (ibid., p. 83).

Boud et al. (1985, p. 8) suggest that, "... the activity of reflection is so familiar to us that, as teachers and trainers, we often overlook it in formal learning sessions and make assumptions that not only is it occurring, but it is occurring effectively for everyone in the group". They recommend reflection at three stages in the learning process:

- at the start - in anticipation of the learning experience;
- during the learning experience - as a way of dealing with the vast array of inputs and coping with the feelings that are generated;
- following the learning experience (ibid., p. 10).

They believe reflective activity should be purposeful, though the particular goals may not be clear to either the learner or teacher at the time. It should be what Dewey (1938) refers to as 'conscious reflective activity'. They suggest the goal should be the, "reconstruction of experience" (Boud et al., p. 11) and offer a three stage process to aid reflection:

Stage 1 - Returning to Experience - i.e. recollection of the salient events/replaying of initial experience, either in the mind or by recounting these to others.

Stage 2 - Attending to Feelings - i.e. conscious recollection of positive feelings and the removal of obstructive negative feelings through, for example, laughing through an embarrassing incident when recounting to others - or some other form of catharsis.

Stage 3 - Re-evaluating Experience - i.e. re-examining the experience and associating it with new knowledge and applying it to the planning of new activity, possibly through some form of mental rehearsal.

(ibid., pp. 26-36)

Thus, Boud et al.'s view of reflection may be seen as in part therapeutic. It has an almost 'auto-psychoanalytical' element aimed at replacing the negative feelings associated with a particular activity with more positive ones.

Professional reflection may evolve over time. This is certainly the view of Jarvinen (1991), who conducted a useful piece of research in Finland which examined the development of reflective professional thinking in trainee teachers during their initial training period and early practice. She found that with growing experience, students' perceptions, and therefore the types of reflection they engaged in, changed. Jarvinen observed changes over time both in their *objects* of reflection - i.e. the things they reflected upon, and in their *levels* of reflection.

Different *objects* of reflection she identified included:

- their own 'professional personality';
- the process of learning and teaching;
- the content of teaching and the curriculum; and
- the educational institution (ibid., p. 534).

The different *levels* of reflection she identified were:

- [their own] technical competence;
- tools for reflective practice; and
- critical consciousness (ibid., p. 533).

Explaining her findings Jarvinen writes, "At the first *level* (technical competence) the focus is on adequate command of and effective application of educational knowledge. The students do not yet problematise the instructional context of the class, school, community or society. At the second *level* (tools for reflective practice, practical action), they describe the nature of educational experiences and consider the rationale of the teachers' choices and the possibilities of co-operation. The third *level* (critical consciousness, critical reflection) consists of analysing the moral and ethical criteria underlying practical action" (ibid., p. 533).

Jarvinen found that the *objects* of reflection chosen at the start did not change much during the period of teaching practice, being mainly about teaching competence (their own performance), rather than curriculum content or the social or institutional context. However, their reflection deepened during the teaching practice. A year later, more profound changes had occurred in both the *objects* and *levels* of reflection. She concludes:

The changes in the objects and levels of students' reflection are a crucial part of the learning process during professional development. In practice periods, a point should be made of identifying individual differences and of finding appropriate ways of supporting students who are at different stages in development. An open dialogue with in-service teachers and supervisors during teaching practice, where both the teacher's work and the process of supervision are discussed and reflected upon, may be a crucial prerequisite for students to learn to evaluate their own actions later, at work in co-operation with their colleagues.

(ibid., pp. 537-538)

Relatively few authors acknowledge the potential 'down side' of reflection. Among those who do, Boud et al. (1985) argue that, "... the reflective process is a complex one in which both feelings and cognition are closely related and interactive" (ibid., p. 11). They caution that negative feelings and emotions, especially about oneself, arising from reflection can form major barriers to development. Such feelings may result in harmful perceptions and loss of confidence. On the other hand, positive feelings can greatly enhance the learning process.

The potentially negative aspects of reflection are also raised by Candy et al. (1985). They suggest that reflection can sometimes cause a reduction in performance because the individual's attention is divided between executing the activity and consciously observing himself, or herself, doing it. This is the scenario which Schön claims can be overcome by 'double vision', but Candy et al. observe that, in practice, the effect can be to shake the individual's confidence and sometimes cause them to revert back to the original method which they may find more comfortable and productive.

Within the literature, there is no shortage of commitment to Schön's ideas and a willingness to try to put them into practice. However, a number of important questions remain unanswered as Bines (1992), a strong supporter of the reflective practitioner approach, acknowledges. She states:

Although the new model [reflective practice] is increasingly becoming the pattern of professional education, it brings a number of new challenges, not least the need to further develop our knowledge of the range of competencies involved in a particular profession, an understanding of how students acquire professional competence, how skilled teaching can enable them to do so and what are the best settings for learning to take place.

(ibid., p. 16)

This statement, particularly the latter half, goes to the heart of this research, fortuitously articulating its central concerns.

Functional Approaches to Competence

Functional competence approaches may be seen as having their roots within the Taylorist¹ 'Scientific Management' tradition. Amongst other things, this asserts that all occupations are susceptible to systematic analysis and can be better understood by breaking down job functions into a series of constituent elements. The functional competence approach may therefore be described as neo-Taylorist.

Functional competence approaches focus on the tasks or functions which need to be performed within the job role, rather than the personal attributes of the individual who occupies the job. A number of models in this tradition have been developed, particularly in the area of management competence.

Boak (1991) suggests that the functional approach (at least in the management area) arose from a recognition of the inadequacies of what he calls 'Great Man Theories', the belief still common in the 1940s and 50s that the qualities which led to effectiveness, for example, vision, vitality, persuasiveness, were largely inherent - i.e. the view that managers were 'born, not made' (ibid., pp. 3-5). The functional approach rejected this assertion and attempted to break down the manager's role into key tasks or functions, each of which was susceptible to development. Simple functional models in the management area included functions such as planning, delegating, organising, motivating and controlling.

Gradually, more complex models were developed. According to Grant et al. (1979), similar analyses of functions were also being carried out in other professional areas, particularly in America, though perhaps not to the same extent as in management.

In the mid-nineteen eighties, the UK Government decided to adopt an essentially functional approach as the basis for a new system of occupational standards and related National Vocational Qualifications (NVQs). A number of other countries, including Australia and Canada, have since adopted similar approaches.

For the purpose of this research, the model of competence which underlies the UK system is of more direct concern than the NVQ process itself. The latter is primarily about assessment and accreditation. However, there are strong interrelationships between the way competence is perceived, the way competent performance is described and the way it is assessed. And, at the time of writing, NVQs are available in

¹ after F. W. Taylor (1856-1915) who pioneered the concept of Scientific Management at Bethlehem Steels, USA.

a number of professional areas. For these reasons, the review will offer critiques both of the underlying functional competence model as it is manifested through occupational standards, and of the NVQ process. But first, a brief description of the UK system is offered.

Origin of the UK model

In 1981, a Government publication, *The New Training Initiative: An Agenda for Action* (MSC, 1981), suggested that vocational training in the UK was in need of modernisation to make it more effective in producing a competent workforce. The paper set out a strategy for improvement which involved the establishment of occupational standards covering all major occupational areas.

A later report (De Ville, 1986) reviewed vocational qualifications in England and Wales and concluded that these lacked coherence and consistency; they were often failing to deliver people with the knowledge and skills required by employers. The report recommended the development of a more coherent national framework. This should be made up of new qualifications which would be called 'National Vocational Qualifications' (NVQs) or, in Scotland, 'Scottish Vocational Qualifications' (SVQs). These would be competence based but would incorporate relevant knowledge and understanding. The report proposed that the new qualifications should be based on 'occupational standards' which would themselves be competence based.

Occupational standards and NVQs

Occupational standards are derived through a process known as 'functional analysis'. The standards spell out the functions that need to be performed in a particular job role, together with criteria for recognising effective performance in each function. Therefore, the approach can be said to adopt a 'functional' perspective on competence.

Occupational standards form the basis for both the design and assessment of NVQs. Competence is, in principle, judged through the achievement of job-specific outcomes, rather than through a knowledge based examination (Jessup, 1991). Nor does assessment require the demonstration of particular behavioural characteristics or personal qualities. As Crawley and Reay (1992, p. 30) put it, "The focus of attention is not on the individual in a role and their qualities, but on the role as it might be performed by any individual".

Providing candidates can achieve the outcomes required by the job, they are deemed to be competent. Candidates are not required to have undertaken any prescribed

programme of education or training and there are no grades of achievement. Candidates are simply judged as either 'competent' or 'not yet competent'.

Organisations known as Standards Setting Bodies (formerly called Lead Bodies) have responsibility for developing occupational standards in particular industrial sectors (such as Construction or Engineering), or for cross-sectoral roles (such as Training or Management). During the process of developing standards, the Standards Setting Bodies are expected to consult widely within their sector or occupational group to ensure the ownership and commitment of employers. The system is overseen by the Qualifications and Curriculum Authority - QCA (formerly the National Council Vocational Qualifications - NCVQ). In Scotland, the parallel system of Scottish Vocational Qualifications (SVQs) is overseen by the Scottish Qualifications Authority (formerly the Scottish Vocational Education Council - SCOTVEC).

There are five levels of NVQ, ascending in order of complexity. Level 1 covers very basic competences, Level 4 and particularly Level 5 cover competences normally associated with professional occupations. The system of describing competence is similar at all levels. Standards are broken down into key roles, units and elements. Effective performance is described at the element level through 'performance criteria'.

Limitations of UK model

The NVQ system offers a model of competence and a paradigm of assessment. However, it does not provide any paradigm for development. Indeed, this is deliberately excluded, a fact that has prompted Fletcher (1991, p. 144) to stress, "... NVQs have nothing whatsoever to do with training programmes". Green (1995) argues that the lack of concern for the development process is unique in Europe. This is seen by some as a major weakness in the UK system. The issue will be discussed in more detail later.

At the time of writing, occupational standards and the process of awarding NVQs have been in existence for a relatively short time, and to some extent both are still emerging. It is understandable therefore that a number of aspects have sparked controversy. There is a large and often polarised literature linked to standards and NVQs, a representative selection of which will be reviewed in the next few subsections.

General and philosophical criticisms

A number of theoretical objections have been raised to the underlying model of competence. There have also been criticisms of the processes involved in developing occupational standards and delivering NVQs.

Marshall (1991) sees within the model the influence of both functionalist sociology and behaviourist psychology¹. Both, in his view, lack sophistication and present particular difficulties when applied to vocational training. He argues that the functionalist approach (the focus on very specific task outcomes) does not allow for possible alternative indicators of performance and may therefore stifle the development of imagination, creativity and individuality. He argues that the behaviourist influence denies the importance of theoretical frameworks and cognitive strategies. Consequently, these are less likely to feature in any training activity aimed at developing competence. He comments, "The trainee from this perspective is reduced to an automaton" (ibid., p. 62).

The behaviourist influence is also a concern of both Crawley and Reay (1992) and Hyland (1995) who criticise the model's focus on the directly-observable aspects of performance to the neglect of the mental processes which lie behind them. Hodgkinson (1995, p. 61) sees the approach as embodying a combination of 'technical-rationality' and 'managerialism', both of which he regards negatively.

Functional analysis, the process used to develop occupational standards, is also considered by some to be flawed. Stewart and Hamlin (1992) argue that the disaggregation it produces can lead to constituent parts that are less than the whole [a sort of negative synergy]. They believe the technique also promotes a process-orientation, rather than the outcomes-focus sought by the competence movement.

The disaggregation argument is pursued by Barnett (1994), Hyland (1995) and Smithers (1995a) who all agree that 'atomisation' (the practice of breaking down competence into numerous individual competences) does not guarantee skilled overall performance. Smithers comments, "Being able to dribble and do headers, for example, do not make a footballer. It is the way they are put together that matters" (ibid., p. 11).

Marsh and Holmes (1990) are critical both of functional analysis and of what they see as the idealistic and generic way in which competences are described. In a later publication, Holmes (1995) describes the language used in standards as, "... arcane and bureaucratic ..." (ibid., p. 11). Barnett (1994, p. 73) is equally sceptical, commenting, "Any attempt ... to draw up lists of competences is bound to be partial and debatable. To any such list ... we are entitled to respond: whose competences are these?". He also claims that functional analysis produces standards that are backward, rather than forward, looking.

¹ Behaviourist psychology, based on the work of Pavlov (1927), Watson (1930), Skinner (1938) and others, will be discussed in Chapter 4 (pp. 96-98).

Ashworth and Saxton (1990) argue (following Belbin, 1981) that the focus on individual competences misses the point that in many situations, what is required is a team of people, each contributing different characteristics, rather than, "... a group of managers (for instance) all to the same standard and with the same emphasis on the same list of competencies" (ibid., p. 14). They are also concerned that the concept ignores 'context' and underestimates the potential problems of transfer between one situation and another.

More specific controversies

Aside from the above general criticisms, there have been a number of specific areas of debate relating to the UK approach. Four particular controversies are of relevance to this research:

- the place of knowledge within occupational competence and how effectively this is covered within standards and the NVQ process;
- the way competence is assessed;
- the effectiveness of the approach in promoting sound development; and
- the suitability of the approach and its underlying model for use with professional occupations.

Each of these will be considered in turn.

The place of knowledge within occupational standards

The philosophy behind competence based training stresses the central role of 'outcomes' (Jessup, 1991). Factors such as knowledge, skill, understanding and personal effectiveness, together with any processes aimed at developing any of these, are seen as being, as it were, on the other side of the divide from outcomes. These are all identified as 'inputs'. According to purist competence based philosophy, as it originally evolved in the UK, it was unnecessary, and indeed inappropriate, for any of the inputs to be assessed. Consequently, in the early days of standards development (1985-1989), little or no attention was paid to the inputs side of the competence equation, including knowledge.

Jessup (1991) recalls that some standards 'experts' discounted the need to either specify or assess knowledge, "Early arguments ... went ..., 'If a person performs competently, we need not be concerned with what he or she knows' " (ibid., p. 121). This view is typified by Moran (1991, p. 8) who states, "I am not persuaded that knowledge is, of itself, of great importance in the measurement of competence...".

Mansfield (1990) argues that the importance of knowledge within vocational training has in the past been over-stated. He asserts:

... we need to move away from a position where knowledge and understanding are thought to have some privileged and almost sacred role in Vocational Education and Training.

(ibid., p. 21)

But not all supporters of the UK approach are as fundamentalist in their views. Wolf (1990, p. 35), for example, argues that knowledge is an important component of vocational training and ought to be included in the assessment process. She writes, "Knowledge and understanding are themselves constructs which are assumed to contribute to competence. They can be inferred from measures of competence or they can be inferred from direct measures". Suggesting that knowledge may need to be separately assessed, Wolf continues, "... we may find it hard to acquire adequate evidence [of knowledge and understanding] by focusing on competence alone".

Fleming (1991) maintains there is an important distinction between, "... knowledge for its own sake and knowledge that genuinely underpins competence" (ibid., p. 8). But Hyland (1992, p. 22) sees this sort of distinction as a 'false dichotomy' which leads to the view amongst some standards enthusiasts that only practical knowledge - i.e. 'knowing how' is important in determining competence. He cites Ryle (1949) in asserting that knowing that something is the case (propositional knowledge¹) may be just as important as knowing how (practical knowledge). Thinking and doing should not, in Hyland's view, have a wedge driven between them. He believes it is a mistake to try to draw boundaries too tightly around the knowledge needed for vocational competence.

A similar position is adopted by Moonie (1992) who suggests that at advanced, i.e. professional, levels, knowledge may be so inseparable from performance that to try to isolate knowledge which specifically relates to performance may be a vain exercise. With professional occupations particularly in mind, Eraut (1990, p. 22) argues that, "... underpinning knowledge is such an important aspect of many jobs that its omission will lead to seriously inadequate descriptions of performance". Moran (1991) on the other hand asserts that:

... even in the most professional occupations the proportion of 'knowledge-heavy' competencies is quite few. In many cases it is the recognition of how little we know which makes us more competent. The doctor who seeks a second opinion may be more competent than the doctor who 'knows' and prescribes without reference to others.

(ibid., p. 8)

¹ The distinction between propositional and practical knowledge will be addressed more fully in Chapter 4 (pp. 123-124).

More controversially, he states, "... given that only 75% of diagnoses are reckoned to be correct, the argument in favour of a fixed body of knowledge as an essential prerequisite for competent performance is dubious" (ibid., p. 8).

The above controversies concern the contribution of knowledge to competent performance.

Closely related issues are:

- how explicitly knowledge ought to be specified within competence standards (see, for example, Mitchell and Bartram, 1994); and
- how knowledge ought to be assessed.

Both of these have been the subject of a series of incremental changes over the past decade, with the general trend being towards increasing the concentration on knowledge. The last major change resulted from the Beaumont Report (Beaumont, 1995) but the suspicion that knowledge remains undervalued within the standards based approach continues (e.g. Smithers, 1995b). This may be inevitable, given the nature of the functional competence perspective with its focus on what a candidate can do, rather than on what he or she knows.

The next subsection will look at the process used to assess NVQ candidates. This is of relevance to this research because it relates to how competence may be recognised, and because of the gradual extension of NVQs into professional areas.

NVQ Assessment

The difficulty of designing an assessment process which reliably infers competence is acknowledged even by the strongest advocates of competence based approaches. (Mitchell and Cuthbert, 1989; Jessup, 1991). The accrediting and awarding bodies publish broad rules on assessment and, as with those relating to the specification of knowledge, these have been progressively tightened. Yet criticisms about the quality and reliability of assessment have persisted. Gealy (1993) observes that at one extreme, it can be very mechanistic and pedantic; at the other, NCVQ's assessment criteria are seen as a licence to use whatever assessment methods are judged relevant.

Eraut (1993) too expresses concern that the system gives individual assessors too much responsibility, offering excessive scope for variations in rigour. Others, (e.g. Johnson and Blinkhorn, 1992) have argued for tighter external verification procedures and this too has been progressively put into effect.

Some critics have expressed more fundamental, and perhaps more extreme, objections to the process. For example, Mullin (1993) claims that, "The assessment process is paradoxically designed to ensure you do not need to be competent to obtain a competence based qualification". He continues, "... open systems of assessment, where people with little, no or poor training are free to present themselves for assessment will inevitably produce greater assessment error" (ibid., p. 25).

Along similar lines, Holmes (1995) argues that the attribution of competence through the awarding of Vocational Qualifications is failing to provide employers with a means of discriminating between employees in order that predictions might be made about their future performance. He asserts, "... a mere 'snapshot' based on observed current performance is, in itself, of little or no usefulness in the management of human resources which is concerned with the future" (ibid., p. 5).

Some see a danger of assessors falling into a 'tick list approach', rather than assessing competence holistically. Along these lines, Debling (1991) argues:

An assessment system which 'atomises' the collection of evidence - i.e. is focused on individual performance criteria, is unlikely to capture the full breadth of competence. It is also unlikely to provide good quality evidence of the ability of the individual to 'put it all together'.

(ibid., p. 3)

Looking specifically at the assessment of competence in higher level roles, Eraut and Cole (1993) conclude that simplistic notions of assessment linked to observed outputs are not always appropriate to professional occupations. They argue that, here, 'performance evidence' may need to be supplemented by 'capability evidence'. The latter would go beyond what was directly observed and would indicate a candidate's potential to perform in the future. They suggest this may require separate assessments of the 'knowledge base' - i.e. key concepts, theories, facts and procedures.

The accrediting and awarding bodies lay down criteria for assessment and, like the guidance offered on knowledge, these have been progressively tightened in an effort to improve quality and consistency. Nevertheless, concerns about the validity of assessment methods persist.

The next section will look at the effectiveness of the standards based approach in promoting candidate development, as opposed to certifying competences already attained.

Developmental effectiveness

One of the potential problems with a system which has such a strong focus on outcomes is that little or no attention may be paid to the process through which competence is acquired.

Examining the UK approach, Mullin (1993) notes:

... an unfortunate preponderance of discussion about assessment-related issues and very little about how to actually train and educate people to make them more likely to become competent.

(ibid., p. 26)

He argues that by focusing on the processes of assessment, evidence-collection and the accreditation of prior learning, the approach understates the importance of sound training and development. This danger was borne out in research undertaken by the author in the management area (Cheetham, 1994) which found a strong tendency amongst NVQ candidates and their advisors to concentrate on the collection of paper-based evidence, with little or no direct resource being applied to candidate development. But in the minority of cases, where advisers and candidates gave as much (or higher) priority to development as to assessment, the process was shown to be considerably more effective. The same research also raised the key question of what was being assessed within portfolio-based assessment. Was the portfolio a reliable proxy for effective performance in the workplace or was the assessor simply judging a candidate's ability to produce a convincing portfolio?

Mullin (1993, p. 25) rather cynically predicts that the NVQ system, "... is destined to produce a significant increase in the number of people who attain qualifications, while not actually being competent". He claims, there is no evidence that competence based approaches produce more able trainees than other forms of training. Similarly, Stewart and Hamlin (1992) argue there is no evidence that formerly-established training procedures have been producing 'incompetent' individuals. They ask, rhetorically:

Where are the thousands of incompetent bricklayers building walls that fall down overnight? Where are the thousands of incompetent electricians whose mis-wiring causes thousands of fires? Where are the hundreds of thousands of incompetent professionals and semi-professionals ... whose chronic inability to do what they claim they can do and what they are required to do causes immeasurable damage to individuals, to organisations and to society?

(ibid., p. 10)

Beaumont (1995, p.12) on the other hand, in his Government-commissioned review of the NVQ process, argues that, "Traditional qualifications did and do not deliver competence. At best they give knowledge and understanding in context. They do not demonstrate that they can be applied in the workplace. At worst they give knowledge without understanding".

Eraut (1993) fears that the pre-occupation of NVQs with the competence demands of initial qualifications may deter the development of models of professional learning which assume

the need for on-going professional development. Ashworth and Saxton (1990) argue more generally that the model hinders, rather than encourages, learning. They believe it fails to develop critical thinking, and conclude that, "... 'competence' is the embodiment of a mechanistic, technically-oriented way of thinking which is normally inappropriate to the description of human action, or to the facilitation of the training of human beings" (ibid., p. 24).

A stout defence of the UK model is offered by Mitchell (1991), though she accepts that training and development is not a major concern within the process. She observes that:

Learning programmes, particularly for staff who are in post and who wish to upgrade or update their skills, may require little, if any formal training. The learning process largely may be one of self-development and self-appraisal. The costs ... will be in the individual negotiation and discussion which takes place, rather than an increase in formal training inputs.

(ibid., p. 36)

In a later publication (Mitchell, 1995) in which she reviews the first 10 years of the UK standards and NVQ programme, she claims that NVQs have been successful in developing people. She supports this (somewhat weakly) by arguing that trying to relate occupational standards to one's own job is in itself a developmental exercise. Beaumont (1995, p. 5) also believes that the UK approach has been successful developmentally, and backs this with rather more substantial (if subjective) evidence. He records that 85% of the employers who responded to a large-scale survey felt that NVQs/SVQs did develop their employees' competence, and 77% felt that the benefits of the process outweighed the cost.

Of course, some of the perceived deficiencies described above relate to the specifics of the UK system, rather than to the functional competence perspective per se. But assessment and qualifications issues aside, there are still doubts about whether a focus on functions and outcomes will readily develop holistic competence. Barnett (1994, p. 81) believes it will not, especially when applied within an educational setting. He argues, "To conceive of the development of mind as an outcome, which is what the idea amounts to, is a hopelessly limited way of construing higher education. As with competences, outcomes represent a form of closure".

Suitability of the approach for use with professional occupations

The application of the UK model to professional areas is at the time of writing still immature. Some critics argue that the universal application of a single model of competence to all types of occupation will inevitably be problematic. They suggest the UK model is not suited to professional areas where the knowledge and cognitive requirements are more complex (Randell, 1993; Whittaker, 1993).

Along these lines, Randell (1993) states that, "... drawing up a checklist of 'skills' may be useful to define standards for shop floor workers, but is inappropriate as a means of measuring the effectiveness of managers and professionals" (cited in Finn, 1993, p. 26). Whittaker (1993), whilst accepting that competences may be useful for assessing skills that can readily be seen and measured, argues that such skills represent a smaller part of the job in more professional roles. Similarly, Marshall (1991, p. 63) asserts, "The model becomes less effective as the level of skill and cognitive requirement increases". He suggests it should either be restricted to basic skills training, or refined for use in higher-level skills areas.

Otter (1994), supports the use of the UK approach within higher level occupations, but accepts that knowledge may need to be given greater emphasis than at lower levels. She claims this is recognised by the UK Government and quotes, in support, the Employment Department's Briefing Note No. 9 (1993) which she says states, "The focus in standards is on performance ... This does not negate the need for knowledge and understanding or the ability to apply them ... Indeed in some cases, performance may be heavily dependent on an individual's knowledge ... The knowledge and understanding needed is more than just a body of information. It must specify relevant principles and concepts ..." (cited in Otter, 1994, p. 6).

In a report' following their study of attitudes and assessment practices in the professions, Eraut and Cole (1993) conclude, "Our discussions revealed no dissent from the NCVQ/SCOTVEC principle that evidence based on performance in the workplace should be given a high priority; though many felt that the proportion of such evidence might be rather lower for higher level occupations in order to accommodate demands for a much larger 'knowledge base', not all of which could be assessed through evidence based on performance" (ibid., p. 2).

The UK Government's Employment Department in a strategy paper on NVQs at higher levels (ED, 1996) also accepts that at professional level, particular attention may have to be paid to knowledge. It acknowledges that knowledge is an integral part of competence at all levels but states:

... at lower levels, much of it can be inferred in the process of assessment; at higher levels of occupation however, mastery and exploitation of bodies and patterns of knowledge, of concepts and paradigms, of precedent and process is vital for satisfactory performance ... Similarly, while ethical issues and value judgements are encountered at all levels in the workplace, the nature of work at higher levels places a new and vital importance on the need for standards in these areas to be incorporated within higher level vocational qualifications.

(ibid., p. 3)

The paper also raises the issue of ethics and values as a dimension of professional competence. It accepts that, "The development of higher level vocational qualifications ... demands a different model of knowledge and values in occupational competence" (ibid., p. 3). Despite this acknowledgement, up to the time of writing, no significantly different model had emerged for use in professional areas.

The UK standards and NVQ system is still evolving and despite successive changes, some of which have undoubtedly improved the process, the debates continue. Other unresolved issues are: how best to assess NVQs; how to incorporate ethics and values; and the place of personal (or behavioural) competence. On the last of these, in a few areas such as Management, a personal competence model is offered alongside the functional standards. But even here, personal competence is not assessed and often does not feature in related development programmes (Cheetham, 1994).

Critique of the underlying functional model

The criticisms of the UK approach to occupational competence, important though they are because of the potential use of NVQs within professional areas, are not necessarily applicable to the underlying model of competence. A number of the problems discussed earlier stem from the way in which the functional competence model has been applied in the UK. Therefore, in considering the utility of the functional model it is important to separate those factors which are inherent within the model and those which apply to the implementation process.

Concentrating on the model itself and drawing on the earlier discussions, there appear to be five main shortcomings of the functional competence model. Firstly, it relies too much on directly-observable aspects of competence, perhaps to the neglect of cognitive processes. Secondly, it tends to understate the importance of both knowledge and personal competence, each of which may be important components of professional competence. Thirdly, it does not readily accommodate the ethical dimension of competence, which again may have particular relevance in professional roles. Fourthly, it recognises competence solely through performance in current job roles, to the neglect of capability to undertake more advanced roles. Fifthly it focuses on the results or outcomes of competent performance but throws no light on the personal attributes which may be a necessary pre-requisite of such performance.

Despite these shortcomings, the model provides a useful framework for articulating what needs to be done within a job role and rightly, in the view of the author, stresses the importance of achieving the desired outcomes.

Personal Competence Approaches

In contrast to functional approaches, personal competence models concentrate on the personal characteristics and behavioural skills that an individual is required to bring to a job. These might include attributes such as self-confidence, stamina, attention to detail, output-orientation and thinking on one's feet. Such models are sometimes alternatively referred to as 'behavioural competence' models. However, they also commonly include less visible and more cognitive and/or affective attributes such as strategic vision, motivation and self image. For this reason, it is more accurate to use the broader term 'personal competence'. The assumption behind these models is that if an individual possesses an appropriate range of personal attributes, he or she is more likely to perform effectively (competently) than those who do not.

McGaguie (1993, pp. 229-230) traces the specification of personal attributes to Biblical times, arguing that St Paul laid down the personal criteria needed for the early bishops in his letter to Titus. He continues his religious theme in claiming that the criteria set out by John Wesley in the eighteenth century for the selection of ministers was also based on personal and behavioural attributes. Just as functional competence models can be seen as rooted in Taylorism, or Scientific Management, personal competence models may be seen as linked to the human relations school of management (e.g. Maslow, 1954; McGregor, 1960; Herzberg, 1976).

Much of the research into personal competence has been done in the USA and has tended to concentrate on Management and related occupations. Typical exponents of this approach are Klomp (1980), Boyatzis (1982), Klomp and McClelland (1986), Schroder (1989), and Cockerill (1989). Each has developed models of competence based on personal attributes. More recently, the Management Charter Initiative (MCI) has produced its own 'Personal Competence Model' to accompany its Management Standards (MCI, 1990 - revised 1997c). A number of these models draw on each other. For example, the MCI model has been influenced both by Boyatzis (1982) and Schroder (1989). Boyatzis in turn draws heavily on Klomp (1980).

There is evidence that some leading organisations both in the UK and the USA have a preference for a model of competence which stresses personal, rather than functional competence. Certainly, personal competencies form the backbone of many 'in house' competency frameworks. The dominance of personal competence over functional competence in such frameworks seems to be confirmed by research commissioned by the Human Resource Development Partnership (Sugarman, 1993). The project report states, "A growing number of organisations were found to be developing competencies for managers

which were not based on occupational standards, but leant more towards international work carried out by Hay/McBer [Boyatzis] and Schroder" (ibid., p. 3). Personal competencies are also often the main focus of assessment centre approaches, commonly used for recruitment and to identify promotion potential (Woodruffe, 1990; Dale and Iles, 1992; McGaguie, 1993). These will be discussed later in this chapter (pp. 92-93).

MCI Personal Competence Model

The MCI Personal Competence model in its original form (MCI, 1990) comprised a rather complex structure of 'clusters', 'dimensions' and 'behavioural indicators'. There were four clusters, each of which had three or four dimensions which, in turn, had a number of behavioural indicators. A typical cluster was labelled 'managing oneself to optimise results'. This was made up of the following three dimensions:

- showing self confidence and personal drive;
- managing personal emotions and stress;
- managing personal learning and development.

Typical behavioural indicators for the first of these were:

- demonstrate clarity and surety of purpose;
- maintain commitment and effort in spite of set-backs and problems;
- express confidence in the success of plans or initiatives; etc.

The revised version of the model (MCI, 1997c) is simpler in structure, consisting of ten competencies, each with up to ten behavioural indicators. It covers similar ground to the earlier version, but draws on more recent UK research into the personal competencies of senior managers. Partly in response to earlier criticisms, a competency covering ethical behaviour has also been added.

The Boyatzis model

This is one of the leading examples of a personal competence model and is, perhaps the most widely used (Evans and Kerrison, 1994). The model, and its derivation, will therefore be described in some detail.

Boyatzis (1982) draws on a number of earlier models plus his own work with McBer and Company in several large organisations, together with an 'aggregate study' which was funded largely by the American Management Associations. The work was primarily around the area of management competence. Boyatzis is critical of functional competence models and the process used to derive functional competencies arguing:

... models based on task or function[al] analysis focus on the job and do not address the person in the job. In doing so, the models include many specific and detailed descriptions of activities, but no mention is made of the characteristics that enable or increase the likelihood of a person performing those activities.

(ibid., p. 8)

He summarises the purpose of the McBer (his own) study as being, "... to determine which characteristics of managers are related to effective performance in a variety of organisations" (ibid., p. 8). Thus, Boyatzis concentrates primarily on the person, rather than the function. A key objective of his research was to try to explain some of the differences between poor, versus average, versus superior performance.

Boyatzis and his collaborators studied 12 organisations and over 2,000 people in 41 different jobs. The organisations were drawn from a number of different sectors. Job holders and their managers were consulted to determine the characteristics considered to be important in distinguishing between 'superior', 'average' and 'poor' performance. The researchers used a form of 'critical incident' technique known as 'behavioural event interviewing' to identify which individuals possessed these characteristics. Interviewees were invited to describe various real situations and how they had dealt with these. From the answers given, the possession or otherwise of particular characteristics was inferred. The aim was to determine which characteristics were possessed by the job holders who were perceived as the more effective and not by the average or poorer performers. In deciding, in advance, which individuals should be in each category, Boyatzis used:

- supervisory nominations and ratings;
- peer nominations and ratings; and
- work output measures of various kind (ibid., p. 44).

Boyatzis argues his method is superior to function analysis in three respects:

- it examines the person in the job, rather than the job;
- it results in a model of competence, not merely in his words, "... a laundry list of characteristics"; and
- the model can be validated in terms of performance data (ibid., p. 43).

From his results, Boyatzis identifies five types of 'characteristic' which can contribute to effective performance:

- motives;
- traits;
- skills;
- aspects of a person's self-image or social role; and

- a body of knowledge which he or she uses (ibid., p. 21).

The constituent characteristics of each of the above categories may be seen as 'competencies' which Boyatzis defines as, "... characteristics that are [linked] causally to effective and/or superior performance in the job". He continues, "This means that there is evidence that indicates that the possession of the characteristic precedes and leads to effective and/or superior performance in that job" (ibid., p. 23). He goes on to define what he refers to as a 'threshold competency' as, "... a person's generic knowledge, motive, trait, self-image, social role, or skill which is essential to performing a job, but is not causally related to superior job performance" (ibid., p. 23) and offers, by way of example, the ability to speak the native language of one's subordinates.

Boyatzis goes on to define the other terms used in his analysis as follows:

- a 'motive' - "a recurrent concern for a goal state, or condition, appearing in fantasy, which drives, directs and selects behaviour of the individual" (after McClelland, 1971);
- a 'trait' - "a dispositional or characteristic way in which a person responds to an equivalent set of stimuli";
- 'self-image' - "a person's perception of himself and the evaluation of that image" (this incorporates both self-concept and self-esteem);
- 'social role' - "a person's perception of a set of social norms for behaviour that are acceptable and appropriate in the social groups or organisations to which he or she belongs";
- 'skill' - "the ability to demonstrate a system and sequence of behaviours that are functionally related to attaining a performance goal" (these must be observable) (ibid. pp. 28-33).

Boyatzis makes a distinction between 'skills', and 'tasks or functions'. The latter, he argues, normally require multiple skills for their performance.

He asserts that any competency model should have two dimensions:

- one which describes the type of competency; and
- one which describes the different 'levels' of each competency - e.g. motives may exist at the unconscious level, self-image at the conscious level and skills at the behavioural level (ibid., pp. 25-27).

Boyatzis believes there is, what he calls, a 'dynamic interaction' between the various components and levels of competencies within his model. For example, if an organisational environment changes, individual competencies may also need to change. He offers a model

of effective job performance [competence] which consists of three components. These are: the individual's competencies; the job's demands; the organisational environment. They are illustrated as inter-linking circles as in Figure 1:

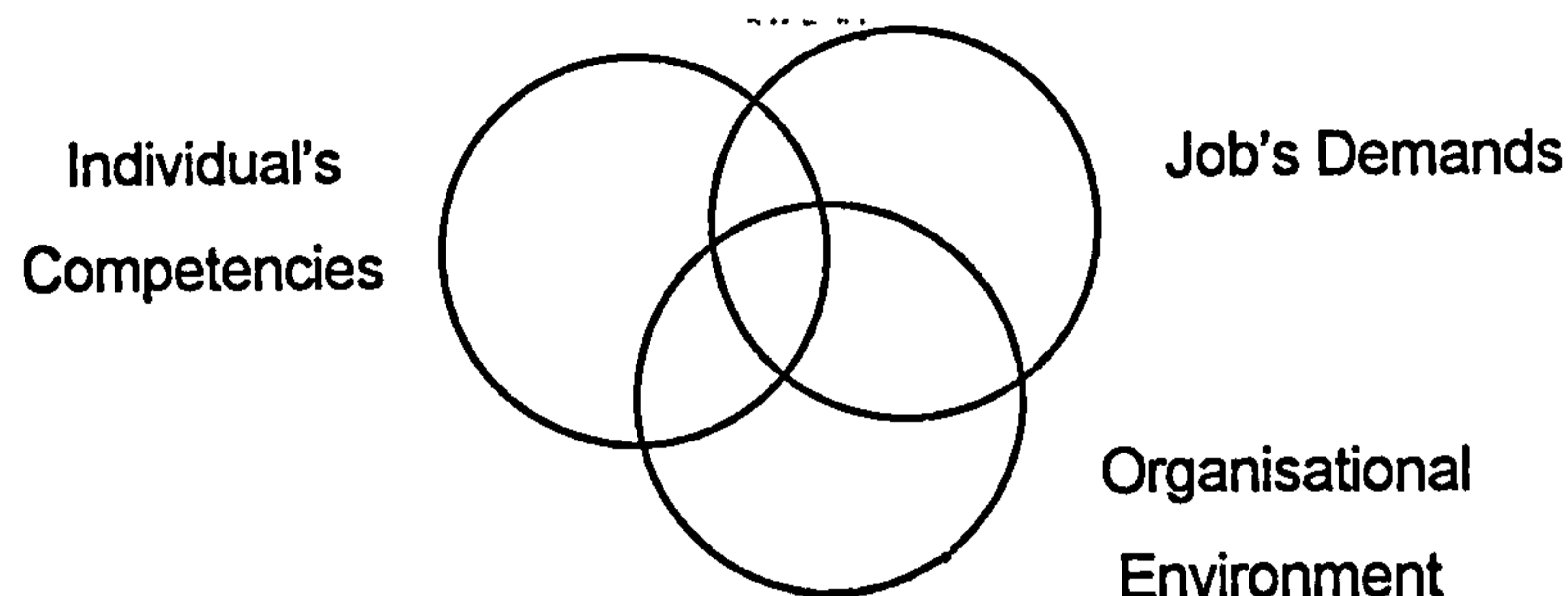


Figure 1: Boyatzis Model of Effective Performance

Boyatzis argues that effective performance will occur when all three of these critical components are consistent. Lack of consistency or 'fit' between any two components will reduce the possibility of effective [competent] performance.

Criticisms of Boyatzis

Boyatzis' methodology, and his resulting model, can both be criticised on a number of grounds. His reliance on job holders' perceptions in identifying the characteristics linked to superior performance and particularly his method of selecting superior, average and poor performers could be seen as both subjective and potentially tautological. People's knowledge of a colleague's work and performance may be scant, and their perceptions of an individual's effectiveness may be distorted by particular factors such as their communication or interpersonal skills.

The identification of an individual's performance category, prior to interview could lead to a self-fulfilling prophesy effect. Equally, inferring the possession of characteristics from interview answers, rather than by observation or some other form of direct assessment, is likely to be unreliable. Some people may be better at post-hoc rationalisation of their behaviours in given situations than others, and this may give interviewers a false impression of their competence.

Boyatzis' criticism of competencies derived through functional analysis as 'laundry lists' might equally be levelled at his own list of characteristics. He can also be criticised for neglecting the functional competence dimension within his model; for as it were 'throwing out the baby with the bath water', though in fairness, he does recognise the need for functional competence, but he tends to 'take this as read'.

The assumption within the model that the possession of specific characteristics equates to effective and even superior performance is also questionable. There is no guarantee that a person who apparently has the right mix of personal competencies will be able to 'put it all together' and deliver the desired outcomes. We all know people who are blessed with a whole range of personal attributes, who appear to be confident and articulate, yet are not good at getting the job done.

Since the work was based mainly on managers and supervisors, there could be doubts about the suitability of the approach to other professions.

Despite these criticisms, Boyatzis offers a sophisticated analysis of competence and a model which recognises its multifaceted nature. His identification of environment and self image as important contributors to competence may be particularly significant, especially in professional roles. The work can also quite properly claim to have been based on a large sample of job holders.

More general observations on personal competence models

Fletcher (1996, p. 54) draws attention to the 'mismatch' that he claims often exists between personal competencies and established psychological tests, "... even when the competencies are behavioural in nature". He observes, "The root cause of the difficulty is that competency frameworks and psychological test dimensions usually describe behaviour at different levels". He points out, by way of example, that a competency such as 'achievement orientation' may require someone to have a psychological profile which is not compatible with other core competencies such as 'team working' and 'interpersonal skills'. In some cases, he argues, particular combinations of competencies, "... do not make psychological sense".

On the other hand, Boak (1991) is supportive of the use of personal competencies, suggesting they may be better indicators of an individual's potential to perform in future roles (capability) than functional competencies, which tend only to affirm competence within the current role.

Edmonds and Tey (1990) argue that the main utility of a personal competence model is as an aid to self-awareness, rather than as a developmental tool. It can of course be argued that both are closely linked. Certainly, becoming aware of one's shortcomings may be a first step towards overcoming these. In relation to the use of personal competencies alongside occupational standards, Edmonds and Tey state, "If the primary concern is to produce

occupational standards for an NVQ-type qualification, the concept of personal competence is a distraction" (ibid., p. 8).

In contrast, Evans and Kerrison (1994) argue strongly that personal competence ought to be included in NVQ programmes, especially at professional levels. They see personal competence as a critical component of effective performance, on a par with functional competence.

Meta-competencies

A number of writers have identified certain generic, high level competencies which they argue transcend other competencies, in some cases enabling self examination, in other cases enhancing more prosaic competencies (Hall, 1986; Reynolds and Snell, 1988; Linstead, 1991; Fleming, 1991; Nordhaug, 1993;). Some meta-competencies are said to be important to the acquisition of other competencies (e.g. Hall, 1986). Fleming (ibid., p. 7) describes meta-competencies as, "... competencies which work on other competencies", and goes on to argue, rather sweepingly, that, "... all university education is concerned with meta-competence" (ibid., p. 8).

Hyland (1992) on the other hand is sceptical about the concept of meta-competence. He argues that, "The kind of high-level generalisable qualities suggested by the notion of meta-competence seem to be more adequately captured by the [more] generally comprehensible concept of 'expertise' " (ibid., p. 23). However, the latter part of his argument seems flawed since expertise may relate simply to the mastery of a single motor skill, such as juggling.

Most of the literature on the subject appears to be supportive, though not all authors use the term 'meta-competence'. Hall (1986), for example, refers to 'meta-skills', which he sees as skills which help one acquire other skills. Reynolds and Snell (1988) identify what they call 'meta-qualities'. These include - 'creativity', 'mental agility' and what they call 'balanced learning skill'. Blagg et al. (1993) use the term 'meta-cognitive skills'. Eraut (1994) refers to 'meta-process' which he defines as, "... the thinking involved in directing one's own behaviour and controlling one's own engagement in ... other [professional] processes" (ibid., pp. 115).

Linstead (1991), Fleming (1991) and Nordhaug (1993) all use the term 'meta-competencies'. Examples offered by Nordhaug are - 'communication', 'problem solving' and 'analytical capacities'. Meta-competence is the term which will be used in this thesis because it seems to be the most appropriate.

Critique of meta-competence concept

Despite the strong support within the literature, the concept of meta-competence presents a number of problems and raises some fundamental questions. How do you prove hierarchical, dependency or influential relationships between competencies? How do you decide which competencies should qualify as meta-competencies? Might it not be that there are complex interrelationships and dependencies between all sorts of different competencies, some of which may be quite low level? For example, basic numeracy could be an essential prerequisite of competence in financial management, but does this make basic numeracy a meta-competence?

The competencies suggested by different writers, and even sometimes by the same writer, are clearly of several different types. There are those such as 'creativity', 'communication', or 'mental agility', which may be seen as permeating other competencies, offering the potential to enhance them. There are others to do with learning, which may be crucial to the development of other competencies. And there are yet others such as 'analysis', 'introspection' and 'reflection' that enable self monitoring. The term 'meta' literally means 'beyond'. Therefore, it might be argued that it is only those in the last group that are true meta-competencies, in the sense of enabling people to step out, as it were, beyond themselves, to examine other competencies.

Nonetheless, the concept of meta-competence has a number of eminent advocates and seems to be supported by independent research conducted by people not specifically wedded to the idea. For example, the existence of certain generic competencies linked to learning is suggested by the work of Downs and Perry (1984) around the area of 'learning to learn'. This points to a relationship between the possession of certain types of competencies and the ability to learn things readily. The notion of other types of competencies which enable self-monitoring and analysis also seems persuasive and can be seen as linked to the ideas of Schön (1983; 1987), especially around reflection.

Assessing Professional Competence

Almost all professionals sit written examinations during their initial professional education. Many also undergo some form of assessment of their professional skills and experience, prior to being fully accredited to practice. In some cases, this involves direct observation, in others it requires the production of a portfolio of evidence, sometimes verified by a senior member of the profession. Some of the difficulties involved in such processes were discussed in an earlier section relating to NVQs. This section will look at other assessment techniques that are either currently being used, or have the

potential to be used, in professional situations. It will also consider some of the more general issues relating to the assessment of professionals.

Cross professional studies of assessment

One of the most comprehensive, recent investigations of how professional performance is assessed was carried out by Eraut and Cole (1993). This involved a detailed study of 11 professional areas supplemented by a wider consultation. The authors identified three broad patterns of assessment:

- assessment of workplace performance during a period of practical experience, following completion of an academic qualification in Higher Education;
- on-the-job assessment as an integral part of the academic qualification leading to direct professional recognition; and
- assessment of practical performance conducted both within the academic course and during a subsequent period of professional experience (ibid., p. 1).

The most common assessment techniques they identified (in both workplace and academic contexts) were: direct observation by supervisors; the use of role plays or simulations; observation of simplified practice; indirect observation using a video recording; interviews with candidates; and the examination of work-related documents - e.g. portfolios, records, testimonies (ibid., pp. 33-34). These appear to accord very much with assessment methods identified in the USA by Dinham and Stritter (1986) who themselves suggest that only the use of multiple methods can provide assurance of a professional's all round competence.

Eraut and Cole (1993) argue that to be fully effective, assessment of professional competence requires two types of evidence:

- *performance evidence* (this is evidence drawn from the application of both specialist and generic skills in a professional context); and
- *capability evidence* (this is evidence, not directly derived from the workplace, which is used either to supplement performance evidence or to ascertain a candidate's potential in the future) (ibid., pp. 33-40).

This appears, *prima facie*, to be a useful distinction. However, the two quite different usages included within the *capability* category (supplementing performance evidence and future potential) are likely to require quite different forms of evidence. The authors also include within the *capability* category such diverse characteristics as:

- underpinning knowledge (concepts, theories, facts and procedures);
- personal skills and qualities; and
- cognitive processes linked to professional thinking (ibid., p. 1).

Whilst these all undoubtedly contribute to performance and possibly also offer some indication of future potential (though this may be a risky extrapolation), they are probably better seen as different kinds of competence, rather than being grouped together under the single heading of 'capability'.

As reported in an earlier section, Eraut and Cole found no dissent from the principle that, "... evidence based directly on performance in the workplace should be given a high priority ..." (ibid., p. 2), though they point out that relatively few professions have clear, objective standards (such as occupational standards) against which such assessments can be carried out.

McGaguie (1993), based on research in the USA, supports the view that the competence of professionals cannot be judged independently of their ability to achieve desired outcomes. However, he regards current assessment methods as inadequate for addressing the complexities of professional competence, "... what professionals think and understand and how they act is far more complicated than what today's assessment technologies can probe" (ibid., p. 240). He believes that current systems still favour those who perform well on assessments of acquired knowledge.

McGaguie gives primacy to the direct observation of professional activity in addition to knowledge assessment, but feels that even direct observation has its pitfalls unless the conditions of observation are managed tightly and assessors are well trained. He leans towards simulations, providing they are of high fidelity, and favours the use of 'open-ended' problem solving exercises. He offers a number of suggestions for improving professional assessment:

- methods of assessment should closely match what professionals do in practice;
- increased attention should be paid to pre-entry assessment;
- more attention should be paid to personal qualities - e.g. honesty, tact, confidentiality;
- assessor training should be improved;
- professional competence should be judged as a combination of a 'profile of skills', 'acquired knowledge', 'dispositions' and 'other achievements'; and
- the use of assessment centres for use with professionals should be expanded (ibid., pp. 258-259).

Assessment centres

The use of assessment centres is strongly supported by a number of writers (e.g. Woodruffe, 1990; Dale and Iles, 1992; Bolton, 1995). The term 'assessment centre' does not necessarily imply a place dedicated to assessment (though this might be the case in larger organisations). It is a generic term which refers to a particular approach to assessment. This involves administering a suite of specially designed assessment exercises to individuals in order gauge their current or potential competence. Normally, several candidates participate in the centre at the same time. This is because often a proportion of the exercises is group-based - e.g. role plays. A typical batch of participants is around six (Woodruffe, 1990).

According to Dale and Iles (1992), the use of assessment centres was first developed by the military for officer and specialist selection. It was adapted to civilian use in the USA around 1958 and imported to Britain in the early 1970s. The authors claim there are accepted protocols which most centres apply. These are:

- multiple assessment techniques must be used, at least one of which must be a work-related simulation;
- multiple assessors, with appropriate prior training, must be employed;
- judgements resulting in an outcome such as a promotion recommendation must be based on pooled information resulting from a variety of techniques and assessors;
- an overall assessment of behaviour must be made by the assessors at a separate time from the observation of behaviour;
- simulation exercises used should have been pre-tested to ensure that they provide reliable, objective and relevant behavioural information for the organisation in question;
- the dimensions, attributes, characteristics or qualities evaluated by the assessment centre should be determined by an analysis of relevant job behaviours; and
- the techniques used in the assessment centre should be designed to provide information which will help evaluate the dimensions, attributes and qualities previously determined (ibid., pp. 124-125).

In support of the approach, Woodruffe (1990) states, "The assessment centre process has extreme credibility in terms of delivering accurate assessment. The belief in assessment centres is partly the result of a good deal of research evidence in their favour. This evidence is translated quite readily into the message that they have been proved to be virtually 100% accurate" (ibid., p. 6). Bolton (1995) displays similar uncritical faith in the approach. However, neither produce convincing supporting evidence and Woodruffe's claim of near 100% accuracy should be treated with extreme caution for a number of reasons.

There are considerable difficulties in designing tests and simulations which accurately reflect the workplace and which are not culturally biased (Mayo, 1995). There is also a likelihood that people will behave differently in assessment centre settings from in their own working environment. Some will find it hard to give of their best when under close scrutiny, while others may 'play to the gallery', projecting a false impression of their normal performance.

To date, assessment centre approaches have not been used widely within professional areas, other than management. However, they do offer a potential tool for professional application, particularly in relation to attributes which cannot easily, or economically, be assessed in the professional workplace.

360 Degree techniques

Another approach to assessment which seems to be gaining ground in the UK is '360 degree' assessment, or feedback (Victor, 1995; Edwards and Ewen, 1996; Fletcher, 1998). The process involves assessment of an individual by a variety of stakeholders, e.g. peers, customers or clients and subordinates, as well as both supervisor and self assessment. In each case, the same framework of attributes is used.

Edwards and Ewen (1996) report the use of the technique with a number of professional groups in the USA, including scientific and Health Care professionals, as well as academic staff within universities. To date in the UK, it has mainly been used within corporate management settings (Fletcher, 1998). Victor (1995) describes its use with engineers and project managers in a UK-based water engineering organisation. In the latter case the process is based on a complex in-house competency framework and forms part of a staff development programme.

Though the main applications of '360 degree' techniques to date have been self-awareness raising, in-company development and performance management, the technique offers the potential to be used in more formal assessment settings.

In a more general context, Dinham and Stritter (1986) have argued that junior professionals, "... must develop a picture of themselves which they can compare to a standard. That picture is based on multiple sources: self; peers; patients and clients; and instructors" (ibid., p. 961). Advocates of 360 degree assessment claim that the process does precisely this. They argue it is fairer and more accurate than other assessment techniques because it elicits perceptions of competence from people who observe an individual's day to day performance from different perspectives (Fletcher, 1998). On the other hand, there are likely to be difficulties in achieving consistency and commonality of understanding amongst the various

stakeholders, especially when they are not experienced assessors. Some of the stakeholders, e.g. peers and clients, may have insufficient evidence of the subject's performance against some of the listed competencies and may be tempted to give him or her the benefit of the doubt. There could also be a danger of collusion amongst participants, particularly if rewards or promotion are at stake.

Although there is a growing range of assessment techniques which are of potential use to professional development, none is without its problems. It may be concluded that the assessment of competence is as problematic as competence itself. Two simple lessons seem to be that all assessment methods should be treated with a degree of caution, and reliance on a single technique should be avoided.

Chapter Summary

The chapter has demonstrated why competence may be seen as a problematic concept. There are a number of well developed approaches to competence that are applicable to professional occupations, but each of these perceives competence in a different way. As a result, they each illuminate particular aspects of competence, sometimes to the detriment of other aspects that may be equally important. None seems to offer a comprehensive and holistic view. The three major perspectives discussed (Reflective Practitioner, Functional Competence and Personal Competence) are all capable of informing professional development, though none seems fully satisfactory on its own.

Meta-competence is a persuasive concept, though not itself unproblematic. It offers a useful addendum to any or all of the three major perspectives, but on its own does not provide a broad enough tool for analysing all aspects of professional competence, focusing as it does on only certain kinds of competence.

Assessment is a key issue because, however competence is defined and articulated, it is necessary to know when people have attained the required standard. A range of assessment methods exist which are capable of being applied to the practical aspects of competence, but all have their own strengths and weaknesses, advocates and critics. All suffer from the need to make inferences about an individual, based on limited information. For such inferences to be safely made, a combination of assessment methods may be needed.

Despite the complex and problematic nature of competence, the concept is valuable, and its various perspectives offer insights on how people development might be improved. Because competence was a key concern of this research, it was necessary

to adopt a working definition of *professional competence*. Drawing on a number of the perspectives discussed above, the following definition was constructed:

The possession of the range of attributes necessary for effective performance within a profession and the ability to marshal these consistently to produce the desired overall results.

The next chapter, the last of the chapters linked directly to the literature, will examine those writings which throw light on how competence is acquired.

.....

Chapter 4

Professional Learning and Development: Literature Study, Part 3

Chapter 4

Professional Learning and Development: Literature Study, Part 3

Introduction

This section of the literature has proved valuable for several reasons. Firstly, it offered a range of theories capable of throwing light on how competence is acquired, and techniques which might aid acquisition. Secondly, it informed the design of the empirical work by suggesting areas that ought to be covered and questions that should be asked of practitioners. Thirdly, it provided concepts and hypotheses against which the empirical findings could be examined.

The review contains a combination of theories, practical techniques and summaries of previous cross-professional research, all of which have a bearing on this work. The chapter will provide a resource which will be drawn on later when the results of the empirical investigation are discussed.

Chapter layout and content

The first section will look at general theories of learning and some applications of these to professional development. The second will look at theories and principles which relate particularly to adult learning. The third section will examine a range of approaches and practical techniques applicable to professional development. The final section will review previous cross-professional research of relevance to this work.

General Theories of Development

There are many theories and concepts that can be applied to competence acquisition, and a large literature on both developmental psychology and adult learning. It is impossible to review all of this in depth, but a number theories which appear to have the most relevance to this research are summarised and briefly appraised below. Some examples of how these may be applied to professional development are offered.

Behaviourism

No review of the literature on learning theories could begin without some mention of the well known, experimental work of Pavlov (1927) because this may be seen as seminal in respect of modern developmental psychology. Pavlov demonstrated that animals could be conditioned to behave in required ways by subjecting them to otherwise neutral stimuli. This was the result of a simple 'reflex response'.

Applying similar principles to human behaviour, but with an additional reinforcement element following the desired response, Watson (1913 and 1930) and Skinner (1938) showed that 'operant responses', i.e. those that related to more complex everyday behaviour, could be achieved. The theoretical school which grew up around this work became known as 'behaviourism' or 'connectionism' (Hill, 1990). This saw the process of learning as a straightforward mechanism - the result of a behavioural response to some form of stimulus. If a particular response repeatedly resulted in some kind of reward or reinforcement (the latter being any event which strengthens the response), then learning would take place. Reinforcement could thus be used to 'shape' behaviour.

Behaviourism, especially in its early days, adopted a fiercely positivist approach to learning, believing that scientific study would eventually reveal all that needed to be known about human behaviour, and asserting that only those things which could be observed directly were scientifically relevant (Watson, 1930). However, the latter position largely denied the relevance of thoughts, feelings or motives in the learning process, viewing human behaviour as little more than a series of conditioned responses.

Simple behaviourist theory is now widely regarded as overly reductionist, but aspects of it undoubtedly work, and most people would agree their behaviour is affected by the various forms of reward (or punishment) that result from their actions. Skinner's work on the 'shaping' of behaviour through appropriate reinforcers has had considerable influence on educational practice and, to some extent, on training methodology. Echoes of behaviourism can still be found in the importance educators attach to feed-back and reinforcement, and within various instructional techniques used in professional development.

Behaviourism applied

Behaviourist principles have been applied extensively to the development of low level psychomotor skills. Skinner (1938) advocates their use for shaping more complex behaviours and even for behaviour modification.

An example of behaviourism applied directly to higher level training is 'behaviour modelling' (Bandura, 1977). This uses techniques such as 'goal setting' and 'self-reinforcement' to help people acquire the characteristics of a competent role model (sometimes presented on film). The technique has been used in professional development programmes in the USA (Sprafkin and Goldstein, 1990), though to a lesser extent in the UK. However, elements of modelling can be found in role play exercises and other kinds of simulation, which are widely used in this country.

Bandura (1977) claims that behaviour modelling can be particularly effective in helping people overcome dysfunctional fears or phobias - e.g. fear of heights, public speaking, cold calling. Moses and Ritchie (1976) report success in using modelling to develop interpersonal skills. Latham and Frayne (1989) describe its use as an aid to employee motivation and self-development. But others are critical of the technique, claiming that its results are inconsistent; that behaviours practised through modelling often fail to transfer adequately to real work situations and that even where they do appear to transfer, often decay rapidly (Russel et al., 1984).

Behaviourism has been used to explain and inform learning through repetitive processes such as drill and practice and even learning by observation (Myers, 1988), though the latter is particularly questionable. Behaviourism has also successively influenced the design of programmed learning, teaching machines, computer based training and interactive video (Dean and Whitlock, 1988). In all of these areas, training is offered in small steps, responses are required from trainees at various points, and feed-back is given.

More generally, behaviourist principles have been applied to the development of motor skills, especially where this involves continuous repetition. However, Gagné (1967), based on research with the American military, argues that repetition accompanied by simple feed-back in the behaviourist style is not in itself a reliable training method, even for the acquisition of basic skills such as those involved in gunnery. He maintains that repetition accompanied by instruction is much more effective, because an instructor can draw out the principles and even the thought processes involved, suggesting suitable mental models for use by the trainee. Thus, Gagné can be seen as embracing both behaviourism and the other main school of developmental theory, cognitive psychology.

Cognitive approaches

In contrast to behaviourism, with its concentration on inputs and outputs, cognitive approaches are more concerned with what goes on between these two stages, in other words, the mental processes which accompany such activities as learning, reasoning or problem solving. These kinds of cerebral activity are likely to involve processes such as memorising, concept formation, and the use of symbols and language. Cognitive approaches look at the way people absorb information from their environment, sort it mentally and apply it in everyday activities.

Gestalt theorists

One branch of cognitive psychology was developed by the so called 'Gestalt' theorists (e.g. Lewin, 1935; Kofka, 1935; Wertheimer, 1945). This school views consciousness as involving organised structures, patterns and configurations, and learning as an holistic process that cannot meaningfully be broken down into constituent parts, even for the purpose of analysis.

The German term 'gestalt' simply means shape or pattern, but can also refer to 'an integrated whole', and it is at this level, exponents of the Gestalt school argue, that learning ought to be studied. Similarly, they advocate that learning techniques should themselves be holistic, rather than fragmented, and should recognise the importance of developing appropriate mental patterns and structures. Bruner (1967, p. 18) describes Gestalt theory as, "... the system par excellence for analysis of the iconic mode, being solidly based upon the analysis of the naive phenomenology of experience and the manner in which perception and memory are linked by the rule of phenomenal similarity". This is a rather complicated way of saying that the Gestalt approach helps us understand how perception and memory are assisted by the use of mental images.

Clarke and Fraser (1982; 1984) describe how Gestalt principles may be used to understand the learner as a 'whole person' and identify incomplete or unsatisfactory mental patterns (or mind sets) which may be blocking them from achieving their full potential - what they term 'unfinished business'. Such problems may be as likely to affect professionals as any other group.

Language and thought

Another group of cognitive theorists sees thought and the process of learning as being closely linked to language, but the nature and direction of the linkage is disputed. Some early theorists, namely Sapir (1929) and Whorf (1941), postulated that language actually determines thought (cited in Gross, 1987, p. 179). This was based on the logic that language enables us to form concepts, that we think by using concepts, therefore, any limitation of language will limit our ability to think. According to Bruner (1967, p. 19), Whorf also hypothesised that different ethnic languages structure reality differently for their users.

The view that language and thought are deterministically linked is now seen by most psychologist as extreme. Gross (1987, p.178), for example, comments that, "As adults, our thinking often goes on through the medium of imagery and we express our thoughts and feelings through gestures, facial expressions and in other non-verbal ways. Artists 'think'

non-linguistically". Bruner (1967, pp. 19-20) reflects that, "Much more to the point [than the specifics of Whorfian hypothesis] is the general question of how language as such affects the cognitive processes ...".

Piaget (1926) takes a more or less opposite position to Whorf, arguing that language reflects, and is dependent upon, the level of cognitive development achieved by an individual at any point in time. He sees such development as very much an evolutionary process through which the mind gradually adapts to its environment using whatever faculties (language or otherwise) have developed thus far.

Vygotsky (1962), adopts what may be seen as a middle position between Whorf and Piaget, arguing that language and thought are separate but come together and interact at various points in the development process. He also stresses the importance of what he calls 'inner speech' or self-communication in, for example, the process of problem solving.

Despite these differences in theoretical position, the importance of language and articulation to thought and learning appears to be widely accepted within education, though sometimes perhaps tacitly (Greene, 1975). It can be discerned in some of the techniques used in professional development. Examples are the use of discussion groups, student presentations, written assignments, reflective reports and, occasionally, simultaneous commentaries (where trainees describe their actions while performing an activity).

Since oral communication is central to many professional roles, the potential interaction between language and competence is of particular interest to this research.

Cognitive design in computer based learning and beyond

Earlier, it was stated that the design of computer based training had been influenced by behaviourist principles. That was certainly true until quite recently. However, shifts in psychological orthodoxy, supported by advances in technology have led to the use of more cognitive design approaches.

Cognitive principles are now being applied to screen design, for example through the use of icons instead of text. More flexible architectures, such as Hypertext and Windows, also enable less structured approaches, allowing trainees to explore sources of knowledge and information in their own individual way, with help and tutorial facilities available if and when required, and tests offered to trainees as an option, rather than being automatically administered to them (Barker, 1989; Plowman, 1989). These

changes also reflect a more general shift in learning paradigm towards one which offers greater learner autonomy and empowerment (Brookfield, 1986) - i.e. a switch from teacher/trainer control to learner control.

A similar paradigm shift may be observed in many other areas of learning and it can be argued that this is, at least in part, due to the replacement of behaviourism by cognitive psychology as the dominant philosophy. But this change offers its own potential problems. Not all learners are able to exploit the greater freedom it offers. Some may need, or prefer, a greater degree of instructor guidance. This seems likely to be the case even with some trainee professionals. The issue of learner autonomy and self-directedness will be re-visited later in the chapter (pp. 105-106).

Cognitive critique

Cognitive theories offer some valuable insights into the way people think and learn, but they are difficult to confirm experimentally, because of the obvious difficulty of directly observing what is going on in a person's head. Surrogates, such as psychological tests or exercises, may be flawed or their results open to different interpretations. Even where a person is able to give a coherent account of his or her own thought process, it should not necessarily be assumed that the same thought process or mental imagery would be either necessary or helpful to another person performing the same task. Nonetheless, a broadly cognitive approach would appear to be appropriate to many aspects of professional development, particularly those with a high cerebral content.

Mixed approaches

A number of psychologists have attempted to combine behaviourist and cognitive principles, recognising that people do not simply respond to stimuli but also act on beliefs, express attitudes and strive towards goals (Tolman, 1959; Bolles, 1972). Whilst still maintaining that there is a link between stimuli and behavioural responses, Tolman suggests this is affected by intervening variables [or cognitive processes] (cited in Hill, 1990).

Other writers too may be seen as embracing both cognitive and behaviourist traditions. For example, Bandura (1977 and 1986), a strong advocate of behaviour modelling and other behaviourist techniques, nonetheless offers a theory of 'social learning'. This sees learning as a continuous, dynamic and reciprocal interaction between individuals affecting, in particular, their *attributes, values and behaviours*. It also recognises the

importance of the learning environment, something which is particularly relevant to this research.

Gagné and Briggs (1979) also adopt a mixed approach in advocating a combination of behaviourist and cognitive principles when training people to perform complex tasks, such as those typically found within professional occupations. They have developed a system of task analysis which includes training domains such as: 'cognitive strategy'; 'intellectual skills'; and 'attitudes' in addition to less cerebral domains such as: 'information'; and 'motor skills'.

Gagné and Briggs suggest that each of these areas will require a different developmental approach. For example, 'motor skills' may benefit from the application of certain behaviourist principles, whereas 'cognitive strategy' and 'intellectual skills' would seem, rather obviously, to point towards more cognitive approaches. Gagné's work with the US Army, cited earlier (p. 98), suggests that even within these discrete domains, a combination of techniques may be the most effective because, for example, even the performance of essentially motor functions may have cognitive dimensions (Gagné, 1967). This appears to be the belief of many top-level athletes who often pay as much attention to the mental processes involved in sporting achievement as to the physical ones.

Application of linguistics to learning

Earlier, the link between language and thought was discussed. An example of a development technique which exploits this link is neuro-linguistic programming or NLP. The technique also employs a combination of behavioural and cognitive principles. NLP is a mix of self-communication techniques (to send oneself positive messages) and various forms of mental imagery. Originating from work done by Bandler and Grinder (1979), the technique has many facets, including modelling (to modify behaviour), visualisation (to alter mental structures or mind sets) and behaviour anchoring (a technique which employs both stimulus and reinforcement).

NLP has a number of enthusiastic supporters who proclaim its efficacy in overcoming psychological barriers, developing personal effectiveness and as an aid to self motivation (Johnson, 1991; Kamp, 1991; Harris, 1992). Pope (1995) argues it can be an invaluable tool for trainers, helping them to overcome their trainees' learning blocks. But the claimed benefits of NLP seem to be short on objective, evidential support. The technique could be criticised for adopting a potpourri of disparate approaches, and for being over philosophical and pseudo-therapeutic.

Cybernetic analogies

Cybernetics, a term credited to Wiener (1948), is a theoretical approach which uses the analogy of machines to model human thought and behaviour. It sees behaviour as being made up essentially of three components - *input, processing and output*, a further element in the mechanism being *feed-back*. A so called 'feed-back loop' consists of *input, output* and some form of *information* concerning the effects of the output (Smith and Smith, 1966).

The importance of feedback has found its way into many different kinds of learning without necessarily the cybernetics model being embraced. Cybernetics principles can be discerned within the well known 'Systematic Approach to Training' (Mager and Beach, 1967), though this also draws heavily on Systems Theory. Cybernetic analogies have informed the concept of 'single loop learning' versus 'double loop learning'. The former being seen as analogous to a thermostat adjusting to a pre-set temperature and the latter to the questioning of whether the thermostat is set at the right temperature (Argyris and Schön, 1974).

A variant of the cybernetics approach sees human thought processing, particularly in relation to problem solving, as analogous to the way computers work (e.g. Hovland, 1960). The data processing analogy has also been used to hypothesise the way human beings process information more generally. Wood (1988, p. 11) argues that human beings, like computers, "... are able to attend to just so much information at any one moment and the assimilation of information and adaptive responses to it demands time". This may be because, as most psychologists appear to believe, we have 'serial processing' capability. This means we can only deal with one piece of information at a time, though we are able to scan rapidly between one piece and another (Welford, 1968; Allnutt, 1976). However, some researchers believe that, like modern computers, humans have a limited amount of 'parallel processing' capability, enabling us to perform several mental tasks at the same time (e.g. Legge and Barber, 1976).

Whatever the truth, the computer analogy may be helpful in pointing to the limitations of human information processing. These limitations have important implications for skills development (Lovell, 1980) as well as for ergonomic design (Wood, 1988). In certain professional areas, such as aviation and surgery this branch of study is particularly critical. Information overload has the potential to cause a breakdown in a professional's competence, albeit temporarily.

In reality, human thought and behaviour are much more complex than any simple mechanical model could portray. The process of problem solving is also variable. Some problems are susceptible to the mechanistic approach used in data processing, but others may require creativity or lateral thinking. As Lafrancois (1980, p. 240) points out, "There are a great variety of different types of problem and a great variety of different behaviours involved in solving them". However, cybernetic and data processing analogies may aid analysis and help explain human limitations in information processing.

Constructivism and discovery learning

Finally, before moving on to adult learning theories, mention should be made of the constructivist philosophy which has emerged relatively recently (Wells and Chang-Wells, 1992 and Driver et al., 1994). This holds that the construction of knowledge is very much an individual process and that different learners find their own way of making sense of the world. They form and test their own hypotheses, based on what they see and hear around them.

The view has been used to support 'discovery learning' methods, but this approach has been criticised for expecting too much of the learner and risking critical gaps in what is learned. Hodson and Hodson (1998), for example argue, "... it is absurdly naive to expect them [the learners] to be able to invent for themselves the abstract notions such as gene, molecule and magnetic field that scientists have developed over many years..." (ibid., 35).

Theories of Adult Development

Many theories of learning were originally intended to aid understanding of children's development and to inform their teaching (pedagogy). But a number relate specifically to the development of adults. Three such approaches are:

- Andragogy;
- Experiential Learning;
- Symbolic Interactionism.

Although these each conceive of adult learning slightly differently, there are overlaps between them. For example, they all view the adult learner as an active participant in the learning process and of broadly equal status with the teacher/instructor.

Andragogy

Just as the term 'pedagogy' refers to the way children are taught, so 'andragogy' offers principles that can be applied specifically to the teaching of adults. The writer most closely associated with the term is Knowles (1980, 1984a, 1984b). Knowles' own principles of andragogy may be simplified as follows:

- mature adults are self-directed and autonomous in their approach to learning;
- they learn best through experiential methods;
- they are aware of their own specific learning needs generated by life or work;
- they have a need to apply newly-acquired knowledge or skills to their immediate circumstances;
- learning should be seen as a partnership between teachers and learners, and learners' own experiences should be used as a resource (summarised and paraphrased from Knowles, 1980, pp. 43-44).

Some, at least, of these principles can be found embedded in many professional development courses, though they are often not explicitly expressed. Brookfield (1986, p. 91) argues that andragogy, "... is the single most popular idea in the education and training of adults".

There appears to be some justification for this claim. Indeed many professional trainers and educators seem to accept the principles as though they were self-evident truths. Yet there are grounds for doubting the validity of the assumptions they make about adults and the way that they learn, certainly in so far as they can be said to be universally applicable.

Some criticisms of andragogy

Jarvis (1984, p. 32) feels that andragogy has acquired the status, of an, "... established doctrine ... without being grounded in sufficient research to justify its dominant position". Brookfield (1986, p. 93) points out that although learner autonomy and self-directedness are at the core of andragogy, these may not be general traits. He argues, "Many adults pursue lifestyles in which self-directed behaviours are noticeably absent". Various pieces of research suggest that these traits may be affected by class differences (Kohn, 1969; Kohn and Slomczynski, 1990) and by cultural differences (Pun, 1990).

The work of Kohn (1969) and later Kohn and Slomczynski (1990) suggests that middle class learners are normally more self-directed than working class learners. Their

research involved extensive parallel studies of self-directedness in the USA and Poland.

Reporting on the studies, the authors write, "We hypothesised that members of more 'advantaged' social classes would be more intellectually flexible, would value self-direction more highly for their children, and would have more self-directed orientation to self and society than would members of less advantaged social classes ... These expectations were strikingly confirmed" (ibid., p. 233).

Pun (1990), working in Hong Kong with both ex-patriot British and Chinese managers, found marked differences between the two cultural groups in their approaches to learning. Whilst the British generally responded well to participative, self-directed and experiential approaches, the Chinese seemed much more comfortable with didactic, tutor-directed methods. The universality of the andragogical principles may also be thrown into doubt by the work of Honey and Mumford (1986) and Smith and Kolb (1985) around learning styles. This suggests that adults, even from similar backgrounds, display marked differences in the way they learn (more will be said about learning styles later).

Knowles' assertion that adult learners are aware of their own learning needs is also open to challenge, at least as a general proposition. Some adults may be aware of some of the gaps in their knowledge and competence, but it is doubtful whether anyone is fully aware of their own shortcomings. It might be argued that professionals in particular ought at least to have a general awareness of their own learning needs, and indeed ought to be self-directed learners. But saying that they ought does not guarantee that they will. It seems likely that such traits would be variable, even amongst professionals. Recognising the limits of one's own competence (and therefore learning needs) would certainly seem to be an essential trait for a professional. Self-development skills would also seem to be important. But both may have to be learnt, rather than occurring naturally.

Jarvis (1987) suggests that Knowles may, within his assertions, be identifying a particular form of maturity, rather than universal characteristics of adulthood. Also doubting the universal application of andragogy, Day and Baskett (1982, p. 150) argue that it is best seen, not as a theory of adult learning, but rather as, "... an educational ideology rooted in an inquiry-based learning and teaching paradigm".

Despite some shortcomings, andragogy does offer a set of principles which many trainers seem to have found useful. Andragogy has also made an important contribution

to the design of professional development programmes in the past and no doubt will continue to do so.

Experiential Learning

Experiential Learning is not a single theory, but encompasses a range of related concepts and models of learning. Some of these have been used to inform the design of professional development programmes. They may also be useful in helping to explain how practitioners learn from experience gained outside formal programmes. Both of these areas are central to the aims of this research.

The broad concept of experiential learning is based on the common sense view that ideas are constantly being formed and reformed by life experiences. But experiential learning theories also offer hypotheses about how the process works, in some cases suggesting their practical application to adult learning situations.

Kolb (1984), drawing on the work of Lewin (1935), Dewey (1938) and others, identifies a number of common propositions about experiential learning shared by the earlier theorists. Kolb summarises these as:

- learning is best conceived as a process, rather than in terms of outcomes;
- learning is a continuous process grounded in experience;
- the process of learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world;
- learning is an holistic process of adaptation to the world;
- learning involves transactions between the person and the environment;
- learning is the process of creating knowledge (ibid., pp. 26-37).

Kolb (ibid.) also offers his now well known 'learning cycle' (Figure 2), which draws heavily on Lewin's earlier and similar model.

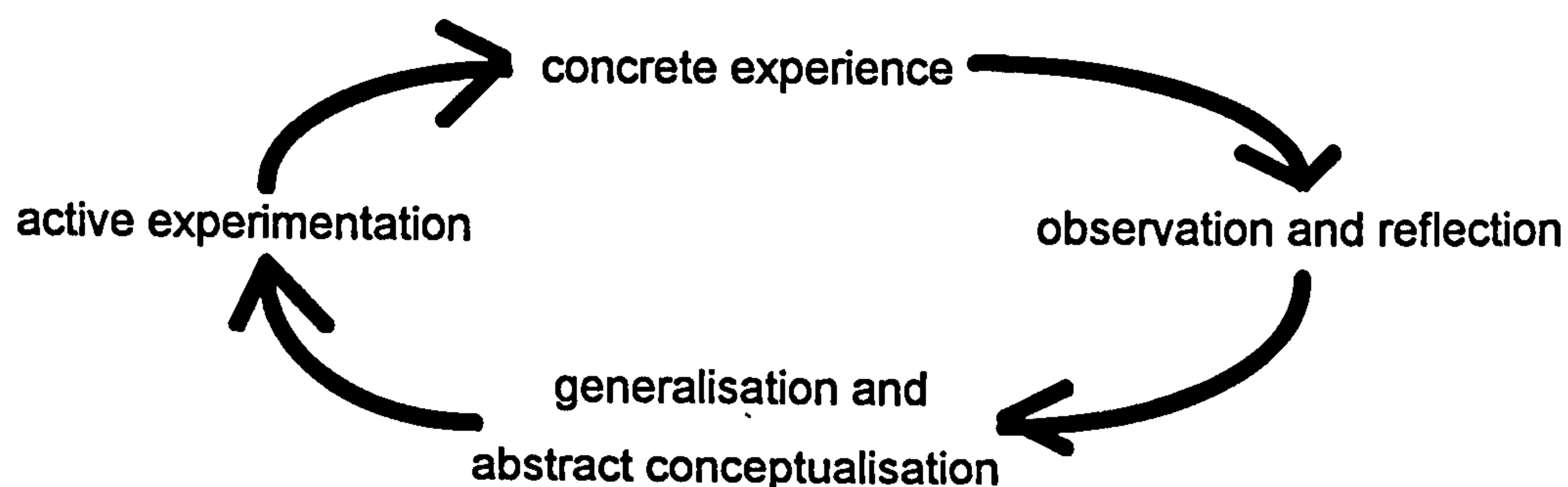


Figure 2: Kolb Learning Cycle (Kolb, 1984)

The cycle has four stages and the learner is seen as moving from one stage to the next until the cycle is completed. The cycle may be entered at any point.

Honey and Mumford (1986) offer an adaptation of the Kolb model in which the learner moves from 'having an experience' to 'reviewing the experience' to 'concluding from the experience' to 'planning the next steps'.

Another technique within the experiential learning genre is 'Action Learning' (Revans, 1983; Mumford, 1984), a procedure in which a group, or 'Action Learning set', tackles a work based problem, in stages, with intermediate periods of analysis and reflection upon what has been learned. Within the process, learning is considered to be just as important as solving the problem. The learning sets are expected to generate their own solutions (and learning) with minimal external intervention.

Links between experiential learning and andragogy

There is some overlap between andragogy and experiential learning theories but it is possible to be a supporter of experiential learning without espousing all the principles of the former. For example, self-directedness is not a necessary pre-requisite of experiential learning, though it may help. Nor does experiential learning require learners to be consciously aware of their own specific learning needs. Indeed it can be argued that it is often not until some time after the initial learning experience, and perhaps a period of reflection, that learners are able to recognise the things that were important for them to learn.

Criticisms of experiential learning approaches

Some people are wary of experiential learning techniques believing them to be 'hit and miss' in relation to what is learned. Along these lines, Brotherton (1991) writes:

... research indicates that the instructor cannot rely upon the instructed person's own ability to discover what is useful through experience ... positive assistance is required so as to structure experience...

(ibid., p. 6)

Smith (1988, p. 28) has similar concerns about the use of Action Learning and comments, "Action Learning ignores the fact that outsiders can contribute alternative framings of problems...".

The proposition that learning through experience takes the form of a neat cycle as suggested by both Kolb (1984) and Honey and Mumford (1986) is also open to challenge. Learning seems likely to be a more complicated and multifaceted process.

Schlesinger (1996) argues that whilst the elements of both the Kolb and Honey and Mumford cycles are relevant, learners in practice jump between these elements in complex ways; that learning is much more fragmented and often chaotic than the cycles suggest.

The fact that people do learn through experience is beyond challenge. Indeed, this is likely to be a major element of professional competence acquisition. Whilst the various theories of experiential learning have their limitations in terms of explaining how the process works, they may point to ways in which naturally occurring learning experiences can be better exploited by individuals. Similarly, the main utility of learning cycles may be the enhancement of individual or group learning, rather than providing accurate models of how people actually learn.

Symbolic Interactionism

This term is used here to describe the philosophy of a loose grouping of theorists who place considerable emphasis on factors such as self awareness, self image and self esteem within the learning process (e.g. Mannheim, 1936; Freire, 1978). 'Self' is considered to be a social construction which emerges both through interaction with others and the use of language (Jarvis, 1987).

From within this school, Brundage and Mackeracher (1980, pp. 23-6) offer a number of hypotheses about adult learning. Though these are similar in some respects to those of andragogy, they are more dependent on self image. They include:

- adults are more concerned with whether they are changing in the direction of an idealised self-concept than whether they are meeting objectives set by others;
- adults with higher self-esteem learn better than those with lower self esteem;
- the self is affected by each new role undertaken by the learner;
- adults learn best when they perceive themselves as learners.

These hypotheses are of relevance to this research, though some of them are open to challenge, particularly the last one. The hypothesis relating to self-esteem seems less controversial.

For another member of this school, Freire (1978), the learning philosophy takes on an almost liberationist political zeal [sic.]. He suggests that adult learning should be aimed at freeing individuals from the intellectual constraints of dominant cultures, encouraging them to challenge the status quo.

Boydell (1990) identifies seven 'modes of being', each of which offers a different sense of 'self' and leads to different modes of development (summarised in Table 1):

Mode	Characteristics
1 - Adhering	working to standards or operating in ways prescribed by others, working from memory, applying rules, etc.
2 - Adapting	responding to variations from routine, recognising patterns and effects of changes, making changes to taught routines
3 - Relating	being in tune with what is happening, understanding at a deeper level what is going on and able to explain to others
4 - Experiencing	learning from experiences and using this as a basis for action, developing own ideas and theories of action
5 - Experimenting	needing to find things out by experimentation and discovery, developing new ways of doing things
6 - Connecting	realising that things are somehow inter-connected, seeking wider overviews, attempting to bring things together
7 - Dedicating	having a deep conviction and sense of purpose, able to find meaning in work, able to focus on essentials

Table 1: 'Modes of Being' (summarised and paraphrased from Boydell, 1990, p. 8)

Boydell argues that as people mature as learners, they do not simply move from one mode to another, but have a wider repertoire of modes open to them.

Symbolic interactionism and professional development

Some of the ideas within this school could appear esoteric, difficult to translate into practice or perhaps unduly philosophical. However, they do have implications for professional development at a general level. They emphasise the importance of the social setting of learning, the need for developers to recognise the individuality and earlier socialisation of learners and the importance of supporting, or even enhancing, a learner's self-esteem.

In support of this approach, research by Lawrence (1985) appears to show links between self-esteem, learning expectations and achievement. Blagg et al. (1993) suggest that even those with high self esteem (as might be the case with many professional trainees) can have their confidence, and therefore learning capacity, undermined by inappropriate handling. They argue that 'confidence building measures' should always be included in development programmes.

Professional Development: Concepts and Techniques

Having looked at a number of broad theories of learning, the review now examines a range of more practical techniques and concepts related to professional development. Again, the work cited under each topic is representative only of an often considerable literature.

Instruction and coaching

Instruction is understood here to mean: *the inculcation of specific knowledge or skill-related principles to one or more individuals at the same time*. Coaching is understood as: *one to one learning support tailored to the needs of an individual*. Both techniques have particular relevance to professional development. A number of writers offer paradigms, models or principles to support each.

Bruner (1978), while falling short of offering a detailed coaching model, suggests a useful metaphor of a coach as providing *expert scaffolding* to support the learner. Like real scaffolding, the support can be adjusted as necessary, according to the learner's needs. It can also be dismantled when it is no longer required.

In relation to instruction, Gagné (1967; 1984) provides a paradigm which places the emphasis on providing suitable conditions for self learning, and on the instructor directing the trainee's attention towards significant factors as well as imparting the hidden secrets of mastery, rather than simply the mechanics of the process. His analysis of the hierarchical nature of learning - the fact that certain things must be known, or skills mastered, before more complex tasks can be undertaken - also informs the sequence in which instruction should take place (Gagné, 1962).

A learner centred approach to instruction is promoted in a publication by the former Engineering Industry Training Board (EITB, 1980). This involves trainees undertaking all the actions themselves right from the start. It is based on the belief that people learn best by 'doing', rather than by watching others. The instructor offers verbal guidance throughout the instruction but no prior demonstration.

Bruner (1967, pp. 40-43) suggests that any theory of instruction should have four features:

- a specification of the experiences most likely to encourage a willingness to learn;
- a specification of the way information should be structured;
- a specification of the sequence in which information should be presented;

- a specification of the nature and pacing of rewards and punishments.

The last of these has a distinctly behaviourist, and perhaps rather old-fashioned, flavour and the items as a whole seem more appropriate to a scheme or plan of instruction than to a theory of instruction as Bruner suggests.

Collins et al. (1989) offer a model of instruction which, like Gagné's, stresses the importance of instructors making the cognitive processes as explicit as possible. But their model reveals a broad understanding of the term 'instruction' which embraces a range of processes, some of which were discussed earlier, including some that are self-directed. The six elements of the model are:

- *modelling* (by an expert);
- *coaching* (which the authors see as the learner practising while the coach offers feedback);
- *scaffolding* (the notion of providing support which is gradually reduced as the learner becomes more proficient - drawing on Bruner, 1978);
- *articulation* (getting trainees to describe their reasoning or problem solving processes);
- *reflection* (which the authors see as comparing their own reasoning or problem solving processes with those of an expert or peer);
- *exploration* (where trainees take on problem solving without support).

Although offering this schema as a model of instruction, the authors also refer to it as 'cognitive apprenticeship'. This title seems more appropriate, given its broad content. The model is included here because a number of the techniques it incorporates appear particularly germane to professional development.

Observation and role modelling

Observation is a natural part of everyday life and it is taken for granted that we learn many of our practical skills and behaviours by watching others. But how does this work and why is it not always successful?

Bandura (1986) offers a simple model for learning by observation. This is made up of four components: *attention*, *retention*, *production* and *motivation*. The first and last components highlight the fact that we do not automatically learn everything we observe. We notice events selectively and this is affected both by concentration and the desire to learn. The

absence or inadequate execution of any of the other components will also mean that effective copying will not occur.

Bandura (ibid.) also identifies two levels at which people learn from role models: 'imitation' in which one person simply tries to copy the behaviour of another; and a deeper process which he calls 'identification' in which a person tries to be the 'same kind of person' as the other.

Role modelling has been the subject of a number of empirical studies. For example, Bucher and Stelling (1977) conducted research which looked at how professional trainees acquire particular 'professional identities' - i.e. how they become a particular kind of professional.

They identified five different types of role model, summarised as follows:

- i) *partial* - the trainee selects particular characteristics, modelling traits, rather than people;
- ii) *charismatic* - an idealised global model of professionalism;
- iii) *stage* - senior peers, etc., who exhibit what to expect at a later stage in the training process;
- iv) *option* - people who provide examples of alternative career paths;
- v) *negative* - people who exhibit "how not to be" (ibid., pp. 151-159).

Bucher and Stelling reject what they call the 'simplistic notion' of trainees modelling themselves on a single individual, arguing instead that trainees draw on an amalgam of role models to become their own kind of professional.

Wales et al. (1993), whilst viewing role modelling as an essential process in developing professionals, caution (rather obviously) that it, "... is not sufficient to guarantee student mastery". They argue that to be effective, the observation of a model should be enhanced by articulation by an expert of the, "... normally hidden mental activities" (ibid., p. 192). This has echoes of Gagné's paradigm of instruction referred to earlier.

Ozar (1993) believes that role modelling can be important to the development of professional ethics. He claims there is evidence that professionals modify their values from time to time as a result of the influence of new role models, but argues that this is best if done consciously and reflectively with the practitioner being selective and deliberate about imitation.

The extent to which professionals make use of role models and the kinds of role modelling used were among the issues directly explored through the empirical stage of this research.

Mentoring

Mentoring often forms an element within professional development programmes (Brennan and Little, 1996). Sometimes the arrangement is formal and is seen as an integral part of the development process. Sometimes mentoring relationships form naturally and are not formally recognised. Mentoring, its nature and potential benefits appear to be the subject of a growing amount of research. Clutterbuck (1985) traces the origin of mentoring to pre-Industrial Revolution forms of apprenticeship where he argues a close personal relationship often developed between a master and an apprentice, and where the older, more experienced individual would pass down, not only skills in performing specific tasks, but frequently also the secrets of how to operate in the commercial world.

Modern day mentors can perform a number of functions - coach, counsellor, role model, sounding board, adviser, confidant, etc. Hawkins and Shoet (1989) identify three broad mentoring roles: *educative*, *supportive* and *managerial*. Levinson (1978) describes a mentor as mixture of parent and peer. He argues that having a mentor is one of the most developmentally important relationships a person can have. Mentoring has other enthusiastic supporters in the literature. Pearce (1987) boldly states:

When I meet people who are successful ... I now ask the question, 'Did you have a mentor?' The answer, without exception, is 'Yes'. It appears that a mentor is the single thread that connects all successful individuals.

(cited in Wright and Werther, 1991, p. 25)

But in direct contradiction, research by Carsrud and Olm (1984) and Gibbons (1986) indicates that many successful entrepreneurs and transformational leaders claim they never had a mentor (cited in Fagenson, 1989, p. 316).

In a study of over five hundred large company employees in the USA, Fagenson (1989) found that 37% of respondents had mentors. These individuals reported having greater career mobility, job opportunity, recognition, job satisfaction and a higher promotion rate than non-mentored individuals. Similarly Kram (1983;1985), Zey (1984) and Noe (1987) all highlight career support and upward mobility as the main benefits of having a mentor.

Unfortunately, none of the above American studies appears to have majored on the learning implications of mentoring, the aspect which is of prime concern to this research. However, Brennan and Little (1996) claim that a number of research projects in the UK have identified learning benefits both to mentees and to mentors. Wilkin (1992) argues

that in teacher training, where formal mentoring is a relatively recent innovation, it has already become a crucial contributor to teacher development. On the other hand, Ragins (1989) reviews a large volume of literature relating to mentoring and reports a significant incidence of negative effects, particularly in respect of female mentees and especially where they were involved in cross-gender mentoring.

Most of the reported studies appear to concentrate on mentoring within management and business, as opposed to professional environments. Mentoring is certainly used in professions, though the functions of the mentor vary considerably between professions (Brennan and Little, 1996). In some professions, e.g. Nursing, Social Work and Teaching, where students often have a mentor who supervises their practice-based training, mentors have a strong developmental role. In other professions, e.g. Surveying and Accountancy, the mentor's role is less formal. In the case of the Bar, where all pupil barristers have a formally-appointed 'pupil master', the extent of the developmental role is variable. Brennan and Little (1996, p.106) suggest that, "Different professions have contrasting traditions of studentship, traineeship, etc. which may well imply contrasting models of mentoring". They draw on Quality Support Centre (QSC) guidelines to identify four different models of mentoring:

- apprenticeship model* - an experienced practitioner gives coaching, counselling and sometimes formal instruction;
- competence model* - a mentor assists the learner to prepare for assessment against specified standards;
- reflective model* - a mentor assists the learner to reflect on cognitive aspects of his or her development;
- informal model* - a mentor offers whatever seems appropriate - i.e. encouragement, friendship and perhaps coaching or instruction.

(summarised from Brennan and Little's adaptation of QSC guidelines, 1995, pp. 46-47)

This seems a somewhat idealised model. In practice, mentors' roles are likely to cut across a number of the above categories.

Following research in the area, Bennetts (1998), writes of the efficacy of what she calls 'traditional mentor relationships' - i.e. those that form naturally and operate informally, rather than being imposed as part of an organised development programme.

But even more formal mentoring relationships can take on a more 'traditional' form, enduring for long after the completion of the training which they were intended to support, as the following anecdote related by Lord Jenkins of Hillhead illustrates.

Tony Blair, when Leader of the Opposition, invited Lord Jenkins and others to a dinner party at his home. Alexander Irvine QC, Blair's old pupil master, was also present and Jenkins noticed how Blair constantly deferred to him as if still eager to learn from his old mentor (Naughtie, -1996). Perhaps significantly, Tony Blair, on becoming Prime Minister, appointed Irvine as his first Lord Chancellor.

Though some of the benefits claimed for mentoring may be exaggerated, there is evidence that it can make a useful contribution to professional development. This research included an examination of the incidence of mentoring relationships (both formal and informal) and their contribution to competence acquisition.

Simulation and transfer

Providing professional trainees with real work based experience can be expensive, disruptive of normal routines and at times dangerous. Simulations are therefore often used as an alternative. This raises questions about the extent to which skills learned via simulation transfer to real work situations.

Simulation can take many different forms, ranging from the use of high technology, high fidelity flight simulators, to dental practice on 'phantom heads', through to mock trials for barristers. The simulation may cover an entire, discrete function (whole task simulation) or a small part of a function (part task simulation). The two main uses of simulation in professional development are training and assessment.

In relation to training, there seems to be evidence that for high fidelity simulation, of the kind found in aviation, transfer rates are high. Strickler (1976) claims that in respect of pilot development there is a real prospect of 'total training' and qualification through simulation. Short (1989) is similarly confident of the effectiveness of computer based simulators for training maritime 'deck officers' in the techniques of instrument navigation. But such high fidelity forms of simulation are rare. Where less elaborate forms are used, there is more disagreement about their benefits.

Osgood (1949) highlights the effect of 'negative transfer' (where previous learning or experience interferes with the learning of a new skill). This is especially likely where the new skill is perceptually similar to the old. Likewise, Reason (1979) identifies 'discrimination failures' (where something is similar but different, and this promotes a wrong action). Either of these may occur when a trainee moves from a poorly designed simulation to real life, making it harder to learn the new skill than if there had been no simulation experience.

On the more general question of whether knowledge and skills learned in one area can be expected to transfer to another, Blagg et al. (1993) provide a useful summary of two competing theoretical perspectives. These are: the *doctrine of formal discipline*; and the *identical elements theory*.

The first of these is based on the hypothesis that mental skills of any kind depend on certain generic intellectual faculties such as reasoning, observation and memory; and that any exercise which develops any of these faculties will improve mental performance and learning capacity in unrelated areas. As Chapter 2 related, this view was popular in the nineteenth century and was often used in support of a generalist classical education. However, research around the turn of the century suggested that learning in one domain did not necessarily facilitate mental activity in another; it did not 'train the mind' as previously believed (Blagg et al., 1993, p. 9). For example, an individual who was good at remembering names was not necessarily good at remembering numbers.

Such results led to the *identical elements theory* which suggested that learning transfer would only occur where the learning context and transfer context shared identical elements. This implied the need to match the learning situation as closely as possible to the anticipated transfer situation (Blagg et al., 1993, p. 9).

According to Blagg et al., more recent work by certain cognitive psychologists (e.g. Feurstein et al., 1980) seems in part to support the earlier hypothesis, that reasoning patterns developed in one domain can be transferred to others, but this falls short of a straight return to the earlier simplistic doctrine. More complex hypotheses are offered on the conditions necessary for transfer, together with suggestions for making it more likely (Feurstein et al., 1980; Perkins and Salomon, 1988). For example, Feurstein et al. suggest that transfer can be improved by adopting what they call 'bridging strategies'. These help learners to link mentally what they have learned in one context to a number of different contexts. Larkin (1989) attempts to identify the particular kinds of knowledge which are most likely to transfer.

Returning now to simulation, and in particular to its use for assessment, McGaguie (1993) claims there is a growing body of evidence that low fidelity simulations are inappropriate for assessing the competence of professionals. He argues they can lead to incorrect inferences about the trainee. On the other hand, Woodruffe (1990) stoutly defends the use of such low fidelity simulations within assessment centre settings. Dale and Iles (1992),

whilst supportive of assessment centres, caution that any simulations used need to be carefully piloted and validated against real practice to ensure their reliability.

The use of simulation in the assessment of NVQs has also been controversial. In his review of the NVQ and SVQ process, Beaumont (1995) accepts that simulation has a role to play, but his report states, "... it should only be used when the opportunity for assessment is not possible in the workplace" (ibid., p. 19).

It is doubtful whether professional developers, as a whole, pay sufficient attention to the issue of transfer. Yet transfer is crucial to all professional development programmes, particularly where practical elements are taught away from the workplace. Data on the incidence of simulation and its perceived contribution to developing professional competence was collected during the empirical stage of this research.

Learning styles

There appears to be considerable evidence that different people learn in different ways and this presents a challenge for anyone seeking to offer general advice on learning design.

Research by Kolb (1984), Smith and Kolb (1985) and Honey and Mumford (1986) have offered useful analyses of learning styles. Smith and Kolb (ibid.) offer a 'Learning Style Inventory' which is derived from Kolb's work on experiential learning and his 'learning cycle', referred to earlier in this chapter (p. 107). The inventory transposes the four stages of the 'learning cycle' into four learning modes:

- concrete experience;
- reflective observation;
- abstract conceptualisation;
- active experimentation.

A questionnaire is used to determine how strongly an individual identifies with each mode. The resulting score is charted on a circle divided into four segments and the individual's learning style is identified as being in one of four different types:

- | | |
|--------------------|--|
| <i>converger</i> | - a person who combines <i>abstract conceptualisation</i> with <i>active experimentation</i> ; |
| <i>diverger</i> | - one who combines <i>concrete experience</i> and <i>reflective observation</i> ; |
| <i>assimilator</i> | - one who combines <i>abstract conceptualisation</i> and <i>reflective observation</i> ; or |

accommodator - one who combines *concrete experience* and *active experimentation*.

Each of these has practical consequences. For example, a *converger* will learn best through putting ideas into practice, a *diverger* will tend to prefer observing something concrete, perhaps from different perspectives, an *assimilator* will learn by developing hypotheses based on what he or she observes and an *accommodator* will prefer 'hands-on' approaches and 'learning by doing'.

Honey and Mumford (1986) draw both on Kolb's experiential learning work and his Learning Styles Inventory. However, they use a more detailed questionnaire and offer four different, though recognisably similar, categories of learning style. These are:

- activist* - a person who learns through constant and enthusiastic activity;
- reflector* - a person who stands back, observes and thinks a lot before getting actively involved;
- theorist* - a person who likes to rationalise and synthesise information into logical patterns; or
- pragmatist* - a person who likes to try out ideas and turn theories into practice.

As with the Kolb model, the authors suggest that an individual is likely to display elements of each. The strongest influence may be discerned by charting the scores on a cross shaped grid.

Learning styles inventories are not precise tools and the theory on which they are based is open to question. Perhaps their greatest strength is that they remind teachers and trainers that people learn in different ways and caution them against making generalised assumptions about learners. They also offer a rationale for tailoring approaches to the needs of different individuals (for an interesting case study of learning styles applied within police training see Norris and Kelly, 1994). Spangenberg (1990) suggests that the main advantage of using a learning styles inventory is to learners themselves, increasing their self awareness and enabling them to better exploit the learning opportunities that arise.

Collaborative learning

A number of writers support the concept of collaborative learning, arguing that individuals often learn better by co-operating with others than they would on their own. Eraut et al. (1997) suggest that this results from a combination of observation, consultation, mutual exchange of information and a process of osmosis.

Vygotsky (1978) claims that what a learner is able to achieve in collaboration with others is more indicative of their mental development than what they can achieve alone. He refers to the gap between the two levels of achievement in, for example, problem solving exercises, as the *zone of proximal development*. He believes that the interaction involved in co-operating with a knowledgeable peer can extend the 'zone' for both individuals.

Sharan and Sharan (1992) argue that both learning products and outcomes can be improved through co-operation. On the last point, it could be argued that simply on the basis that 'two heads are better than one', the products of learning ought to be better. The key issue is whether each individual has actually learned more. Vygotsky's work suggests that the 'extended zone' does actually become *internalised* by both parties.

Such perceptions of the potential benefits of co-operative learning have led to more relaxed attitudes within academic institutions about issues such as students collaborating on personal assignments. In some cases, assignments are deliberately planned as co-operative exercises, sometimes with assessments or vivas being conducted in groups. Similarly, as Brennan and Little (1996) report, there is a growing incidence within higher education of student-supported learning, including peer tutoring, supplemental instruction (by students) and teacherless groups.

The idea of learning from people who are not formal teachers is extended further by Casement (1985) who stresses the potential for professionals to learn from their patients or clients.

Models of professional expertise

A number of researchers have addressed the fascinating questions of how people become expert and what sort of cognitive processes are involved when expertise is being applied. Are these, for example, intuitive or analytical or perhaps a combination of both?

Hammond (1980) sees analytical and intuitive thinking as opposite ends of a continuum and believes that most expert cognition involves a mixture of each. He posits that where rapid decisions have to be made, the process is likely to be more intuitive than analytical. Where there is time for consideration, greater analysis is likely to be applied. However, Hammond believes that intuitive thinking in experts is informed by earlier analytical experience. This may be seen as similar to Schön's hypothesis that

professionals draw on repertoires of solutions built up over the years. However, Hammond's conceptualisation involves a less direct synthesis of earlier experience.

Boreham (1987) too believes that experts use experience of similar situations but only to help them rapidly narrow down the problem. They then use more deductive thinking to generate a problem-specific solution. He refers to this as 'template modelling' and suggests that professional knowledge is stored in an expert's memory in the form of schemata or stereotypes, rather than as some sort of logical taxonomy.

The ability of experts quickly to focus on what is important, then conduct a more detailed analysis is also addressed by Elstein and Bordage (1979). They suggest that experts rapidly generate working hypotheses which they subsequently test using more deductive processes. Doctors, for example, when conducting a diagnosis, often quickly narrow down the possible cause to a small number of ailments, based purely on experience. They then use more analytical tests to prove or disprove each hypothesis. However, the authors point out that this process can lead to errors due to failure to generate the right hypothesis. The authors suggest this may be overcome by deliberately constructing alternative hypotheses to the ones that seem the most obvious.

A simple and much quoted model with rather obscure origins (cited in Boak and Thompson, 1998, pp. 68-70), is readily applicable to the acquisition of professional expertise. This holds that individuals may be in one of four different states in relation to a particular skill, or their overall performance. These are:

- unconscious incompetence (the individual is unaware of his or her own weaknesses or competence gaps);
- conscious incompetence (the individual is aware of his or her own weaknesses or competence gaps but has not, so far, overcome these);
- conscious competence (the individual has to make a conscious effort to perform effectively);
- unconscious competence (the individual performs effectively without any apparent or conscious effort).

A person may move through these stages as they become expert, progressing towards the ideal state of unconscious competence.

Dreyfus and Dreyfus (1986) offer a similar, though rather more complex model. This envisages the development of expertise as a gradual transition from a rigid adherence to

taught rules and procedures through to a largely intuitive mode of operation which relies heavily on a deep, tacit understanding. The model has five levels as shown in Table 2:

Level	Characteristics
1 - Novice	<ul style="list-style-type: none"> • rigid adherence to taught rules or plans • little situational perception • no discretionary judgement
2 - Advanced Beginner	<ul style="list-style-type: none"> • guidelines for action based on attributes or aspects • situational perception still limited • all attributes and aspects are treated separately and given equal importance
3 - Competent	<ul style="list-style-type: none"> • coping with crowdedness • sees actions at least partially in terms of longer term goals • conscious, deliberate planning • standardised and routinised procedures
4 - Proficient	<ul style="list-style-type: none"> • sees situations holistically, rather than in terms of aspects • sees what is most important in situation • perceives deviations from the normal pattern • decision-making less laboured • uses maxims for guidance whose meaning vary according to the situation
5 - Expert	<ul style="list-style-type: none"> • no longer relies on rules, guidelines or maxims • intuitive grasp of situations based on deep, tacit understanding • analytical approaches used only in novel situation • vision of what is possible

Table 2: Summary of Dreyfus model of skill acquisition (based on summary provided by Eraut, 1994, p. 124)

The model has similarities to the 'Modes of Being' described by Boydell (1990), discussed in an earlier section (p. 110). Dreyfus's expert level (level 5) also accords with the concept of 'unconscious competence' discussed above (p. 121). However, the Dreyfus model strongly contrasts with the more mechanist, behaviourist approaches to skills development, and with the cybernetic and data processing analogies of human cognition, discussed earlier (Wiener, 1948; Hovland, 1960). Dreyfus and Dreyfus stress the importance of changing perceptions and see learning from experience as the main engine of transition through the various stages of the model. Like Schön (1983; 1987), they eschew earlier 'technical rationale' models of professional practice.

The Dreyfus model could be criticised for being over stratified and hierarchical. In practice, it may be possible for an individual to display certain of the characteristics from several levels at the same time. It is possible also that different individuals may have a natural tendency towards either intuitive or analytical approaches to problem solving and decision-making in much the same way that they appear to display different learning styles.

Cornford and Athanasou (1995) attempt to show links between the Dreyfus model and a model of skill learning offered by Fitts (1986). The latter sees skill as developing through three stages:

- *cognitive* (learner has to consciously 'grapple' with the nature and mechanics of what is being done);
- *practice fixation* (repetition and iteration increase understanding and help fix the steps or sequence in the long term memory);
- *autonomous* (activity can be executed more subconsciously, leaving the conscious mind free to concentrate on monitoring and problem solving) (summarised from description by Cornford and Athanasou, 1995, p. 12).

The Fitts model, unlike the one offered by Dreyfus and Dreyfus, may be seen as containing an element of behaviourism (repetition, iteration and fixation), though cognitive principles are also present. The highest stage stresses the often unconscious nature of effective performance. Cornford and Athanasou (*ibid.*, p. 12) state, "The attainment of a level of expertise in highly skilled professions will generally not be attained before a minimum of five years in that speciality and there is ample evidence that ten years may be typically the norm". However, the authors do not elaborate upon what they mean by 'ample evidence'.

Expertise development would seem to be an integral part of becoming a competent professional. The range of insights offered above may inform the results of this research, though none of the approaches seems to offer a wholly satisfactory explanation of how expertise is acquired.

Types of professional knowledge

There is some disagreement about how different kinds of knowledge (especially professional knowledge) ought to be classified. Molander (1992, p. 13) refers to three kinds of knowledge:

- Propositional knowledge - knowledge which can be codified and articulated - e.g. theories, concepts, generalised practical principles procedures, rules;
- Practical Knowledge - knowledge linked to skills - how to do things;
- Familiarity with performance and practices.

The second type, practical knowledge, more or less corresponds to Schön's 'knowing-in-action'. The last category could perhaps be seen simply as a subset of the second.

Molander argues that these two are themselves forms of 'tacit knowledge'.

Eraut (1994) also speaks of propositional and practical knowledge, stressing that the latter is acquired through experience and often resistant to articulation or analysis. He breaks down 'propositional knowledge' into two subgroups: *public knowledge* (the sort of knowledge available in libraries); and *personal knowledge* (the sort of knowledge an individual brings to a job). He also offers a further general category which he calls 'process knowledge'. He characterises this as knowing how to do things linked to professional action and offers by way of examples - planning, decision-making, skilled behaviour. However, this could simply be seen as a particular kind of 'practical knowledge'. His examples also seem a little incongruous - e.g. planning versus skilled behaviour.

At a more general level, Freidson (1970) identifies two broad types of professional knowledge:

- 'pure' knowledge and theory largely confined to codified science; and
- the knowledge which, in his words, "guides the profession's application of the science to the problems of mankind" (ibid., p. 349).

Mangham and Pye (1991) make a distinction between 'scientific knowledge' - e.g. logic, analysis, rational deduction, and 'behavioural knowledge' - e.g. tacit, intuitive understanding. They argue that professional roles require a combination of the two and that although they can be analytically separated, "... each informs the other at the point of action" (ibid., p. 18). A similar categorisation is used by Oakeshott (1962) who distinguishes between 'technical knowledge' which is capable of being articulated and codified, and 'practical knowledge' which often is not.

A number of writers use the term 'knowledge bases' (e.g. Eraut and Cole, 1993; McGuire, 1993). Eraut and Cole construe these as:

- key concepts and theories necessary for understanding professional practice;
- facts and data required for the day to day practice of the profession; and
- procedures used in day to day practice (ibid., p. 13).

Offering a rather different analysis, Schein (1973) suggests that a knowledge base has three components:

- i) an underlying discipline or basic science upon which professional practice rests or from which it is developed;
- ii) an applied science or 'engineering' component from which many day to day diagnostic procedures and problem solutions are derived;
- iii) a skills and attitudinal component that concerns the actual performance of services to clients using the underlying basic and applied knowledge (cited in Schön, 1983, p. 23).

It is arguable that the last of these has more to do with behaviour than knowledge.

A number of writers follow Schön (1983; 1987) and Molander (1992) in stressing the importance of 'tacit knowledge' but others are wary of the notion, at least as a form of knowledge which cannot be communicated. Spender (1996) prefers to define 'tacit knowledge' as, "... that which has not yet been abstracted from practice" (ibid., p. 67). He criticises prevailing notions of knowledge as, "naively positivistic" (ibid., p. 64), yet his own view of tacit knowledge could itself be seen as positivist.

A further kind of knowledge, considered by some authors to be vital to effective occupational performance, is 'contextual knowledge' (Zuboff, 1988) - e.g. knowledge of the particular organisation, environment or situation. Indeed Zuboff argues that competence is itself often context-specific.

These perspectives on knowledge will be drawn on in Chapter 6 in constructing the model of professional competence.

Work based learning

There is considerable evidence that a great deal of learning takes place at work (Marsick, 1987; Marsick and Watkins, 1990; Eraut et al. ,1997) but there is no single theory of learning in the workplace. Rather, the literature provides a range of theories and empirical findings that may be applied to this area. Some of these will be described in the next few subsections.

The term, 'work based learning' can encompass many things. It can relate to the placement elements, provided as part of a Higher Education course, it can refer to the semi-formal on the job training provided within organisations, and it can include the myriad of informal learning experiences to which people are exposed throughout their working lives.

HE-linked work based learning

A useful review of the literature linked to work based learning in Higher Education is provided by Brennan and Little (1996). They summarise the ways in which work based learning is currently incorporated into programmes leading to academic awards as:

- *brief encounter* (up to 7 days aimed at awareness raising);
- *short project* (several weeks immersion under sheltered conditions - e.g., creative design occupations);
- *sandwich placement* (typically 6 to 15 months introduction to professional responsibility - e.g. Engineering, built environment professions);
- *alternating sequence of placements* (between 2 and 10 novice professional placements - e.g. Teaching, Nursing, Social Work);
- *employment based learning programme* (all or most is in work environment);
- *immediately post-qualifying* (1-2 years pre-registration experience - e.g. medical House Officer, articulated solicitor);
- *continuing professional development* (a series of episodes, either formal or informal) (adapted from table in Brennan and Little, 1996, p. 10).

Brennan and Little recognise that in designing a curriculum, or framework, for this kind of work based learning, there is likely to be a tension between the needs of the learner, the professional or regulatory body, the employer, and the HE institution. They suggest the curriculum may have one or more of the following focuses:

- *discipline-based* (supporting HE-based theoretical teaching);
- *vocational skills acquisition*;
- *personal skills development*.

A key issue in relation to placements is how to identify what is to be learned and how to ensure that this happens. One way is through the use of competence frameworks. Edmunds et al. (1997) describe the use of such a framework to support sandwich placements, and to both assess and accredit what has been learned. The use of 'learning contracts' to which the learner, the employer and in some cases HE institutions are all parties is advocated by a number of authors (e.g. Boak, 1991; Thompson and Stephenson, 1991; Stephenson and Laycock, 1993).

Work based learning: formal on the-job-training

De Jong (1997) identifies three perspectives on formalised on-the-job training, each of which has different implications both for training design and trainee support:

- the *Human Performance Technology* perspective - the learning process is carefully controlled by some sort of framework - e.g. based on task analysis or competence standards;
- the *Learning Process Perspective* - this features various forms of self-directed learning; and
- the *Activity Theory Perspective* - this stresses the social nature of both learning and work and sees learning at work as collective and collaborative.

Carr and Kemmis (1983) provide a slightly different but overlapping analysis. This identifies three paradigms of formalised learning in the workplace:

- the *Technical Paradigm* - concerned with the application and mastery of a discrete body of knowledge (this is similar to Schön's concept of technical rationality);
- the *Interpretative Paradigm* - which sees learning as an interactive process in which learners are encouraged to ascribe meaning to their work based experiences; and
- the *Strategic Paradigm* - which encourages learners to reflect critically on their experiences and the meanings ascribed with a view to challenging the status quo.

Mezirow (1985) differentiates between three 'domains' of work based learning: 'instrumental', e.g. learning to do the job better; 'dialogic', e.g. learning about the organisational culture; and 'self-reflective' - e.g. aimed at knowledge of self and personal change. Often elements of each of these domains can be found in work based training programmes, though the emphasis is perhaps most likely to be on the first of these.

Formal work based learning can of course be facilitated in many different ways. Often it is built around some kind of work based project (Poell, 1998). Poell, who provides useful case studies on the use of this approach in Holland, argues that a crucial success factor is ownership by participants, whom he suggests should be encouraged to become co-organisers of their project.

Informal learning at work

This research has a particular concern for informal learning in the workplace and the way individuals acquire and improve their competence through experience.

Marsick and Watkins (1990) make a distinction between formalised learning in the workplace and what they call 'incidental learning' but acknowledge that the latter can be just as important as the former. Reber (1993) also recognises the existence of an

implicit process which leads to the acquisition of knowledge without conscious effort or any explicit awareness of what has been learned. He believes this becomes the kind of tacit knowledge on which people draw, for example, to make decisions, apparently intuitively.

There seems little doubt that this kind of knowledge is gained through work. But it seems likely that other kinds of knowledge, e.g. procedural knowledge and contextual knowledge, some of which would be capable of articulation, could also be acquired informally.

Marsick and Watkins (1990, p. 8), whilst pointing out that work presents numerous opportunities for learning, observe, "... There is no formula that guarantees learning, whether formalised or not". They suggest three personal characteristics which, if present, make work based learning more likely, or may enhance it. These are:

- *proactivity* - a readiness to take the initiative in situations;
- *critical reflection* - a tendency to reflect, not just on events, but on underlying assumptions; and
- *creativity* - to enable a person to think beyond their normal point of view.

Useful, though these attributes may be to individuals, it is questionable whether they necessarily have a causal link to learning. Proactivity, for example, may make a person jump into situations but not necessarily learn from them.

Zuboff (1988) cautions that much work based learning is likely to be context-specific. This means it may not transfer readily to other situations or other work environments.

Investigating work based learning from the learner perspective, Mumford (1995) identifies four broad approaches used either tacitly or deliberately:

- *intuitive approach* - learning is accepted as unconscious and a natural consequence of experience;
- *incidental approach* - involves learning by chance from activities that jolt a person into conducting a 'post-mortem';
- *retrospective approach* - looking back over what happened and reaching conclusions about them;

- *prospective approach* - involves the retrospective elements but with the addition of planning to learn before it happens - future events seen, not just as important in their own right, but as opportunities to learn.

Mumford suggests that different people may be inclined to one or other of these approaches in much the same way as they lean towards particular learning styles.

Before concluding this subsection, a brief mention should be made of the literature around organisational learning (e.g. Argyris and Schön, 1978; Fiol and Lyles, 1985), and the similar concept of the 'learning organisation' (see Jones and Hendry, 1992 for a useful review of the literature on the latter). These relate to the ways in which organisations support learning and learn collectively. The concepts will not be discussed in any detail here since this research is pitched at the individual, rather than the organisational, level, though the importance of organisational, and other factors of the work environment, to learning will be recognised.

Previous Cross-professional Research

There is a considerable amount of research around professional development within individual professions. The three most intensively investigated appear to be Teaching, Medicine and Nursing. Some studies in these areas have been referred to earlier. In relation to research across the professions, various searches have yielded relatively little, especially in the field of competence acquisition. Gear et al. (1994, p. 8) also report a dearth of research, particularly in respect of informal learning in the professions.

Gear et al. themselves conducted an investigation across seven professions of the use of 'informal learning projects', defined as, "... the equivalent of one working day (at least) over the last three years spent developing some aspect of your professional knowledge, skill and competence to the point where you could pass some of it in to a colleague" (ibid., p. 8). Informal methods they identified included: reading, visits, meetings, (practice) audit and conversations.

Their findings seem somewhat restricted, possibly as a result of the relatively narrow focus imposed by their definition which appears to exclude many possible forms of incidental learning.

Another more recent piece of work which has particular relevance to this research was conducted by Eraut et al. (1997). This looked at the development of knowledge and

skills in the workplace. The study included some professional occupations, though it was not specifically focused on professions. It took its sample from across three sectors: Engineering, Health Care and Business. The investigation adopted a qualitative approach and took the form of semi-structured interviews with managers, technicians and a number of professionals from each sector.

The interviewers first elicited information about the interviewee's job, then sought to identify 'learning episodes' that had helped them acquire each necessary area of knowledge and skill. Eraut et al. identified nine broad types of learning episode:

- working for qualifications;
- short courses;
- special events;
- materials;
- organised learning support;
- consultation and collaboration within the working group;
- the challenge of work itself;
- consultation outside the working group; and
- life outside work (ibid., pp. 9-10).

The researchers attempted to cross-reference these with the different types of knowledge and skill acquired. They sought also to identify various factors which affected learning at work and summarise their findings as:

- confidence;
- motivation;
- capability/prior knowledge;
- how a person is managed;
- the micro-culture of the workplace;
- the organisation; and
- professional bodies (ibid., pp.13-14).

Both sets of classification, though different from the ones offered later in this thesis, embrace similar areas and help confirm the findings. Eraut et al.'s work provides a useful cross reference with this investigation, though their research deviates from it in three main ways:

- a different target group and sample - i.e. a mixture of occupational types, not just professions;
- a narrower field of study - focused on what was learned and how, but did not include nature of professions, professional practice or professional competence;
- no quantitative element - therefore, the researchers were unable to consider the relative importance of different types of learning episode or confirm their general applicability.

Other cross-professional research

Other research covering professions in general, tends to be of three main types:

- surveys of current practices - e.g. professional development arrangements, assessment practices, CPD;
- sociological studies of professions - e.g. working conditions, pressures, attitudes, changes taking place;
- identification of generic competencies across professions.

A number of studies found in each of these areas of relevance to this research are examined below.

Surveys of current practices

Perhaps the earliest example of this genre of research is the already much cited work of Carr-Saunders and Wilson (1933). In addition to offering historical information on the emergence of professions, they also report on a cross-professional survey they conducted which covers 25 different professions. As well as more traditional professionals such as barristers and doctors, their survey includes journalists, mine managers and midwives, but excludes military officers and the clergy. In relation to these two exclusions, their reasons may be seen as somewhat value laden. They omit the Church because, as they say:

... all those functions related to the ordinary business of life, education among them, which used to fall to the Church, have been taken over by other vocations. The functions remaining are spiritual and we are concerned only with the professions in relation to the ordinary business of life."

(ibid., p. 3)

They omit the Army because, "... the service which soldiers are trained to render is one which it is hoped they will never be called upon to perform", a rather forlorn hope as things turned out, but no doubt in tune with the prevalent passivist mood of the early 1930s [sic.].

The Carr-Saunders and Wilson survey provides a clear snapshot of development practices as they were in the 1930s and a useful comparison with current practices.

Much more recently, Eraut and Cole (1993) have produced similar, if less detailed, information on development, accreditation and assessment procedures across 11 professions. These consisted of Architecture, Civil Engineering, Chartered Surveying, Electrical Engineering, Teaching (Scotland), Social Work, Nursing, Optometry, Management Accounting, Industrial Management and Personnel. Their findings on assessment were referred to earlier.

Eraut and Cole's data on development and accreditation procedures within different professions provide a useful additional source for this research, particularly in relation to several of their sample professions which coincide with those selected for this work.

A number of surveys have examined CPD policies and practices across professions. These include Welsh and Woodward (1989), Vaughan (1991), Madden and Mitchell (1993) and the UK Inter-professional group (1994). These provided valuable background data for this research and helped to inform the empirical work, particularly in relation to the interview questions on CPD.

Watkins (1998) has recently completed research into how the policies and practices of professional associations were changing in the 1990s. This included, in particular, an examination of their attitudes towards occupational standards and NVQs.

Representatives from 50 professional associations attended focus groups and 30 took part in semi-structured interviews. Watkins concluded that across the sample bodies, "... the implications of moving towards a competence-based approach in professional education are still not clear" (ibid., p.13). He continues, "... although they [the professional associations] appreciate the worthiness of the aspirations which support improved access via a new competence-based route, they are reluctant to abandon the tried and tested route of academic professional qualifications" (ibid., p. 14).

Sociological studies

Watkins et al. (1992) carried out an extensive survey of the changes affecting professions and the pressures which are linked to these. Their data cover

- occupational patterns;
- organisational structures;

- professional roles;
- practitioners' attitudes to work.

The authors offer useful speculation on the implications of these factors for individuals, organisations and professional bodies in the future.

Hughes (1994) conducted a comparative study of four professions (Architecture, Engineering, Law and Pharmacy) across six European countries, examining how they were responding to the changes affecting professional environments, including the provision of CPD. Watkins, Drury and Bray (1996) have examined structural changes affecting UK professional associations and how they perceived their future role and contribution to the economy. This was based on interviews with chief executives of 40 professional associations.

Each of these provided useful background for this research and they were drawn on in Chapter 1 in discussing the contemporary position of professions.

Identification of competencies across professions

Since, among other things, this research attempted to identify key attributes (skills and competencies) that were generic to professions, it is important to consider the findings of others in this area.

Recently, Hearn et al. (1996) in Australia have attempted to identify generic competencies across seven different professions (Accountancy, Architecture, Engineering, Human Resource Management, Marketing, Social Work and Teaching). By administering a postal questionnaire, which produced 571 returns, they invited practitioners to assess the importance of 80 different competencies. They argue their results, "... confirm the existence of domains of competence which are common to professions. Furthermore, the results indicate that these generic competencies are seen as important to high performance in the professions" (ibid., p. 52). The authors have classified the cross-professional competencies into nine domains as follows:

- problem solving;
- others orientation;
- professional involvement;
- internal frame reference;
- emotional competence;

- influencing;
- organisational knowledge;
- proactivity; and
- client orientation (ibid., p. 49).

Similar research was conducted by Hackett et al. (1985) in an attempt to identify generic skills that seemed to be of particular importance to professional women. The researchers used critical incident interview techniques and identified:

- communication skills;
- interpersonal skills;
- political skills;
- organisational skills;
- general career planning and management skills;
- career-advancement skills;
- job-specific skills; and
- adaptive cognitive skills (cited in Hearn et al., p.46).

Hackett et al. present these as being of particular value in advancing the careers of women professionals. However, assuming their validity, there seems no reason why they should not apply equally to men.

Chapter Summary

This chapter has taken a broad sweep across concepts, practices and previous research identified as being germane to this work. It has suggested some initial hypotheses, informed the design of the research instruments and will be used in later chapters to help explain the research findings. It has illuminated this research in a variety of ways and although it is impossible to do justice to these in this summary, a few very general points are abstracted below.

There is a range of theories that have the capacity to inform professional development. Many of these are general theories, some of which have been used to explain child development or address dysfunctional behaviour. However, they may also have applicability to professional learning. A number of theories concentrate specifically on adult learning and offer principles that can be applied in practice. Few of these approaches are without controversy and several seem particularly speculative. Nonetheless, they each have elements (at least) that can illuminate adult learning.

There is also a range of practical development techniques which have been, or could be, applied to professional development. These include mentoring, role modelling, coaching, behavioural modelling and simulation. Each of these has both its enthusiasts and critics. These techniques are supported by varying degrees of research and a number appear to have a potential 'down side', particularly if inappropriately applied. There appears to be little or no research on the relative merits of each technique.

The argument, that different people learn in different ways is persuasive and would seem to caution against the universal applicability of both developmental theories and particular techniques. Yet the various conceptualisations of learning styles themselves have their limitations. Learning appears much more complex and varied than any simple model can portray. This perhaps offers a warning that similar limitations are likely with any model of professional competence.

There are strong indications that a great deal of learning takes place in the workplace, yet relatively little appears to be known about how people learn informally, particularly in professional environments, or about the relative value of different types of learning experience.

Although there is a considerable amount of research within particular, individual professions, there is relatively little of a cross-professional nature. Therefore, apart from providing a valuable resource for use within this research, this part of the literature study confirmed the need to investigate a number of issues across professions. Some of these issues had already been identified as central to this research, the empirical elements of which are described in the next chapter.

.....

Chapter 5

The Empirical Methodology

Chapter 5

The Empirical Methodology

Introduction

This research was a combination of literary and empirical investigation. The procedures used for the literature study were described at the beginning of Chapter 2. This chapter will concentrate on the methods used for the empirical study. These included interviews, postal surveys and consultative groups.

Chapter layout and content

The first section will briefly outline the methods adopted for developing and testing the new model of professional competence. The second will consider the theoretical implications of the empirical approach chosen. The third section will describe the steps taken prior to conducting the practitioner interviews, including the procedures used for selecting both sample professions and interviewees. The fourth will detail how the interview instruments were piloted. The fifth section will describe the interview administration stage, detailing the content of the schedule, the interviewing approach adopted and post-interview data handling procedures. The sixth will focus on the postal surveys, describing both the piloting and administration stages. The seventh will outline the procedure used for developing a small number of profession-specific versions of the competence model. The final section will offer a critique of the empirical methodology and discuss possible alternative methods.

Modelling Professional Competence: Outline Method

A key focus of the research was to examine the nature of professional competence and produce a suitable model (Research Question 2). Such a model, at least in tentative form, was considered to be a desirable prerequisite of the empirical work because it could inform the interview structure and help identify key areas for exploration.

Therefore, early effort was put into examining existing models of competence. This was done as part of the initial literature review and led to the development of a new model of professional competence.

Chapter 6 will be devoted entirely to the new model, describing the key influences upon it, as well as its development, testing and subsequent modification. But, in order to provide continuity within this chapter, a brief outline of the procedure adopted is offered below.

Why a new model?

After a careful examination of existing models and approaches to competence, it was concluded that none of these was fully comprehensive. Each seemed to suffer from one or more of the following shortcomings:

- a lack of elaboration - i.e. in relation to specific types of competence needed by professionals;
- partiality - i.e. being based on a particular perspective of competence;
- static in nature - i.e. did not show the mechanism through which different elements interact to produce overall competent performance.

It was therefore considered appropriate to put some effort into developing and testing a new model. Doing so before the empirical stage began would enable the model to be further tested through the empirical work.

Developing the model necessitated identifying the potentially key components of professional competence and hypothesising the mechanism through which these might act together to produce overall effective performance. It was of course recognised that professional competence, like all human behaviour, was extremely complex. Any model was bound to be a less than adequate representation of reality. Nonetheless, it was felt that a more comprehensive model was needed if a better understanding of professional competence was to be achieved.

Developing the model

The initial model was developed over a period of some 18 months. The method used was essentially inductive, drawing largely on the literature. The model was informed by a number of earlier approaches, but incorporated some unique features aimed at producing a more holistic representation. During its development, the model went through a number of iterations as it came under the influence of various perspectives on competence, and as additional dimensions were added.

The 'provisional model', as it was named, contained four *core components* and a number of *meta-competencies*. It was accompanied by what was termed an 'occupational competence mix diagram', which was used to analyse and display the relative importance of each *core component* to different professions (see Chapter 6 for full description and illustrations).

Testing the model

The *provisional model* was exposed to academic and expert criticism before being further tested through the empirical work. Critical appraisal was effected in three different ways:

- by inviting selected experts to examine and comment on the model;
- by presenting the model at a suitable academic conference and obtaining both live comment and follow-up feed-back from delegates; and
- through a series of published articles which invited critical comment on the model.

The procedure for each of these stages is outlined below. The results obtained will be reported in Chapter 6.

Expert scrutiny

Seventy people with expertise in the areas of professional development, occupational competence, or human resource development were identified through various networks. These included the Institute of Personnel and Development and Leicester University's competence and trainer CPD networks. All of them were sent copies of the *provisional model*, together with a short paper explaining its design and dynamics. They were asked to complete a short questionnaire which invited them to assess the model against a number of parameters and to offer suggestions as to how it might be improved.

Before circulation, the questionnaire and accompanying explanatory materials were piloted with representatives of the target group. This led to a number of minor changes, mainly to clarify the description of the model.

The questionnaire adopted a combination of quantitative and qualitative questions. It invited the experts to rate the model on a 1 to 5 scale (five being the highest score) against the following factors:

- clarity and coherence;
- comprehensiveness;
- soundness; and
- effectiveness in linking relevant concepts.

The questionnaire also invited respondents to identify the main strengths and weaknesses of the model, offer additional concepts they felt ought to be included, and suggest other ways in which the model might be improved (a copy of the questionnaire can be found in Appendix 1).

Conference paper

At around the same stage in the research (18 months from the start), a paper describing the *provisional model* and its development (Cheetham and Chivers, 1996a) was presented in a workshop session at a conference on 'Professional Capability' (at which the much cited Donald Schön, was the principal speaker). The workshop audience mainly consisted of academics from the field of professional education.

Following the presentation, critical comment was invited on any aspect of the model, and all contributions were carefully noted. Delegates were also asked to complete a questionnaire, identical to the one previously described. The responses and comments from both the workshop discussion and questionnaires are summarised in Chapter 6.

Publications

Articles describing the *provisional model* were published in two refereed academic journals (Cheetham and Chivers, 1996b and 1997). One of the journals was trans-European, the other Portuguese. A further article based on the 1996 conference paper was later selected to form a chapter of a book on professional capability (Cheetham and Chivers, 1999).

Testing through the empirical work

The interviews offered an opportunity to gauge the robustness of the *provisional model* across a range of professions, though this was only one of several facets of the empirical investigation. The later surveys provided further validation opportunity.

Testing the validity of a model of competence empirically is not as straightforward as it might sound. It is difficult to devise methods that directly test the model. Rather, it is necessary to rely on indirect methods. These might include:

- assessing whether the model is applicable to a range of distinctly different professions (perhaps by constructing profession-specific versions);
- assessing whether hypothesised differences between professions are confirmed;
- looking for gaps in the model;
- assessing the ease with which respondents are able to identify with the concepts within the model;
- assessing whether the practical experiences of practitioners confirm both the importance of the key elements within the model and the model's dynamics.

All of these methods were used within the investigation. For example, every respondent (to both interviews and postal surveys) was invited to draw an *occupational competence*

mix diagram for their own profession, and aggregate diagrams for each profession were later produced. Certain questions in both the interviews and surveys tested the relevance of the model's *core components* and their constituents, together with its dynamic elements. The interviews also included a number of open questions about the key attributes needed for effective performance within each respondent's own profession. These questions were used to probe for possible gaps in the model.

The model framework was later used for eliciting the key attributes of three of the sampled professions with the collaboration of small groups of practitioners. This further tested the model's appropriateness to different types of occupation.

On completion of the interviews, and before the postal surveys were commenced, a revised version of the model was produced. This was done by drawing on the comments of both the 'experts' and publication readers, together with the data from the interviews. The *revised model* (see Chapter 6 for details of revisions) was then itself the subject of critical appraisal by ten experts, some of whom had commented on the earlier version. It was also described in a further refereed journal article (Cheetham and Chivers, 1998) which, like earlier articles, invited comments from readers. Finally, the data from the postal surveys were examined to see if they were consistent with the *revised model*.

The interview and survey questions are detailed in later sections.

Guiding Empirical Theory

Though based primarily on interviews and surveys, the empirical investigation was nonetheless quite complex in its range of purposes and in the different types of question it adopted. It also used a combination of quantitative and qualitative research methods, each of which could be said to be influenced by different theoretical perspectives.

Quantitative elements

The quantitative methods, used within both the interviews and surveys, could be said to fit within a broadly *positivist* paradigm (e.g. Popper, 1961). This was expressed through the application of the *scientific method* (e.g. Fay, 1975). *Positivism* may be characterised as assuming, among other things, that:

- generalisations can be developed that will hold good in a range of situations;
- actions have causes which precede them (or at least are simultaneous);

- it is possible for inquiry to be relatively value free and for the methods used to be applied objectively.

(adapted from Lincoln and Guba (1985, pp. 36-38)

In line with this paradigm, quantitative data were collected as neutrally and objectively as possible, and both numerical scales and graphical methods were used to measure attitudes and opinions or to gauge respondents' perceptions of the importance of particular factors.

It is recognised that the *scientific method*, applied within social science settings such as this, may give a false impression of order and precision. In reality, there is unlikely to be a perfectly shared understanding amongst participants of the parameters they are being invited to measure. Their measurements or ratings are inevitably subjective and may be affected by a range of factors, including: misunderstandings of the questions; feelings and emotions relating to the issues concerned; and distorted memories. Similarly, the overarching *positivist* paradigm may be criticised for having too mechanistic and predictable a view of human behaviour, which in reality is extremely complex and multifaceted, and for its belief in the objectivity of social science enquiry which, in practice, is liable to be affected by a range of subjective and extraneous factors.

Nonetheless, it was considered that applying the *scientific method* at least to certain aspects of the empirical work was justifiable because the quantification of parameters which it would facilitate would allow comparisons to be made between different factors and between different professions. The *scientific method* also provided a structure and discipline to the data collection and imposed a degree of rigour which may not always be present when using more *humanistic* or *naturalistic* approaches.

However, because of the limitations of both the *scientific method* and the quantitative approach, it was decided that the interviews and surveys should also include qualitative elements.

Qualitative elements

The approach adopted within the qualitative elements could be seen as broadly within the *naturalistic* (or *humanistic*) paradigm. This places human experience at the centre of the research and, though it recognises the individual nature of mental constructs and subjective ideas, it nonetheless holds it as possible to apply phenomenological meanings to aggregated information elicited from individuals, or collected through observation or other ethnographic techniques. It recognises the legitimacy of self-

verified experience, opinions and feelings, though it doubts the possibility of making broad generalisations from research results. Instead it views findings as having the potential to offer illumination and guidance across a limited range of situations.

Grounded theory

Within the *naturalistic* paradigm, the qualitative elements were further informed by the principles of *grounded theory* (Glaser and Strauss, 1967; Strauss and Corbin, 1990). These hold that researchers should not start with a theory, then try to prove it. Rather, they should begin with an area of study and allow what is relevant to emerge through the empirical results (Strauss and Corbin, 1990, p. 23). The approach is intended to reduce the chances of the research being affected by any preconceived ideas or the subjectivity of the researcher. However, the approach also has a 'down side'. It can result in a great deal of extra research and the collection of data that later prove to be redundant. Similarly the overarching *naturalistic* paradigm has some limitations. The interaction between respondents and the researcher can affect respondents' answers or behaviours, data collected can be disparate and unconnected, and the research can drift away from the initial research questions.

Nonetheless, the *naturalistic* approach was considered to be the most appropriate when attempting to elicit information on respondents' experiences and feelings. In particular, the broad principles of *grounded theory* were applied in a number of ways within the interviews, for example by encouraging respondents to talk freely about the factors that had been important to their professional development, and experiences that had proved particularly formative for them. But because the empirical work had a number of different aims, a pure application of *grounded theory* principles throughout was not considered practicable.

The aims of the empirical study can be summarised as follows:

1. To explore the validity of existing hypotheses about professional practice and professional development (different epistemologies of practice; claimed benefits of various developmental approaches - role models, mentoring, experiential learning, etc.).
2. To examine the nature of professional competence.
3. To investigate how people acquire and maintain their professional competence.
4. To test the provisional model.

Grounded theory principles were applied, in part, to the first three of these aims, but not to the fourth. In the case of the first aim, the purpose was specifically to test which existing hypotheses, if any, accorded most with the experiences of practitioners. Thus, a hypothesis-free approach would be a contradiction in terms. But in all cases, a neutral stance was adopted to any hypotheses tested, and questions were designed so as to allow for the possible emergence of alternative hypotheses. In the case of the fourth aim, the provisional model could itself be seen as a form of hypothesis, so testing could hardly be done in a hypothesis-free manner. It was, however, carried out as neutrally as possible, and a number of factors which emerged through the interviews were added to the model when it was modified. Care was also taken to minimise the risk of quantitative elements interfering with, or influencing, the qualitative elements (and vice versa).

De Vaus (1985, pp. 12-20) makes a distinction between 'theory testing' and 'theory construction', arguing that both are legitimate elements of empirical research. It will be seen that item 1 of the aims primarily involves *theory testing*, item 3 is mainly about *theory construction*, and items 2 and 4 contain elements of each.

Triangulation

A degree of *triangulation* was possible between certain of the quantitative data and associated qualitative data, and similarly between some of the quantitative data collected in different ways - e.g. numerically versus graphically, interviews versus surveys. Such confirmatory data will be reported along with the presentation of results in Chapter 7.

Because data were only collected from a single source, i.e. practitioners, it was not possible to carry out multi-source *triangulation* of the kind that might have been possible, had data also been collected, for example, from clients, employers or professional associations. These sources were not used, partly because of resource limitations, and partly because there were very few of the research parameters about which sources other than the practitioners themselves would have had sufficient information to enable them to respond meaningfully.

Overall approach

In summary, the empirical research used a combination of quantitative and qualitative methods and drew on both *positivist* and *naturalistic* paradigms. Its may perhaps best be characterised as predominantly *positivist*, though with strong *naturalistic* elements.

Practitioner Interviews: Preliminary Stages

The practitioner interviews were seen as the core of the empirical work because they offered the opportunity to explore in depth many of the issues surrounding professional competence, as well as addressing a number of the key research questions.

Breadth of study

The initial intention had been to conduct interviews across five or six 'primary professions', interviewing 10 to 15 practitioners from each. This was to have been supplemented by a smaller number of interviews (four or five) from each of a number of 'secondary professions' (around ten).

Selection criteria were devised for choosing the six *primary professions*. These included factors such as: homogeneity; occupational characteristics; and accessibility. However, the selection process was overtaken by an early search of the research literature. This suggested there had in the past been relatively few cross-professional studies of professional learning (apart from in some relatively narrow areas such as CPD), and that those that had been conducted had tended to focus on a fairly small number of professions (see Chapter 4, pp. 129-134). There seemed therefore to be a need for a study which encompassed a wide range of professional occupations and a diversity of functional areas; one that covered older, traditional type professions as well as newer, emergent ones.

The main advantage of a broader-based sample of professions was that it could produce more reliable cross-professional data. This would, in turn, offer a better chance of producing results that could be generalised across all professions. The main disadvantage of the broader approach, given the limited research resources available, was that it would mean a smaller sample within each profession. This would make comparisons of results between professions more tenuous. However, it was felt that this problem could be alleviated, at least within a proportion of the professions, by conducting postal surveys, which would yield a much larger number of respondents. On balance, it was felt that the advantages of broadening the sample to 20 professions, and adding postal surveys, would outweigh the disadvantages.

Selection of sample professions

Once it had been decided to conduct interviews across as many as 20 professions, selection in a sense became less critical. Nonetheless, it was considered important to ensure representation from across a broad spectrum of profession types - old and new, traditional and non-traditional, caring and commercial, technical and administrative,

scientific and pastoral, etc. Criteria in line with the working definition of 'profession' offered in Chapter 1 (p. 20) were used to decide upon eligible occupations.

The 20 selected professions can be seen as falling within six broad functional groupings (functional in the sense of the broad societal function performed). The groupings and professions in each group were as follows:

Group 1: Teaching/Training

Primary Teaching
Secondary Teaching
University Lecturing
Training

Group 2: Health Care

Nursing
Medicine (hospital doctors)
Dentistry
Physiotherapy

Group 3: Legal and Financial

The Bar (barristers)
The Law (solicitors)
Accountancy (chartered)

Group 4: Policy and Administrative

Civil Service
Personnel
Library and Information Services

Group 5: Technical and Scientific

Information Technology Consultancy
Surveying (chartered)
Architecture
Scientific Research

Group 6: Pastoral/Spiritual Care

Social Work
The Church (Anglican)

It is not suggested that these are homogenous groups. Indeed it is acknowledged that each group contains professions that are quite different in character. However, the groups provided a convenient way of checking that there was reasonable representation across a variety of key societal functions. They also offered an opportunity to examine how the societal function of professions might be related to their characteristics and perhaps to the attitudes and propensities of their practitioners. For example, were certain functional groups more inclined to be reflective than others?

Before formulating these groupings, a number of existing grouping systems (referred to in Chapter 1, pp. 16-17) were examined for their suitability - i.e. SOCs (HMSO, 1990), ISCO-88 (ILO, 1990) and Watkins and Drury (1995). But the two former were considered to be over-refined for the purpose of this research, and the latter were linked more to their era of origin than to their function.

Selection of interviewees

As reported earlier, it was decided to select four interviewees from each of the 20 chosen professions, giving a total of 80 interviewees. Potential interviewees were identified in three main ways:

- *via an e-mail trawl* - using a large-scale government computer-based communications network to identify civil servants with spouses or partners from any of the selected professions;
- *via personal contacts* - usually one stage removed - i.e. contacts of colleagues and friends;
- *via snowballing* - asking interviewees to identify other potential interviewees from their profession.

Using this combination of methods, rather more nominations were received than were required, allowing a degree of selectivity against certain parameters aimed at making the sample as representative as possible. These included gender, ethnicity and age mix, plus diversity of geographical and sectoral location. Consideration was given to obtaining nominations from professional associations, but not all the selected occupations had such bodies, and past experience suggested that not all professional bodies would be prepared to provide names and addresses of members.

It is acknowledged that the methods of selection used lacked perfect randomness. However, Bell (1987) suggests that this can be acceptable, providing the limitations are acknowledged and that steps are taken to ensure as representative a sample as possible. In this case, the following steps were taken:

- an equal number of interviewees was selected per profession;
- across the 80 interviews, broadly representative proportions of women and people from ethnic minorities were included;
- in professions that had a large proportion of members of one particular gender, e.g. the Church and Nursing, this was reflected in selecting interviewees;
- a mix of interviewees from the private, public and voluntary sectors was sought;
- a reasonable geographical spread of interviewees was sought;
- across the 80 interviews, as wide a cross section of people as possible was sought in terms of age, time in profession and level of appointment.

It was considered important to include both newly-accredited professionals and people well on in their careers. Both groups should, it was thought, be in a position to provide important, though different insights. The former should be able to offer useful qualitative comment on their recently-completed formal training, the latter should be able to look back over a mosaic of formative experiences throughout their careers and, with the benefit of hindsight, discern those that had proved to be particularly significant.

Due to the small sample size within individual professions, it was not practical to model all the potentially significant factors (such as age, gender, ethnicity, and time in profession) in line with the profession's population as a whole. However, across all 20 professions, a mix was achieved which was broadly representative of professions overall (see Chapter 7, pp. 212-214 for further details). It is possible that a purely random selection, had it been available, would not have thrown up as broad a mix of interviewees. It may not, for example, have included any practitioners from ethnic minorities.

Another important practical advantage of the method of selection was that by identifying a potential interviewee through an intermediary who was known to them, rather than through some impersonal process, the likelihood of their giving up two or three hours of their time to be interviewed was almost certainly increased. This was an important consideration with people like barristers and senior medical consultants whose time was likely to be at a considerable premium.

Interview schedule

A semi-structured approach to the interviews was chosen. To facilitate this, a detailed schedule was drawn up. This contained a combination of question types including:

- *simple closed questions* - e.g. inviting 'yes', 'no', 'not sure' type answers;
- *filter questions* - to determine whether particular sections of the interview were appropriate to particular individuals;
- *banded response questions* - requiring interviewees to say which of a series of bands applied to them - e.g. age, education level, time in profession;
- *semantic differentiation scales* - requiring interviewees to rate the importance of particular factors (on a 1 to 5 scale) between two extremes - e.g. 'not at all' - 'extremely';
- *alternative response questions* - where interviewees were asked to select one of a fixed number of answers - e.g. 'higher'; 'lower', 'about the same', 'don't know';
- *statement choice questions* - where interviewees were required to select, from a range of statements offered, the one with which they most agreed or felt was most applicable;
- *checklists* - where interviews were invited to identify all the items on a checklist which applied in their case;
- *open questions* - e.g. to solicit information about interviewees and their job, to invite them to add additional items not included in checklists and, importantly, to encourage interviewees to relate their own experiences, feelings and perceptions, and offer opinions and suggestions.

These question descriptors draw on de Vaus (1985, pp. 86-90).

The schedule also contained a blank *occupational competence mix diagram* for completion by the interviewee at the end of the interview.

Other interview instruments

Prompt sheets were produced for use with certain questions (for example, *statement choice* questions and some *semantic differentiation* scales). These were for handing to interviewees at particular points in the interview to help them focus on the alternatives offered, or hold a range of factors in their mind. One of the sheets contained information to enable interviewees to draw an *occupational competence mix diagram* - e.g. definitions of *core components* plus fictitious exemplar diagrams.

A standard letter, to be sent to interviewees a few days prior to the interview, was drafted. This confirmed the time, date and venue, and provided an outline of the areas the interview would be covering. The aim of this was to encourage interviewees to be thinking in advance about some of the more difficult issues embraced by the interview and, hopefully, come along to the interview better prepared.

Piloting of Interviews and Instruments

Following their initial design, the instruments were tested through four pilot administrations. Three of these were in the form of full interviews, the fourth involved a respondent self-administering the schedule - i.e. using it as a questionnaire. It was felt that including the latter would provide a useful, additional dimension to the pilot because the clarity and logic of the schedule would be more critical where there was no opportunity for supplementary explanations by an interviewer. A second reason for its inclusion was to test the feasibility of the schedule forming the core of the later postal questionnaire. The respondent in question was asked to leave blank any questions he did not fully understand. He was not given the prompt sheets (which simply repeated what was already on the schedule), except for the one needed to complete the *occupational competence mix diagram*.

Two of the pilot respondents were secondary teachers, one was a civil servant and one was a member of the clergy. Two were deliberately chosen from the same profession in order to check the similarity of responses on items where the answers were expected to be profession-influenced (for example, the *occupational competence mix diagram*).

During the interviews, as suggested by de Vaus (1985, pp. 100-103), certain factors were deliberately observed. These included:

- flow/question sequence;
- effectiveness of filters;
- redundancy of questions;
- respondent interest and attention; and
- timing.

Interviewees' answers to questions were recorded on the interview schedule. Observations about the interview, itself, were separately recorded. Following each pilot interview, a discussion was held with the respondent about the process. These discussions were informal, though respondents were each asked a number of standard questions from a checklist. These covered:

- the ease or difficulty they had felt in responding to questions;
- any questions they had found to be vague or problematic;
- any questions or parts of the interview that had seemed repetitive; and
- their overall view of the interview structure and style.

The opinion of respondents was sought on the sequence of questions and the total time taken. They were also invited to suggest any key areas the interview may have missed.

The respondent who self-administered the schedule was not observed during the process, but was questioned afterwards using the same checklist as used with the interviewees.

Interviewer observations and respondents' comments

The pilot interviewees seemed for the most part to understand the questions asked, although, in a few cases, supplementary explanations were required. In respect of the respondent who self-administered the schedule, there was of course no opportunity to assess continuously whether the questions were being understood. He was, however, questioned afterwards about any difficulties he had encountered. He reported that there were just two questions he had not fully understood and which he had been forced to leave.

Interviewees were on the whole able to answer the questions, though one respondent, a civil servant, had difficulty with questions relating to pre-entry qualifications and formal development programmes. He explained that this was because entry into his profession could take a variety of routes.

The three interviewees all appeared to enjoy thinking and talking about their profession and their own developmental experiences. All said afterwards that they had not felt constrained by the interview structure. They all felt that the interviewing style had encouraged them to

express their own views. None of the four respondents was able to think of any key issues that had been missed. They all said they had found the questions sensible and in some instances taxing. However, all felt there had been a degree of repetition and one commented that he had found the order of questioning rather discursive.

All respondents reported that they had found the advanced (pre-interview) information useful, though one felt this needed to be made more succinct.

In general, the prompt sheets worked well but it was observed that in one or two instances, a particular prompt (for example in the form of a structured answer) may have influenced respondents' answers to an open-type question which followed. This was made possible because there was more than one prompt per page. It was felt that the problem could be eliminated by changing the order of questioning and modifying the design of the prompt sheets to ensure the interviewee only saw one prompt at a time.

None of the respondents appeared to have difficulty in completing the *occupational competence mix diagram* for their profession. All seemed to understand the four *core component* definitions and all felt (when asked after the administration) that the components were a reasonable reflection of reality. The diagrams for different professions were, as predicted, significantly different and, equally encouragingly, the two from the same profession (Secondary Teaching) were similar. Respondents were not asked to develop profession-specific versions of the more complex *provisional model* since this was considered to be too demanding and time consuming. Nor were they shown, or invited to comment upon, the generic version of the *provisional model* (see Chapter 6).

The pilot interviews took an average of two and a half hours each. The respondent who self-administered the schedule took just over an hour. None of the respondents felt the time taken was too long. Nevertheless, it was decided that a target of around two hours for interviews would be sensible. In the case of the later postal surveys, it was felt that a self-administration time of no more than 15 minutes should be the aim. This would necessitate heavily pruning the schedule in the process of turning it into a survey questionnaire. It was decided that the questionnaire design should be deferred until after all the interviews were completed since it would then be easier to identify the key issues that ought to be covered.

Post pilot modifications

As a result of the pilots, and after some reflection, a number of changes were made to the schedule. In summary, these were:

- a reduction in the total number of questions, including the elimination of those that were repetitive;
- clarification of the wording of some questions;
- a re-ordering of questions to improve the logic and flow, and reduce the chances of answers to particular questions influencing following questions;
- the inclusion of a small number of additional filter questions and answer options to cater for a wider variety of profession types;
- a redesign of the prompt sheets to reduce the chances of cross-question influence;
- a re-write of the pre-interview information to make it more succinct.

Final versions of the interview instruments can be found in Appendix 2.

Practitioner Interviews: Administration Stage

The Interviews proper took place over a period of some 14 months between June 1996 and August 1997. In addition to recording respondents' answers to specific questions on the interview schedule, additional contemporaneous notes were taken of their broader observations. Even though the number of questions had been reduced following the pilots, the average interview duration turned out to be two and a half hours, the longest being four hours and the shortest one and a half. This variation resulted from different degrees of elaboration and digression on the part of respondents.

Interview style

The choice of a semi-structured approach to the interviews was intended to maximise consistency of approach and ensure standardisation of the data collected. This was considered to be particularly important in respect of the quantitative content. At the same time, since a further aim of the interviews was to collect as much qualitative data as possible, considerable importance was attached to the open questions, and interviewees were encouraged to talk freely about their own experiences, particularly their more formative ones.

The revised interview schedule contained a total of 71 questions (155 if part questions are included). Of these, 45 were closed and concerned mainly with collecting quantitative data - e.g. time in profession, frequency of reflection, ratings of professional characteristics and competencies/attributes. The remaining 26 questions were open. Fifteen of these were concerned with collecting factual or descriptive data - e.g. profession, job title, profession pre-entry requirements. The balance (11) was aimed at eliciting qualitative data, based on interviewees' experiences and views - e.g. experiences that had been particularly formative for them, strengths and weaknesses of their formal, initial development programme (if any).

The questions were ordered so as to intersperse blocks of quantitative and fact-collecting questions, which could be covered quite quickly, with periods of discussion around the more open, qualitative questions. This also helped to prevent interference between the two types of answer. Quantitative questions were asked neutrally and succinctly to minimise the chance of influencing respondents. However, during the periods of qualitative data collection, a more sympathetic, conversational style was adopted with suitable identification statements being made from time to time to encourage the interviewee to say more (for example, "I do understand what you're saying, I've had similar problems myself" or "Do you know, a lot of people are telling me similar things"). At the same time, care was taken not to lead interviewees or 'put words in their mouths', and heuristic¹ propositions were avoided. Ad hoc, supplementary questions were posed, as necessary, to follow-up on answers, or probe interviewees' experiences or opinions more fully. Quantitative questions were often supplemented by qualitative questions to elicit additional information. For example, a question requiring interviewees to rate the importance to their development of the use of role models might be followed by a question about the kind of role model(s) used.

As the interview stage progressed, the focus of the supplementary questions began to change, although of course the core of the interview remained the same. The probing switched from essentially sociological areas to more psychological ones. For example, supplementary questions about development or accreditation procedures tended to give way to questions about personal mental models and techniques used to overcome difficult or stressful situations. This change of emphasis yielded some interesting and unexpected insights into areas such as mental rehearsal, mind set changing devices and stress management techniques.

Not all the questions on the schedule were put to every interviewee, though questions were only omitted if a filter question indicated that these were inappropriate. Despite the structure and volume of questions, interviews were conducted as informally as possible. Interviewees were assured of confidentiality before the interview began.

In relation to the part of the interview which dealt with competence acquisition, what may be termed a 'formative history approach' was adopted. This had similarities both to what Woods and Sykes (1987) describe as a 'life history approach' and Candy et al. (1985) as the 'learning conversation'. But, whereas these looked either at life experiences in general, or focused on one specific learning event, the *formative history approach* explored the range of

¹ In this context, a heuristic proposition could, for example, be one in which a deduction is made from an interviewee's answer and fed back to them to test their agreement.

experiences and events that an interviewee had found particularly formative at any point in his or her professional career. However, those that had occurred in the early stages were particularly probed. Eraut et al. (1997) describe using a similar approach in a study of work based learning to elicit what they term 'learning episodes' (Chapt. 4, pp. 129-130). The strengths and weaknesses of the *formative history approach* will be discussed in the later critique.

Interview structure

The interview covered ten discrete areas and the schedule was accordingly organised into ten parts. The purpose and content of each part, together with the questioning approach adopted, will now be summarised.

Part 1 - Interviewee Details

Parts 1 and 2 both concentrated on simple demographic information. Part 1 collected basic information about the interviewee: his or her profession; current appointment; gender; age range; qualifications; time in practice; professional body membership; etc. Age, time in profession and qualifications were all banded. The interviewee's highest qualification on entering the profession as a trainee was also recorded.

Part 2 - Employing Organisation Details

This collected basic information about the interviewee's employment status (whether an employee or self-employed) and about his or her employing organisation - i.e. its sectoral location and size (in terms of numbers of employees).

Part 3 - Nature of Professions and Professional Practice

This part of the interview helped to address Research Question Numbers 1a) and 1b). Its purpose was to assess the validity of the characteristics, traditionally associated with professions (Chapt. 1, p. 14) and of competing epistemologies of professional practice (Chapt. 1, pp. 20-22). In relation to the first of these, interviewees were invited to rate (on a 1 to 5 scale) the extent to which each of nine characteristics applied to their profession 'as it is today'. The characteristics were an aggregation of key characteristics offered by a range of authors, e.g. Carr-Saunders and Wilson (1936), Millerson (1973), Waddington (1985) and Downie (1990), namely: altruistic; non-commercial; autonomous; learned (requiring prolonged and specialised training); influential (within society); conferring status; self-regulating; collegial; and client focused.

In exploring the nature of professional practice, the aim was to try to determine how practitioners actually operate, i.e. how they do what they do; and how they go about solving

professional problems. Is this in the way postulated by Schön (1983) - i.e. by applying a form of artistry, using tacit knowledge (knowing-in-action), drawing on repertoires of solutions to solve problems, and by reflection? Is it on the other hand more akin to the technical-rational view - i.e. do practitioners draw heavily on their technical or specialist knowledge in a fairly systematic way? A third alternative was that they might use a combination of the two approaches, and a fourth alternative was that they might operate in some other, previously unidentified, way.

To have asked interviewees directly whether they adopted a 'reflective practitioner' or 'technical-rational' approach would of course have been meaningless to those who did not understand the difference (no doubt the majority), and would have been 'leading' to those who did. Instead, interviewees were shown a series of statements which personified each of the two approaches and a combination of the two. They were invited to choose the statement which best described the way they operated, or provide a description of their own if they were not happy with any of them. Different sets of statements were used for 'day to day operations' and for 'problem solving'. The latter included an assessment of the use of 'repertoires of solutions' as postulated by Schön (ibid.).

A number of questions explored interviewees' use of reflection. Their understanding of the term was tested and, where they were conscious of reflecting, interviewees were asked to give examples. The purpose of obtaining such examples was to help judge the quality and depth of reflection. Interviewees were also asked about the regularity with which they reflected and the types of reflection they undertook. The latter was an attempt to assess Schön's hypothesis that professionals reflect both 'in action' and 'about action'. Information was also sought about the regularity with which reflection led interviewees to change their behaviours or procedures. Finally, interviewees were asked to rate (on a 1 to 5 scale) the importance of reflection to their own professional practice.

Part 4 - Nature of Professional Competence

This part helped to address Research Question Number 2. Interviewees were asked: how they recognised professional competence in people from professions, other than their own; and in colleagues from their own profession. In both cases, they were encouraged to think in terms of the key characteristics, behaviours and other attributes that indicated to them that someone was competent. In relation to their own profession, they were also asked to identify particular attributes or abilities they considered to be critical to effective performance.

Interviewees were next shown a list of generic skills or competencies which drew on the previous cross-professional, or cross-occupational, research described in the literature. The

list included certain competencies suggested by various authors as *meta-competencies* (see Chapter 3, pp. 88-89), some of which had been incorporated within the *provisional model*, as well as the 'key skills' (DfEE, 1998b), identified by UK government research as important to all occupational roles (see Chapter 6, p. 176). Interviewees were asked to rate (on a 1-5 scale) the importance of each attribute to effective performance within their profession.

In addition to providing information on the key attributes required by particular professions, this group of questions also helped to validate the *provisional model* by assessing the genericism of certain competencies proposed within the model - e.g. those described as *meta-competencies*.

The structure and content of the *provisional model*, though not its dynamics, were tested further by inviting interviewees to rate a number of other attributes. These reflected various other elements of the model. For example, in order to test the validity of the *core components* (see Chapter 6), attributes linked to *cognitive competence*, *functional competence* and *ethical competence* were included. However, these terms were not used explicitly and interviewees were not shown the model or indeed told of its existence.

Apart from helping to test the model, the questions in this part of the interview provided a basis for identifying attributes perceived as important across professions and, within the limitations of the small sample sizes, offered a basis for comparing the importance of specific attributes between professions. It was acknowledged that reliable comparisons could not be made until additional data had been obtained via the postal surveys.

Part 5 - Pre-entry Qualifications (of interviewee's profession)

This part helped to address Research Question 1a). It was less complex than the last part and was aimed mainly at collecting factual information about the profession's pre-entry requirements (if any). A filter question diverted those professions that did not have formal pre-entry requirements to the next part of the schedule. Where standardised pre-entry requirements did exist, interviewees were invited to rate their relevance to the actual demands of the profession. They were also asked if they were aware of any changes to pre-entry requirements since they entered their profession. Where interviewees were aware of such changes, they were asked (if they could) to describe the current requirements and give an opinion as to whether these were 'higher', 'lower' or 'about the same' as when they entered.

Part 6 - Professional Development Programme

This part of the interview examined the formal education and training processes directly associated with the interviewee's profession. After a filter question, those who had been through formal education and/or training programmes were asked to outline the process. They were probed about the programme's strengths and weaknesses and invited to suggest ways in which it could be improved. They were asked to rate the programme against a series of factors: relevance to professional practice; comprehensiveness; and effectiveness in 'getting trainees up to speed' as practitioners.

Interviewees were next asked to estimate the proportion of the programme that related directly to the development of practical skills. This was followed by a series of questions to determine: the degree to which the practical elements were structured; whether they were formally examined or assessed; and whether they were taken into account when arriving at the pass grade (if any). Interviewees were then invited to rate the overall practical content in relation to: its relevance to subsequent practice; its effectiveness in developing useful skills; and its adequacy (in terms of amount).

Finally in this part, interviewees were invited to rate the effectiveness of the programme, overall, in developing different types of attributes. These were each associated with particular *core components* of the *provisional model*. The purpose of this was to assess whether the development programme was perceived as better at developing certain kinds of attribute than others.

This part of the interview helped to address Research Questions Numbers 4 and 5.

Part 7 - Acquisition of Professional Competence

This part focused strongly on Research Question Number 3. Interviewees were shown a list of twelve factors which could potentially assist development. These were drawn from across the literature and included such things as: 'support from a mentor'; 'reflection'; 'use of a role model'; etc. They included factors that could be seen as both formal and informal learning experiences. Interviewees were invited to rate these according to their importance in helping them to become competent professionals.

The next section adopted the *formative history approach* described earlier. After inviting interviewees to estimate how long it had taken them to feel fully competent as a professional, they were asked a series of open questions aimed at identifying specific experiences (formal or informal) that had been particularly formative for them, and why these had been so formative. Interviewees were probed about things they had found difficult early in their

careers and how these difficulties had been overcome. They were also asked about particular environments which had assisted or inhibited their development.

Interviewees were probed extempore about a range of other issues, including: how they maintained their competence; how they prepared themselves for difficult tasks; their use of mental models and other devices to assist their performance; how they overcame work-related stress or loss of confidence; what factors motivated them professionally and so on. This part of the interview proved particularly productive in collecting qualitative insights from respondents.

Part 8 - Accreditation of Professional Competence

After a filter question, this part examined both the forms of examination or assessment interviewees had undergone and the accreditation process through which they had attained full professional status. The questions on assessment were partly descriptive and partly evaluative. They also probed any changes to the process that may have taken place since the interviewee qualified and invited suggestions for further improvements. The questions on accreditation included the existence of licensing, Chartered Status and re-qualification requirements.

This part helped to address Research Questions Numbers 4 and 5.

Part 9 - Continuing Professional Development

This part, which related to Research Question Number 3, investigated interviewees' recent and anticipated participation in CPD or personal learning (over the previous 12 months and the next 12 months). Factors which would be likely to increase participation were also explored, as were perceptions of skill or knowledge loss (examples of the latter were sought). The methods used by interviewees to maintain, or update, their knowledge and skills were probed both against a checklist drawn from the literature, and through open questioning. Interviewees were asked to rate (on a 1-5 scale) the importance of a range of potential CPD needs and identify the one that would be most likely to cause them to participate in CPD in the next 12 months.

Part 10 - Occupational Competence Mix (construction of profession-specific diagram)

After the questioning was completed, interviewees were shown the prompt sheets relating to *occupational competence mix diagrams*. These offered definitions for the four *core components (knowledge/cognitive competence, functional competence, personal competence and values/ethical competence)*, together with two exemplar diagrams. Care was taken not to show respondents examples that were of professions similar to their own.

Accordingly, a number of alternative, hypothetical examples were available. Interviewees were then invited to construct a diagram for their own profession.

Post-interview action and data handling

Following each interview, the contemporaneous notes were 'written up'. Where appropriate, reflective comments were added, for example, on the significance of what the interviewee may have said. The 'write up' took on average a further two hours and was done as soon as practicable following the interview (normally within 24 hours).

Data were abstracted from completed interview schedules and entered into a pre-formatted spread sheet and data base, the former being used for the quantitative information, the latter for summaries of the qualitative data. Data from the *occupational competence mix diagrams*, which were 'pie chart like', were stored in the form of segment angles.

For each interviewee, up to 159 separate items of data needed to be stored and later analysed so care had previously been taken in selecting and formatting the data processing instruments. Several potential software tools had been examined. These included SPSS, Excel and Microsoft Works. SPSS was the most sophisticated, but least 'user friendly'. Excel, would have been adequate, but lacked some of the features of Microsoft Word. It was, therefore, decided to adopt the latter which also included effective cross-correlation facilities, together with a range of built-in statistical analysis tools and charting facilities. Taken together, the interviews and the postal surveys, described below, yielded around 34,000 separate pieces of data, all of which needed to be stored and analysed. The software tools used proved to be more than adequate for the purpose.

The Postal Surveys

The purpose of the postal surveys was twofold. It was:

- i) to validate the key trends that had emerged from the practitioner interviews;
- ii) to obtain larger samples within professions to enable comparisons between professions to be more reliably made.

The ideal would have been to have conducted large-scale postal surveys in each of the 20 professions. However, this would have taken a considerable amount of research resource. It was decided instead to conduct surveys in a total of six professions, one from each of the functional groups identified earlier. This could, it was felt, go some way towards validating the common trends arising from the interviews and would allow a limited amount of inter-professional comparison.

Selection of professions to be surveyed

Selection of the representative profession from each functional group was fairly arbitrary, but was influenced by the availability of suitable membership lists. Professions such as IT Consultancy and Scientific Research could have been problematic due to a lack of a common professional association or central register. The professions selected against each of the six functional groups were:

<i>Group 1: Teaching/training</i>	Training
<i>Group 2: Health Care</i>	Dentistry
<i>Group 3: Legal and Financial</i>	Accountancy (chartered)
<i>Group 4: Policy and Administrative</i>	Civil Service
<i>Group 5: Technical and Scientific</i>	Surveying (chartered)
<i>Group 6: Pastoral/Spiritual Care</i>	The Church (Anglican)

It was acknowledged earlier that the groups are not homogenous. Therefore, the chosen professions can only be seen as broadly representative of the functional areas concerned. It could not be assumed, for example, that responses from a dentist would be the same as those from a hospital doctor. However, using the groups as a basis for selection did at least ensure that a range of different profession types would be included in the surveys, and this could lead to more interesting inter-professional comparisons. It was also considered important to include at least one profession that was not generally regarded as a traditional profession. Therefore, Training was chosen from Group 1, rather than one of the teaching professions.

Sample size

It was considered that the absolute minimum number of responses needed within a single profession to enable some tentative (though not definitive) comparisons to be made was around 20, but it was acknowledged that, ideally, a much larger sample would be desirable.

On the basis of previous experience, it was assumed that a response rate of between 15% and 20% might be achieved. It was therefore decided to post out 120 questionnaires for each of the six professions, giving a total of 720 postings. It was decided, as a contingency plan, that, if the response rate was lower than anticipated, follow-up letters would be sent out and, if that still produced an inadequate response, questionnaires would be despatched to additional individuals.

In the event, the response rate proved to be much higher than anticipated (54.3% overall) and the total number of usable, returned questionnaires was 372. Chapter 7 will provide further information on response rates (p. 213), and discuss the important issue of statistical significance (pp. 217-218).

Selection of individuals

The method used to select individuals to be surveyed varied slightly between professions, though the aim was to be as random as possible. If the requisite information had been available, the ideal would have been to have conducted blind, random selections from comprehensive lists of eligible individuals. However, information sources varied between professions. The level of co-operation offered by professional associations also varied. Some went so far as to provide printed labels for randomly-selected members. One was reluctant to release addresses but offered, instead, to post on questionnaires to a random sample of members, providing the postage was paid. In other cases, publicly available lists were used.

A summary of the sources and selection methods used for each of the six professions is shown in Table 3:

Profession	Source of Names/Addresses	Method of Selection
Surveying	RICS - printed labels	random by RICS
Accountancy	ICA - onward postings	random by ICA
Training	Membership register Training Practitioner network (Leicester U)	alphabetical if job details confirmed they were practising as trainers
Church	Diocesan Year Book	alphabetical, providing full-time clergy and not NSMs
Dentistry	Yellow Pages - Dentists section	alphabetical
Civil Service	Internal Staff Directories	random HEO Grade and above

Table 3: Methods of sample selection for postal surveys

Questionnaire design

There were two important considerations in deciding the content of the survey questionnaire, given that it needed to be considerably shorter than the interview schedule. Firstly, that it should include the areas that were most central to the research, and secondly that the data sets should be compatible with those from the interviews, in order to facilitate validation and, if considered acceptable, aggregation.

Since the questions used were drawn from the interview schedule, the same wording was used, save for a few very minor modifications which were made following piloting (described later) in order to remove any ambiguity. Particular attention was paid to the ordering of

questions and layout, as stressed by both de Vaus (1985) and Bell (1987). The questionnaire was four pages long and included a blank *occupational competence mix diagram* format for use by the respondent, together with instructions for completion. Two exemplar diagrams were also included but, in order to reduce the risk of influencing respondents, these were selected on the basis that they were for professions that were dissimilar to any of the six selected.

A more limited range of question types was used for the surveys than for the interviews. These consisted of:

- *semantic differentiation scales* (inviting ratings of particular factors on a 1-5 scale);
- *simple closed questions* - e.g. inviting 'yes', 'no', 'not sure' type answers;
- *filter questions*; and
- *open questions* (to collect both factual information and insights).

The draft questionnaire contained 14 questions in total, though several had multiple parts. The total number, when part questions are included, was 54. This was not quite as daunting for respondents as it might seem, since most of the questions involved circling figures or words. The data sought were mainly quantitative but there was also a small but important qualitative element.

Piloting the draft questionnaire

The draft questionnaire was piloted with a total of seven people drawn from two of the selected professions. Five of these were male and two female. The pilot respondents were left on their own to complete the questionnaire but were asked to time the process. Afterwards, they were questioned about: how easy or difficult they had found the questions; whether there were any parts of the questionnaire they had not understood; whether they had discovered any vague or ambiguous statements; and the time taken.

Several minor problems came to light through the piloting, and a number of improvements were suggested by respondents. The average time taken to complete the questionnaire was 16 minutes (very close to the target of 15 minutes). Based on respondents' reactions, the level of difficulty appeared to be about right. One respondent commented that, although she did not find the questionnaire too daunting, it had made her stop and think. None reported any problems in completing the *individual competence mix diagram*.

Following the pilot, a number of small changes were made. These were:

- a question identifying the respondent's profession was split to include - 'current profession' and 'secondary or previous profession', if any;

- an additional question about pre-entry qualifications was added;
- an open style question on age was replaced by banded tick boxes;
- minor wording changes were made to two questions to remove ambiguity;
- the layout was improved to give the questionnaire a less cluttered appearance.

The first of the above changes was to cater for those who may have a secondary profession, for example, a civil servant who is also a psychologist, or a clergyman who had formerly been a school teacher. Respondents would be asked to complete the questionnaire in their current or primary professional role, but asking about a secondary or previous profession would, it was thought, help them to focus on the distinction.

The second modification resulted from one pilot respondent reporting that she had been confused by a question about whether her profession had any standardised education or training process. She had thought at first that this referred to pre-entry qualifications. It was decided that this confusion could be removed by including a question on each, with the pre-entry question first. The final version of the survey questionnaire, and a typical covering letter, can be found at Appendix 3.

Modified questionnaire content

The final version of the questionnaire contained 15 main questions (one more than in the draft), or a total of 56 parts (two more than in the draft).

Questions 1 to 7 sought information about respondents, themselves, (including gender, age, appointment and time in profession) and their profession (including whether it had any formal, minimum pre-entry requirements and a formal education programme).

Question 8 explored the types of experiences that had contributed to the respondent's professional competence, with an invitation for him or her to rate the importance of the contribution made by each of 14 factors. These were the same as those used for the interviews, but with two additional factors which had emerged via the interviews: learning through teaching/training others; and learning from clients/patients/customers.

Question 9 was an open question which sought qualitative insights on specific experiences that had proved particularly formative, together with comments on why this had been the case.

Questions 10 to 12 explored the use and regularity of reflection and its outcomes. Questions 13 and 14 invited ratings of the importance of a range of specific competencies, and other

attributes, to effective performance within the respondent's profession. The list was exactly the same as that used within Part 7 of the interview and so was the rating scale. It included attributes that were closely linked to the *core components* of the *provisional model* and other elements of the model such as *meta-competencies*.

Question 15 (like Part 3 of the interview) attempted to assess the validity of some the characteristics traditionally associated with professions. Both the characteristics and the rating scales were the same as for the interviews.

Finally, after offering a short explanation of the *occupational competence mix diagram* and two hypothetical examples, the questionnaire invited the respondent to complete a diagram for his or her own profession.

Survey procedure

The six occupations were surveyed in succession. In an effort to maximise the response rates, a number of deliberate steps were taken. Firstly, a 'Freepost' licence was obtained to enable respondents to return questionnaires at no cost to themselves. Secondly, a pre-addressed return envelope was enclosed with the questionnaire. Thirdly, each questionnaire was accompanied by a letter, customised to the particular profession. This explained the purpose of the research and asked for help. Fourthly, the letter was given a hand written salutation in the name of the individual concerned and was signed personally in ink - i.e. not photocopied. The only exception was the one profession where, because of confidentiality restrictions on the part of the professional association, recipients' names were not revealed. In that case, it was not possible to personalise the salutation, though the letter was still personally signed.

Recipients were assured of confidentiality but not anonymity and, except in the case of one profession, the return envelopes were numbered in order to allow identification of returned questionnaires against a name and address list. This would have enabled 'chaser letters' to be sent, had response rates been low. Recipients were asked, in the covering letter, if they would endeavour to respond within about a week.

Data from returned questionnaires were handled in much the same way as for the interviews - i.e. by using individual spreadsheets for each profession and a combined spreadsheet for aggregating data from all six professions. Again, Microsoft Works was used.

Competence Models: Developing Profession-specific Versions

The interviews yielded *occupational competence mix* diagrams for all 20 professions, and the postal surveys yielded diagrams for six of these (the latter were the more reliable because of the larger sample sizes). However, it was not considered realistic to require respondents to produce versions of the more complex, overarching model. Nonetheless, it was felt that some means of developing at least a small number of profession-specific versions of the model should be found. These would be useful both as exemplars, and as a further test of the model's robustness. They would show whether the general model could be adapted to suit specific cases and this would offer further support to the model's validity.

It was decided to construct exemplar versions for three professions with the help of a small number of collaborators from each. It was felt that the collaborators might usefully include people who had taken part in the interviews, if they were available and willing to help.

Selection of exemplars

The three exemplar professions were chosen from amongst the six that had been the subject of the postal surveys. They were:

- The Church;
- The Civil Service; and
- Training.

The inclusion of one old, one of medium age, and one new profession was deliberate.

Development procedure

Since the profession-specific versions were intended to be exemplars only, a simple procedure was adopted for their development. Draft models (based on the provisional version) were produced for each of the three chosen professions after examining relevant data from the interviews and surveys to identify attributes that had been rated as being particularly important to the profession. Where necessary, these were contextualised by translating their generalised descriptions into the language of the profession. They were then located under the appropriate headings within the model.

The collaborators, i.e. three or four people from each of the chosen professions, were then shown the drafts, together with the generalised version of the model. They were invited to offer additional attributes under each of the model headings or suggest modifications. It is stressed that the resulting profession-specific models, which are presented in framework form only at Appendix 5, are no more than exemplars and no reliability can be attached to their representative nature.

Critique of Overall Empirical Method

Perhaps, the main potential strength of this research is its breadth; its attempt to explore a number of complex issues across a range of professions. Paradoxically, this may also be seen as its greatest weakness. There are real dangers in 'spreading the net too broadly'. Methodological integrity, and perhaps statistical reliability, may be compromised. Although steps were taken to try to overcome these and other potential weaknesses, a number of residual limitations in the methodology are readily acknowledged.

Samples

Neither the interviewees, nor the postal survey recipients were selected with perfect randomness, though the latter could be seen as quasi-random. The lack of randomness, particularly in the case of the interviewee selection, together with the choice of professions for inclusion in the research, could add a degree of bias to the results.

It is also acknowledged that a number of the selected professions were internally heterogeneous. Roles and specialisms could vary and this could place limitations on any generalisations made about such a profession.

The small interview sample size within individual professions ($N = 4$) presents a particular problem. This sample size cannot be expected to produce statistically significant results. To alleviate this problem, the postal surveys were designed so as to reinforce data from the interviews, if considered desirable. But this was only possible within the six surveyed professions. This means that considerable caution needs to be exercised in making any comparisons between the remaining fourteen professions. Even within the six, there is a problem with interview topics that were not also covered in the surveys. However, if data from all eighty interviews are aggregated ($N = 80$), in for example examining generic characteristics across all twenty professions, the results become more reliable.

The sample sizes obtained from the surveys are considerably larger but are still quite modest. Although, the average number of responses per profession was 62, the smallest was 41. The differential response rate could also affect the reliability of results when, for example, the profession with the largest number of responses ($N = 91$) is compared with that with the smallest number ($N = 41$). But, again, if the data from all the surveyed professions are aggregated ($N = 372$), the reliability of results is considerably improved. If these data are further aggregated with the data from all the interviews ($N = 452$), reliability is potentially further increased, assuming the data from the two sources are compatible.

A fuller discussion of this important issue, including the acceptability of combining data, will be presented in Chapter 7 (pp. 215-217).

Interview and survey techniques

Both the interviews and surveys were practitioner-centred. The data collected relied entirely on individuals' perceptions and insights, their ability to recognise the key attributes of effective performance within their profession, their ability to recognise and remember the learning experiences that had been important to their development, and so on. It is acknowledged that respondents' perceptions could be unreliable and their memories selective. For this reason, some researchers reject the use of such techniques. Knight (1995), for example, states:

You might think that by asking top achievers how they succeed you would get precise answers. You would be wrong! The key to success is often unknown at the conscious level.

(ibid., p. 3)

She argues that what people say they do bears very little resemblance to what they actually do. A similar assertion is made by Argyris and Schön (1974), who differentiate between the two using the terms 'espoused theories of action' and 'theories in use'.

There is clearly a danger that practitioners may portray their profession as they feel it should be portrayed, rather than as it is, or may not have a perfect understanding of how they themselves operate, or may not be able fully to articulate their learning experiences, or may have memories that have become distorted over time. But to suggest that their perceptions are invalid or their insights should be discounted seems perverse. One might reasonably ask, why should the perceptions and insights of third parties, or the interpretation by them of how professionals operate be any more reliable?

Behind this research was a firm conviction that experienced practitioners are a rich and reliable source of information about their own practice. Each individual may have gaps in his or her own self awareness. Some will be better than others at analysing their own practice and learning experiences. Each may only be able to provide one or two small pieces of an extremely complex jigsaw. But taken together, the illumination offered can be considerable.

The approach may be said to be 'quasi-Socratic', in that it asserts that people possess a considerable amount of knowledge about themselves and that, with care, this can be elicited. This view is of course open to challenge and may indeed be flawed. The sole reliance on self-reporting was certainly a potential weakness in the methodology, though the literature study offered a range of external sources against which findings could be examined.

A further acknowledged weakness is that much of the quantitative data collection relied upon a respondent's ability to understand the complex issues he or she was being asked about, and to make measured, subjective judgements about these. It is inconceivable that all respondents shared a common understanding of these issues, or even of the language used. Nor could the subjective measurement scales used have been applied identically by different respondents. But it is arguable that, across the sample as a whole, such variations will tend to balance each other out, allowing reasonably reliable patterns to emerge. That, after all, is the basis on which much sociological research is conducted.

Possible alternative methods

Observational and ethnographic techniques would have provided an alternative perspective on how professionals operate, but these were ruled out because the breadth of the study would have made them impractical due to the limited resources available, and because they would have been unlikely to throw much light on the previous experiences of practitioners.

The use of focus groups would have been a feasible alternative, though there could have been difficulties in getting together groups of busy professionals at the same time. This aside, the technique was rejected for two reasons. Firstly, the breadth of information sought could have overloaded focus groups which, due to the time taken for discussion, are only suitable for exploring a small number of issues. Secondly, such groups can stifle the offering of individual insights, particularly those that might be embarrassing for people to reveal in front of their peers.

Another possible alternative would have been to use 'critical incident' (or 'behavioural event') interviewing (Oxtoby, 1979; Boyatzis, 1982; Bell, 1987) instead of the fairly conventional interview approach adopted. The technique can be used, for example, to identify occupational behaviours or competencies. Though it still relies on self-reporting by respondents, it does not require them to identify particular behaviours or competencies explicitly. Instead, the possession of particular attributes is 'inferred' through respondents' descriptions of how they dealt with significant events in their professional work. Oxtoby (1979) writes:

The critical incident technique is an attempt to identify the more 'noteworthy' aspects of job behaviour and is based on the assumption that jobs are composed of critical and non-critical tasks ... The idea is to collect reports as to what people do that is particularly effective in contributing to good performance.

(*ibid.*, pp. 239-240)

Bell (1987) describes a typical application of 'critical incident' as asking respondents about the most difficult task they have had to perform, then asking them why it was difficult and how they had responded.

The use of the critical incident technique could have added rigour to the self-reporting process and was in fact considered when the empirical stage was being planned. However, it was concluded there would be a number of problems with its application in this case.

Firstly, the technique is designed primarily to identify behaviours or competencies, whereas this research was seeking information across a much broader front. Secondly, by focusing solely on critical incidents, more subtle but nonetheless important, attributes may be missed. Thirdly, the technique is less reliable the further back in time an incident has occurred. People's memories of distant events may be vague and the details of how they dealt with these may have become distorted due to post-event rationalisation or simple forgetfulness. Fourthly, the use of 'critical incident', at least in the way described by Boyatzis (1982), requires considerable prior analysis of the profession concerned. This would have been a massive task in itself, given that 20 professions were involved. Fifthly, the interviews would have become much more time consuming and less productive. Finally, the technique relies heavily on inference, for example, that dealing with a situation in a particular way implies the possession of specific competencies. Such inferences are inevitably subjective and potentially erroneous.

Therefore, it was decided not to adopt 'critical incident', at least, as the prime methodology. However, it was felt there could be some value in drawing on certain elements of the philosophy within the interviews. For example, by probing interviewees about the things they had found particularly difficult early in their practice (or still find difficult) and how these difficulties were overcome.

Another question that can be seen as within the critical incident genre is one which invited interviewees to identify attributes they considered to be critical to effective performance within their profession. The process used to probe formative experiences could also be seen as analogous in some respects to Boyatzis' 'behavioural event' concept (Chapt. 3, p. 84) but, in this case, the events respondents were asked to describe were 'learning events'.

The potential weakness of relying solely on self-reporting has already been acknowledged. One way to have reduced this reliance would have been to seek the views of other key actors - e.g. clients, peers from other professions, associated para-professionals, employers, possibly using some kind of 360 degree technique (Victor, 1995; Edwards and Ewen,

1996) (Chapt. 3, pp. 93-94). The technique is normally used for assessing the competence of a particular individual, which was not the aim of this research. However, it could have been adapted to a more collective use. Again, such an approach was considered.

Whilst the technique might have been useful in identifying the key attributes of particular professions, it would not have thrown light on how competence had been acquired (a key focus of this research). It would also have been resource-intensive, considering the number of professions sampled. However, influenced by the 360 degree approach, it was decided to include an element of peer-based competence identification in the interview. This was the section that invited respondents to identify the abilities, behaviours and other attributes that indicated competence in people from professions other than their own.

In summary, the empirical methodology had a number of acknowledged weaknesses. However, it is suggested that, taken together, the combination of techniques adopted provide a reasonably robust procedure.

A critique of the methods used for developing the model of professional competence will be included in the next chapter which focuses wholly on the model.

.....

Chapter 6

Towards a New Model of Professional Competence

Chapter 6

Towards a New Model of Professional Competence

Introduction

The methods used to develop and test the new model were outlined in the last chapter. This chapter will fill in the details. It was decided to dedicate a whole chapter to this purpose because modelling professional competence was a central part of the research objectives, and the model itself proved to be one of the main outputs of the research.

Chapter layout and content

The first section will explain why a new model of professional competence was considered necessary. The second will identify the major items within the literature that influenced the design of the *provisional model*. The third section will outline some of the more minor influences on the model. The fourth will describe the architecture and dynamics of the model. The fifth section will report on the expert and academic criticisms which the model attracted. The sixth will assess the extent to which the model was supported by data from the practitioner interviews. The seventh section will outline the modifications made to the model, following testing, and will describe the resulting *revised model*. The eighth section will summarise the further feedback received on the *revised model*. The final section will offer a critique of the methodology used for developing the model, and will assess the model's fitness for purpose.

Confirming the Need for a New Model

Research Question 2 stated, "What is the nature of professional competence and how might this be modelled?". This part of the research directly addressed this question. It was also considered that a model of competence, at least in tentative form, was an important prerequisite of the empirical work because this would provide a conceptual framework to underpin the investigation of how competence was acquired.

A number of existing models of competence were closely examined. Three of the major ones have already been reviewed in Chapter 3 and several less prominent models will be discussed later in this chapter. Following scrutiny of each, it was concluded that, although many offered useful insights, none provided a fully comprehensive representation of professional competence. Because the various approaches viewed competence from different perspectives, adopted different frameworks of analysis or were based on different understandings of practice, they each emphasised particular aspects of competence. Often, this was to the neglect or diminution of other aspects which, paradoxically, alternative approaches stressed. Personal competence might be

emphasised at the expense of functional competence, functional competence at the expense of knowledge, reflection at the expense of rational application of theory, capability to undertake future roles at the expense of competence in the current role.

It was recognised that such paradoxes were to some extent inevitable, given that each model arose from a different theoretical standpoint. But were they really irreconcilable? Could not some of the concepts they embodied be brought together in a single, more comprehensive model? Was it not possible that what on the surface appeared to be disparate and distinctly different approaches were really different sides of the same coin or, to use a more precise analogy, different surfaces of the same polyhedron (Figure 3)?

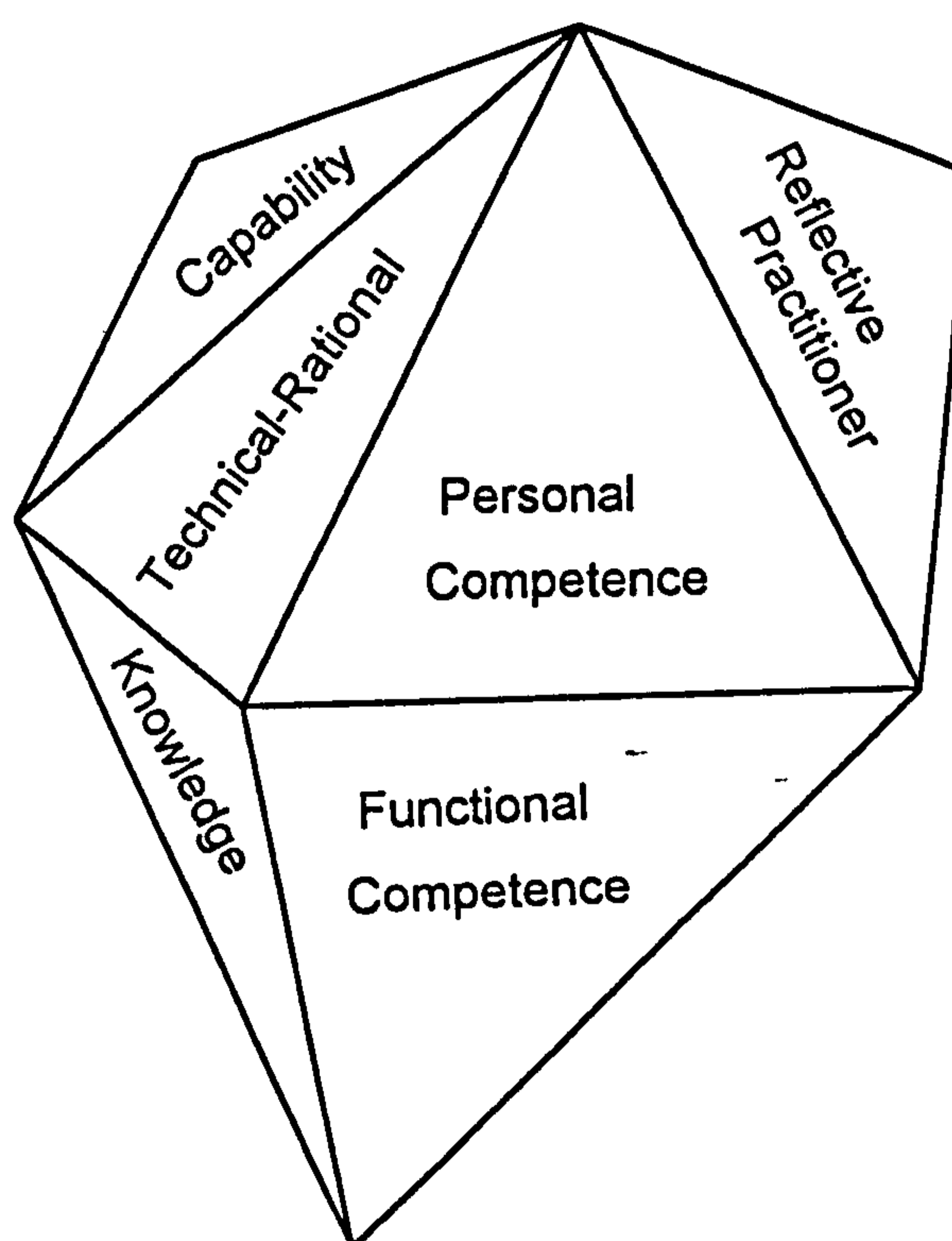


Figure 3: Facets of competence

Attempting to reconcile different perspectives can sometimes be a futile exercise, especially if the perspectives are in opposition. It can lead to a bland compromise that lacks any clear underlying philosophy. However, in this case, none of the perspectives appeared to be totally opposing. Rather, they seemed simply to illuminate different aspects of competence. Perhaps all of these aspects were important in themselves. Perhaps the earlier models were too reductionist. Perhaps the relative importance of the various aspects depended on the type of profession, or the particular job role within a profession, or upon some other factor. These, and similar thoughts, dominated the early months of the study.

The more these issues were considered, the more important it seemed to be to try to construct a more holistic model; one which drew on the strengths of earlier approaches in a harmonious and, if possible, synergistic way. That, at least, was the challenge!

Major Influences on the Model

The motivation to develop a new model arose from the perceived limitations of earlier models, yet a number of these were themselves important building blocks in the model's construction and their influence is readily acknowledged. But the new model was not simply influenced by earlier models of competence, it was also informed by a number of other concepts, drawn from the literature. It was not just an amalgam of earlier models, it also contained some unique features of its own.

The more important influences are discussed below. Where these have been covered in some detail in earlier chapters, only the briefest of summaries will be offered here.

The UK Occupational Standards Model

As argued in Chapter 3 (pp. 70-81), the UK standards model adopts a strongly functional perspective. It emphasises (rightly in the view of the author) the importance of achieving desired outcomes and offers detailed descriptions of the functions that need to be mastered in particular job roles.

The model has proved robust as a basis for assessing NVQs (Beaumont, 1995), but less effective as a framework for development (Cheetham, 1994). And despite a series of incremental changes, it still, in the view of the author, understates the role of both knowledge and personal competence. Nonetheless, functional competence is arguably a critical component of professional competence. Equally, the principle adopted in the UK model of using outcomes as an indicator of overall competence was considered to be sound, though it was felt that other indicators may also be required for certain elements of competence, e.g. professional knowledge and cognitive skills, as argued by Eraut and Cole (1993).

Personal Competence Models

There are a number of competence models which primarily adopt a personal competence approach (e.g. Boyatzis, 1982 ; Klomp, 1980; Klomp and McClelland, 1986; Schroder, 1989; MCI, 1990) (Chapt. 3, pp. 82-88). These focus on the person, rather than the function, identifying particular attributes which contribute to effective performance. Such attributes may include behaviours, motives and self images. All of these are arguably important to confident and effective practice. But just as the UK

occupational standards model sidelines personal competence, so personal competence models tend to ignore functional competence or, at best, take it for granted. However, the extensive use of personal competencies within organisational competency frameworks (Sugarman, 1993) and in assessment centre settings (Woodruffe, 1990; Dale and Iles, 1992; Bolton, 1995) seems to testify to their potential importance.

The Reflective Practitioner Approach

Schön's epistemology of professional practice, 'reflection-in-action', and especially its related concept of the 'reflective practitioner' (Schön, 1983; 1987) (Chapt. 3, pp. 62-63) have been influential in a number of areas of professional education, for example, teacher training, Nursing and Social Work, and have strong support in the literature (Chapt. 3, pp. 65-69). But, as argued in Chapter 3, although Schön offers both an epistemology of practice and a broad paradigm of development, he does not provide a comprehensive model of professional competence. Nevertheless, his emphasis on the importance of reflection and the centrality of practical (or tacit) knowledge are persuasive features.

Meta-competencies

As reported in Chapter 3 (p. 88), these types of competency are considered by some authors to transcend other competencies. In some cases, they may enable self-examination and assist in the acquisition of other competencies (Hall, 1986). In other cases, they may enhance or mediate more ordinary competencies (Reynolds and Snell, 1988; Linstead, 1991; Fleming, 1991; Nordhaug, 1993). However, there are some inconsistencies in the use of the term, 'meta-competency' and the process of identifying which competencies ought to qualify as such is inevitably subjective. It is also difficult to prove the impact of meta-competencies on other competencies.

Despite these problems, which will be revisited later in the chapter, the idea that there were certain competencies which were of a higher order than others was persuasive, and the concept of meta-competence seemed to offer some insights of potential value.

Ethics and Competence

Professional ethics, or at least professional conduct (which it can be argued is a dimension of professional ethics), has been a concern of professional bodies since their early days (Chapt. 2, p. 50). Yet, most competence models pay little explicit attention to the issue, perhaps assuming that it is not a measurable component of competence or is outside the domain of formal development. There are, however, a number of authors who highlight the

contribution of ethics to professional competence (e.g. Ozar, 1993; Steadman et al., 1994; Johns, 1995).

Steadman et al. were commissioned by the UK Government to look at whether an ethical dimension ought to be added to occupational standards. In their report, they state, "... there is an immediate need in the context of national standards development and NVQs and SVQs to fully incorporate the ethical dimension of competence in occupational standards " (ibid., p. 11). However, at the time of writing, relatively few standards have had an ethical dimension added and there is still a division of opinion as to whether ethics should be explicit or implicit to standards.

Steadman et al. (ibid., p. 7) identify four overlapping sets of values which they believe underpin ethical issues encountered at all levels in the workplace. These are:

- legal values (operating within the law and other mandatory systems);
- occupational values (relationships with customers/clients and colleagues);
- organisational values (relationships with colleagues, staff customers and the general public); and
- personal values (individual beliefs and behaviours) (ibid., p. 7).

The authors also provide a list of ethical behaviours under each of the headings.

Ozar (1993) urges the inclusion of ethics and values both within initial professional development and CPD. He argues that the need to examine professional ethics, and the way these might be developed, has been accentuated by the growing media attention to cases of professional misconduct and mounting public cynicism about the motives and activities of professionals. He observes that most professionals are inarticulate about their profession's ethical standards, and he believes so too are many professions collectively. Nor does he detect a great deal of what he terms 'ethical reflection' within most professions.

Ozar identifies two competing views of the obligations of professionals. The first is that being a professional carries certain obligations and responsibilities because of the way professionals are perceived by society, and perhaps because of clients' dependency relationships; the second is that professions are no different from any other occupation in that they are driven primarily by market forces and have no ethical obligations beyond the general ones, applicable to everyone.

Ozar comes down firmly on the side of the first view, believing that professionals do have special obligations. These, he argues, are arrived at in a subtle dialogue with

society, rather than simply being based on what a profession considers to be 'correct'. He asserts further that, "... all professionals are obliged to acquire and maintain the expertise needed to undertake their professional tasks, and are obliged to undertake only those tasks that are within their competence" (Ibid., p. 169). Ozar also stresses the importance of 'ethical reasoning' which, it might be argued, is a form of competence in its own right.

Other influences

More minor influences on the provisional model were:

- *The Job Competence Model* (Mansfield and Mathews, 1985) - which is aimed at making the occupational standards model more dynamic;
- *Key Skills* (formerly called Core Skills) - generic, transferable skills said to be important to all occupations and to be sought by most employers in the UK (DfEE, 1998b);
- *Elements of Professional Competency* (Jarvis, 1983);
- *Bloom's Taxonomy* (Bloom, 1956) - a system used for categorising the various types of learning objectives/achievements within the knowledge domain; and
- Various perspectives on professional knowledge (e.g. Freidson, 1970; Eraut and Cole, 1993) (see Chapter 4, pp. 123-125).

Each of these will be considered in turn.

The Job Competence Model

The Job Competence Model, developed by Mansfield and Mathews (1985), is often closely associated with UK occupational standards and was recommended within the early guidance to NVQ assessors. It may be seen as an attempt to make the standards more dynamic by suggesting how various components of competence might interact with each other. In the model, competence is seen as having three basic components:

- tasks;
- task management; and
- the role/job environment.

The 'tasks' component consists of skills which are used in a routine way to achieve definite outcomes. The 'task management' component involves the use of skills that may be needed when a number of tasks have to be performed together in a particular way. For example, there may be a need to plan the order in which the tasks are performed and to deal with things that go wrong (contingencies). This will require particular 'task management' skills. The 'role/job environment' component consists of skills which are needed to cope with a

particular working environment - e.g. those needed to cope with critical situations, or for working with others - e.g. team members, customers, clients, etc.

The Job Competence Model is more dynamic than the model implicit within occupational standards, though it lacks specificity in relation to the range of potential skills within the 'task management' and 'role/job environment' categories. Nor does it acknowledge any explicit role for knowledge, cognitive competence or ethics and values. It is therefore arguably incomplete as a model of competence. However, it does convey some useful messages about the way competence may be affected by contingencies (unexpected occurrences) and the working environment.

Key Skills

For a number of years, the UK Government has been promoting the concept of 'key skills' (formerly called 'core skills') and a considerable amount of research has been carried out in this area. *Key skills* are attributes which, apparently, the majority of UK employers say they would like all employees to possess. They consist of:

- effective communication (including written skills);
- problem solving;
- the ability to work with numbers [numeracy];
- the use of information technology;
- working with other people; and
- learning skills (DfEE, 1998b, p. 3).

A number of these were endorsed by the Dearing Committee on Higher Education which recommended that 'communication', 'numeracy', 'the use of information technology' and 'learning how to learn' should each be covered in all Higher Education programmes (Dearing, 1997).

Key skills may, at first glance, appear similar to meta-competencies. But a careful consideration of each suggests they are not all of the same nature. 'Communication', 'learning skills' and 'problem solving' could be seen as meta-competencies. However, 'information technology', 'working with numbers' and 'working with others' would seem to involve more mundane, functional or personal competencies.

Given that the *key skills* are based on extensive research, it was felt that even if they were not explicitly included within the new model, it would at least be important to map the model against them to ensure they were implicit.

Elements of Professional Competency

Jarvis (1983, p. 35) goes some way towards providing a model of professional competence by offering what he calls 'elements of professional competency', broken down into a format, often associated with task analysis, i.e. - knowledge, skills and attitudes - see Table 4:

Knowledge and Understanding of:	Skills to:	Professional Attitudes
academic discipline(s);		to professional knowledge and professionalism;
the psycho-motor elements;	perform psycho-motor procedures;	emotive commitment to professionalism;
interpersonal relationships;	Interact with others;	
moral values		willingness to perform professionally

Table 4: 'Elements of Professional Competency'

Jarvis's model can be criticised for its inconsistency of classification and apparent incompleteness. However, among its strengths are its inclusion of 'moral values' and 'professional attitudes', both dimensions which appear to be neglected in certain other models.

Bloom's Taxonomy and perspectives on professional knowledge

Bloom (1956) provides a taxonomy of educational objectives, goals and standard classifications linked to knowledge and associated elements within the cognitive domain. The term 'cognitive' is used by Bloom to embrace activities such as: remembering and recalling knowledge; thinking; problem solving; and creating. The taxonomy contains six main classifications: knowledge; comprehension; application; analysis; synthesis; and evaluation. Each of these is broken down into a series of sub-groups.

Though the taxonomy is limited in its scope, covering only the cognitive domain, it was considered that it would provide a useful checklist against which certain elements in the completed model could be mapped.

Professional knowledge

Chapter 4 (pp. 123-125) outlined a number of perspectives on professional knowledge. From these, the following broad classifications were abstracted as embodying the main kinds of professional knowledge identified by other researchers:

- theoretical or specialist knowledge;
- tacit/practical knowledge;
- procedural knowledge;

- contextual knowledge.

It was considered that each of these needed to be covered in some way within the model.

Building the New Model

The initial version of the model, the *provisional model*, was developed over a period of some 18 months alongside the first stage of the literature review. It might be more accurate to say that the model gradually 'emerged' as an inductive by-product of the literature study. In the process, the draft model went through at least seven iterations. In the early stages, it was quite heavily influenced by the functional approach of the UK occupational competence model. However, as time went on the American personal competence research and especially the Boyatzis (1982) model became more influential. This seemed to offer a counter to some of the shortcomings of the UK model.

Much thought was given to the issue of knowledge. What forms of knowledge were associated with professional competence and how these should be incorporated within the model? Should knowledge be seen as implicit or explicit to professional competence? Was knowledge a form of competence in its own right or did it, as the UK occupational competence model suggested, simply underpin competence? How should the other cognitive dimensions of competence be recognised within the model?

Eventually, it was decided to incorporate knowledge explicitly, but with a recognition of the tacit and embedded nature of some forms of professional knowledge, and in a manner that also acknowledged the importance of cognitive processes.

A similar dilemma arose around the issue of ethics and values. There was never much doubt that these should be recognised as a component of professional competence but, again, precisely how? Should they be seen as implicit to other competencies or were they in some way separate? Should ethical judgement be seen as a form of competence in itself? If so, how did ethical competence relate to values? In the event, an explicit ethical dimension was added to the model which recognised the importance both of having a set of clear values, and having the ability, and perhaps the courage, to apply them in difficult situations.

Considerable thought was given to the issue of reflection and where this might fit into the model. Was reflection some sort of super competence on which all other

competencies depended? Did it over-arch or underpin everything else? Was it, on the other hand, just a useful addendum of some kind, one without which effective professional performance was still perfectly possible? Similar questions arose about meta-competencies. Did such phenomena really exist and if so what was their nature? And if the concept was useful, how should meta-competencies be built into the model?

After much consideration, it was concluded that the concept was indeed useful and ought to be included. Yet the model went through several further drafts before a satisfactory way was found of embodying the role of meta-competencies and their possible relationship to other competencies. Similarly, several attempts were made to identify how reflection might be satisfactorily accommodated. Eventually, a solution was found that gave the model a more dynamic character through a reflective cycle linked to continuous improvement.

As each relevant piece of literature was studied, three questions were asked: "Does it illuminate the nature of professional competence?", "Does it contain concepts that ought to be included in the model?", and "Does it negate any aspect already incorporated within the model?"

In summary, constructing the model involved a combination of: sifting through the relevant literature; critical appraisal of existing models; producing draft models; discussions with colleagues; and occasional flashes of insight and inspiration.

The Provisional Model

The new model drew to some extent on each of the concepts outlined in the previous section. It attempted to combine their individual strengths within a single, coherent framework. Of course, no model can truly reflect reality, and professional competence is a domain in which the reality is particularly complex. And of course 'reality', in this area, as in any other, is a highly subjective, personal or social construction (Ryan, 1981).

The *provisional model* was of necessity quite elaborate. It will therefore be assembled and described in stages.

Core components

At the core of the *provisional model* were four components, which were each seen within different strands of the literature as central to professional competence. These were:

1. *knowledge/cognitive competence;*
2. *functional competence;*
3. *personal or behavioural competence;*
4. *values/ethical competence.*

These were given the name 'core components'. They are illustrated diagrammatically in Figure 4. The dotted lines between the different *core components* emphasise the fact that, though they embody separate aspects of competence, they are in fact inter-linked and to some extent dependent upon each other. This interdependence is of course not restricted to the *core components* that happen to be adjacent to each other in the diagram.

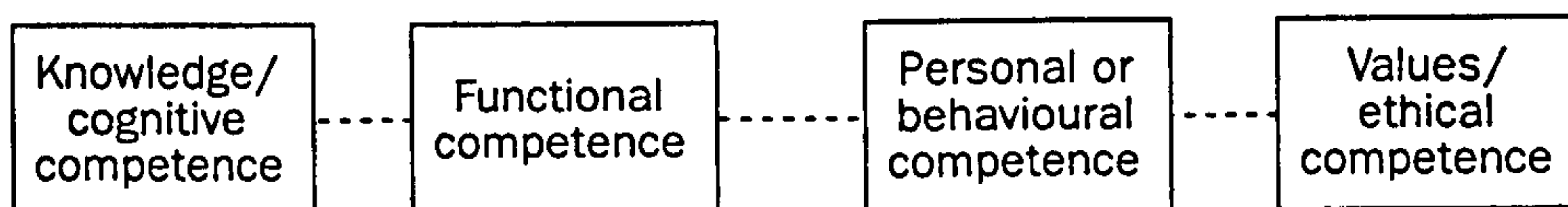


Figure 4: Professional competence - core components

Knowledge/cognitive competence was defined as: *the possession of appropriate work-related knowledge and the ability to put this to effective use.*

The linkage of cognitive competence with knowledge was intended to emphasise the importance of the latter part of the definition, i.e. putting knowledge to use, as well as acknowledging the close association within professional settings of professional know-how and professional thinking.

The definition was intended to embrace all forms of knowledge, including those implicit within practice.

Functional competence was defined as: *the ability to perform a range of work-based tasks effectively to produce required outcomes.* It was recognised that this included, and indeed required, the possession of discrete skills or competencies, but the emphasis within the definition was on putting these together to achieve specific outcomes. No sharp demarcation was made between skills and competencies. However, a skill was considered to cover a rather narrower area of proficiency than a competency.

A ***skill*** was defined as: *an acquired proficiency within a discrete and relatively narrow area of psychomotor and/or mental activity.* This drew on the definition offered by

Boyatzis (1982) (Chapt. 3, p. 85), but was broadened to include skills of a more cognitive nature.

A competency was defined as: an acquired proficiency within a discrete but relatively broad area of psychomotor or mental activity which may require mastery of a range of skills. This was intended to be complementary to the *skill* definition. Hence, *skills* could be seen as the 'building blocks' of *competencies*. Similarly, a range of *competencies* would normally come together to produce overall *professional competence* (defined in Chapter 3, p. 95).

In the case of the *functional competence* component, it was recognised that some of the contributory skills or competencies would be occupation-specific, whereas others (such as those related to management) would be more generic. As the definitions imply, some might be of a physical or psychomotor nature, others of a more mental or cerebral nature.

The definition applied to *Personal/behavioural competence* was: *the ability to adopt appropriate, observable behaviours in work-related situations.* This particular *core component* was intended to cover a wide range of attributes of the kind described by Boyatzis (1982) and also present in the Management Charter Initiative Personal Competence Model (MCI, 1990).

Values/ethical competence was defined as: *the possession of appropriate personal and professional values and the ability to make sound judgements based upon these in work-related situations.* The linkage of *ethical competence* with *values* was intended to emphasise the point that *values*, like knowledge, are of little use unless they are applied. For example, a young doctor might have a well developed set of values, but may freeze when faced with making a difficult ethical judgement. Thus, *ethical competence* implied the effective and appropriate application of *values* in professional settings and the ability to make sound, though at times difficult, ethical decisions. The inclusion within the definition of personal values acknowledges the potentially overlapping nature of personal and professional values.

Meta-competencies

Overarching (or permeating) the four *core components* were a number of 'meta-competencies'. The ones included within the model were *communication, self-*

development, creativity, analysis and problem solving (see Figure 5) but these were meant to be representative only. It was recognised that there might be additional or more appropriate qualifying competencies of this nature. It was posited that the same meta-competencies would be applicable to all or most professions since they were by nature fundamental and generic.

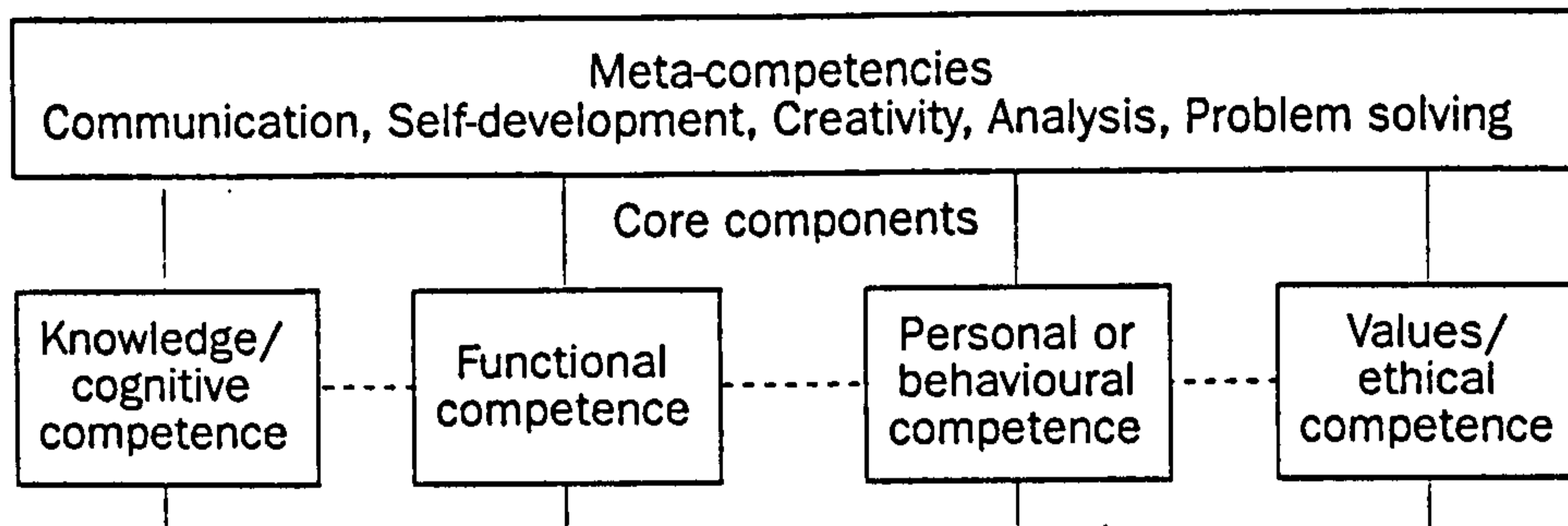


Figure 5: Relationship of meta-competencies to core components

In the *provisional model*, no distinction was made between different types of meta-competency. A *Meta-competency* was defined as: a competency that assists in developing other competencies or is capable of enhancing or mediating other competencies (in any or all of the core component areas).

Constituents of core components

Returning now to the *core components*, each of these was made up of a number of 'constituents' (see Figure 6). *Constituents* were conceived as sub-groups containing individual skills or competencies of a similar nature.

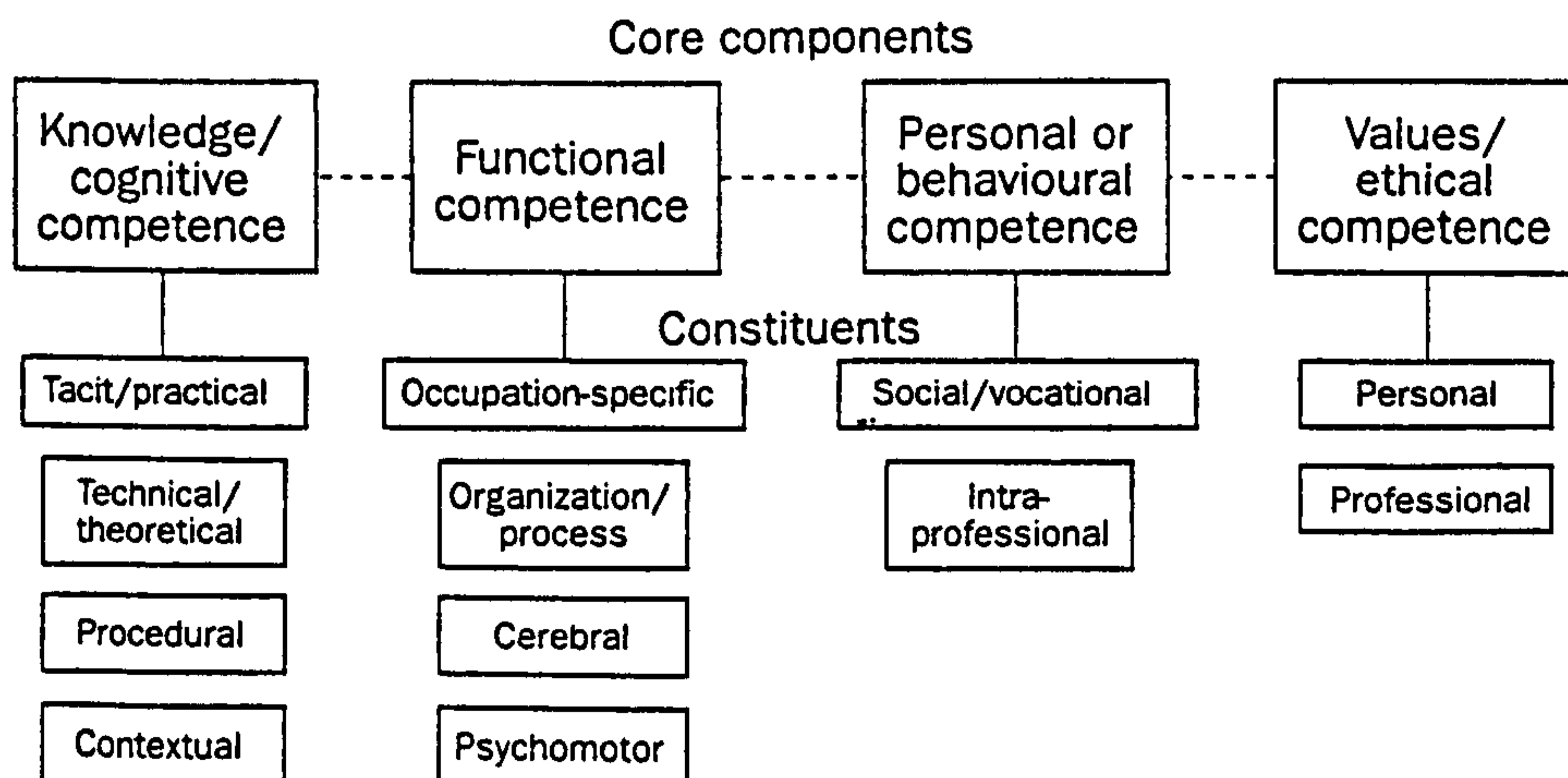


Figure 6: Relationship of constituents to core components

As the figure indicates, the *knowledge/cognitive competence* component was seen as consisting of four *constituents*. These were:

- *tacit/practical knowledge*;
- *technical/theoretical*;
- *procedural*;
- *contextual*.

Tacit/practical knowledge was conceived as knowledge linked to, and embedded within, particular functional or personal competencies (similar to Schön's knowing-in-action'). It was the kind of knowledge that is difficult to articulate, codify or pass on to others; the kind of knowledge which may appear to be almost intuitive.

Technical/theoretical knowledge related to the underlying knowledge base of the profession. It included facts, theories and those principles of practice that could be codified. The constituent was also seen as including linked cognitive abilities such as the application, transfer, synthesis and extrapolation of theoretical knowledge.

Procedural knowledge consisted of the how, what, where, when, etc. of the more routine tasks within professional activity.

Contextual knowledge consisted of the general background knowledge relating to a particular organisation, industry, sector, geographical location, etc., or to a specific situation in which a professional task was being performed. The inclusion of this constituent was a recognition that generic forms of professional knowledge often need to be augmented or adapted to suit local conditions, and effective performance may not be possible until this has been achieved.

The *functional competence* component was seen as made up of four groups of *constituents*:

- *occupation-specific*;
- *organisational/process*;
- *cerebral*;
- *psychomotor*.

Occupation-specific functional competence was seen as comprising the numerous functions and tasks relating to a particular profession. These would typically be the type of competencies that could be identified through the process of functional analysis (referred to in Chapter 3, p. 71) and would form the backbone of any occupational standards for the profession.

The *Organisational/process* constituent contained functions of a more generic nature. These could include management-type skills, such as 'planning', 'delegating', 'evaluating', as well as self-management and time management skills.

The *cerebral constituent* consisted of skills or competencies which involved primarily mental activity. Some of these, e.g. 'literacy' and 'numeracy', could be seen as generic in nature, but others, e.g. 'diagnosis', would be likely to be profession-specific.

The *psychomotor* constituent comprised skills or competencies of a more physical nature - e.g. 'manual dexterity', 'hand/eye co-ordination'.

The *personal/behavioural competence* component had two *constituents*:

- *social/vocational*;
- *intra-professional*.

The *social/vocational* constituent was made up of personal competencies which can be seen as necessary to the effective performance of professional functions or which relate to the professional role more generally. Some of these would be social-type skills - e.g. 'self-confidence', 'interpersonal skills', 'empathy'. Others would be more closely linked to the vocation - e.g. 'task-centredness', 'stamina', 'thinking on feet'. Boyatzis (1982) stresses the importance of more psychological factors, such as motivation, self image and social role. These could be seen as within this group, although its prime focus was on behaviours.

The *intra-professional* constituent consisted of behaviours relating mainly to interaction with other professionals - e.g. 'collegiality', 'team working', 'adherence to norms of behaviour within the profession'. This *constituent* could also be seen as including those behaviours which result from professional socialisation which, as the history of professions in Chapter 2 showed, has been an ongoing concern of professions since early times - e.g. barristers' 'dinners'.

The *values/ethical competence* component was made up of two *constituents* as follows:

- *personal*;
- *professional*.

The *personal* constituent included such things as 'observance of the law', 'adherence to personal moral/religious codes' and 'sensitivity to the needs and values of others'.

The *professional* constituent included 'adherence to professional codes of conduct', 'client-centredness', 'environmental sensitivity' and so on.

This analysis of professional ethics, though simpler than the one offered by Steadman et al. (1994) and described earlier, is arguably consistent with their research findings.

Dynamics of the Model

The *meta-competencies*, along with the four *core components* and their various *constituents*, were seen as interacting together to produce three main kinds of *outcome*:

- *macro-outcomes*;
- *micro-outcomes*; and
- *partial outcomes*.

Figure 7 illustrates the relationship of these outcomes to model's constituents.

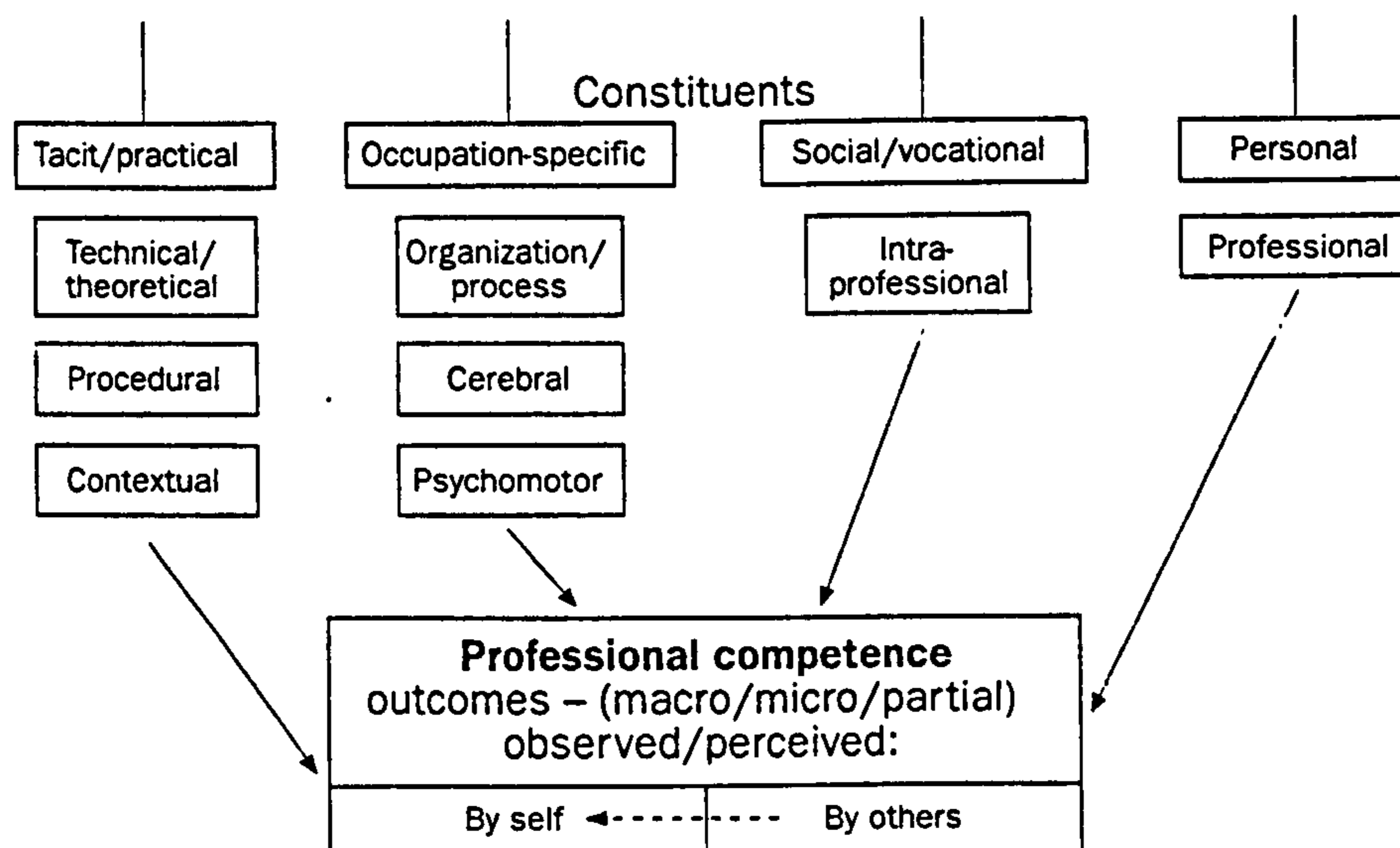


Figure 7: Relationship of outcomes to constituents

Macro-outcomes were conceived as: *the broad, overall and perhaps long-term results of professional activity*. These were the ultimate indicators of professional competence.

For example, in the case of a medical GP, these might include such things as:

- most patients correctly diagnosed and treated;
- most patients contented and reassured;
- practice efficiently run.

Macro-outcomes were seen as likely to be achieved over time through a combination of all the *core components*, enhanced by meta-competencies.

Micro-outcomes were much less ambitious in nature. These were defined as: *the results of very specific activities which might only indicate proficiency in a single competency or narrow group of skills, or might relate to a demonstration of professional knowledge - i.e. educational outcomes.*

The two above were seen as the main types of outcome, but the model also recognised the possibility of *partial outcomes*. These were defined simply as: *the result of a partially-completed activity*. This special case will be discussed later in relation to reflection.

The model envisaged that *outcomes*, of whatever type, were capable of being *observed*, or otherwise *perceived*, by oneself and/or others, though perhaps not perfectly by either party. *Outcomes* were seen as attesting to the existence of professional competence on the part of an individual. Self-perception of competence was seen as being assisted by *feed-back* from others, and this was represented by the horizontal arrow between the *self* and *others* boxes in Figure 8. Self-perception of *outcomes* was seen as leading (in the ideal) to *reflection*. Hence, in the model, *reflection* was envisaged as flowing from *self-perception of outcomes* (see Figure 8, where again only the lower part of the model is shown).

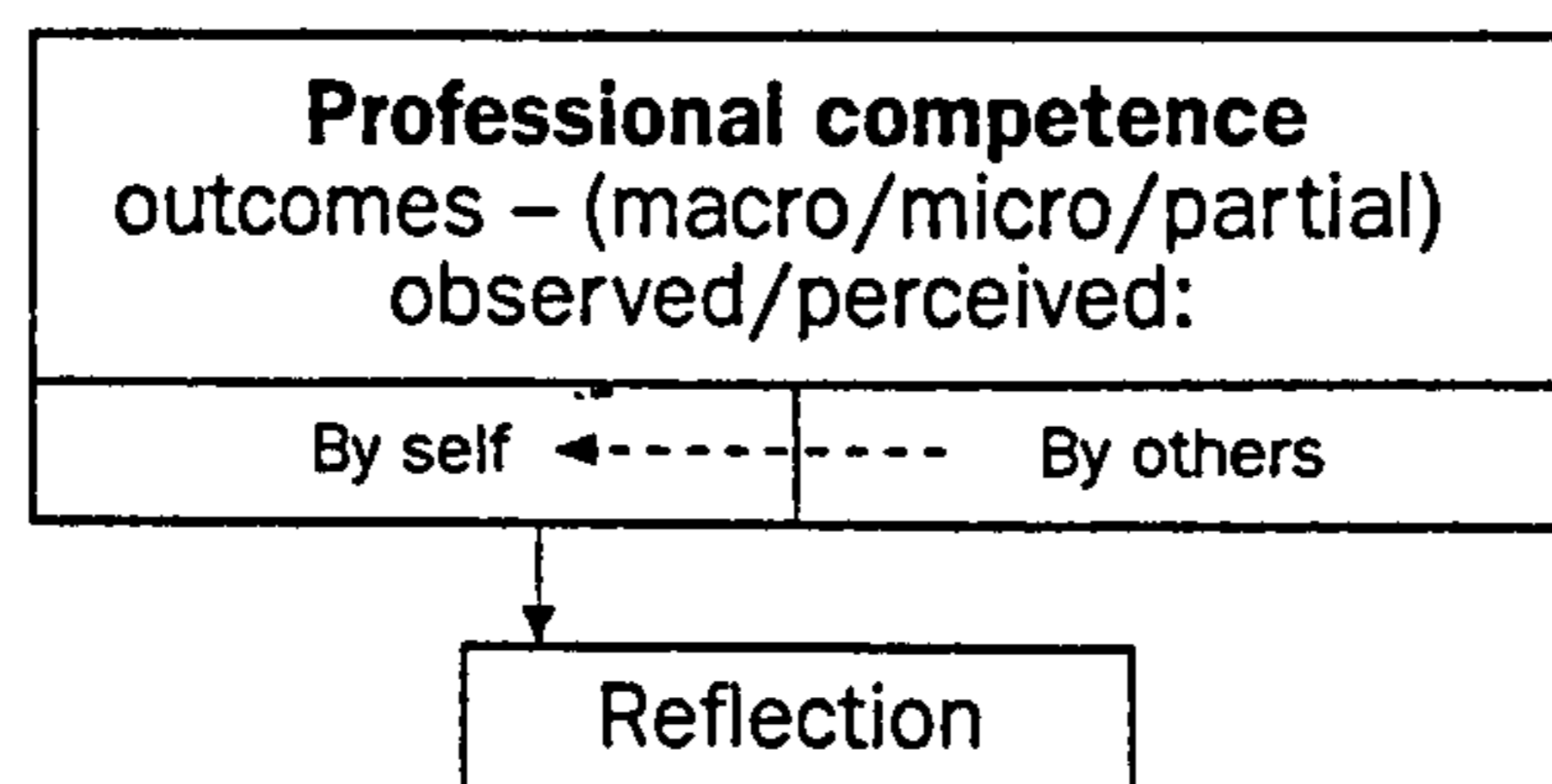


Figure 8: Relationship of reflection to outcomes

Professionals may of course reflect upon any aspect of their role. Within the context of this model, they may reflect against any of the *core components* or (more likely) any of their *constituent competencies*, or against any of the *meta-competencies*, or indeed about their overall professional performance. They may reflect on *macro* or *micro outcomes*. Schön (1983; 1987) suggests that, in addition to reflecting about (or after) action, professionals may also reflect in the middle of an activity ('reflection-in-action'). This was accommodated in the model through the concept of *partial outcomes*, referred to earlier - i.e. *reflection* against a *partial outcome* equated to Schön's 'reflection-in-action'. Professionals may also reflect before an event and this could be accommodated by entering the model at, or before, the point of *reflection*.

Reflection, in particular about past or current action, may lead to some kind of behavioural modification. In Schön's concept of the 'reflective practitioner', the main purpose of reflection is to improve professional competence. Therefore, in the fully assembled provisional model (shown in Figure 9), the results of *reflection* were shown as feeding back into any of the *core components* or (more likely) any of their *constituents*, or into any of the *meta-competencies*. This could potentially lead to an improvement in performance.

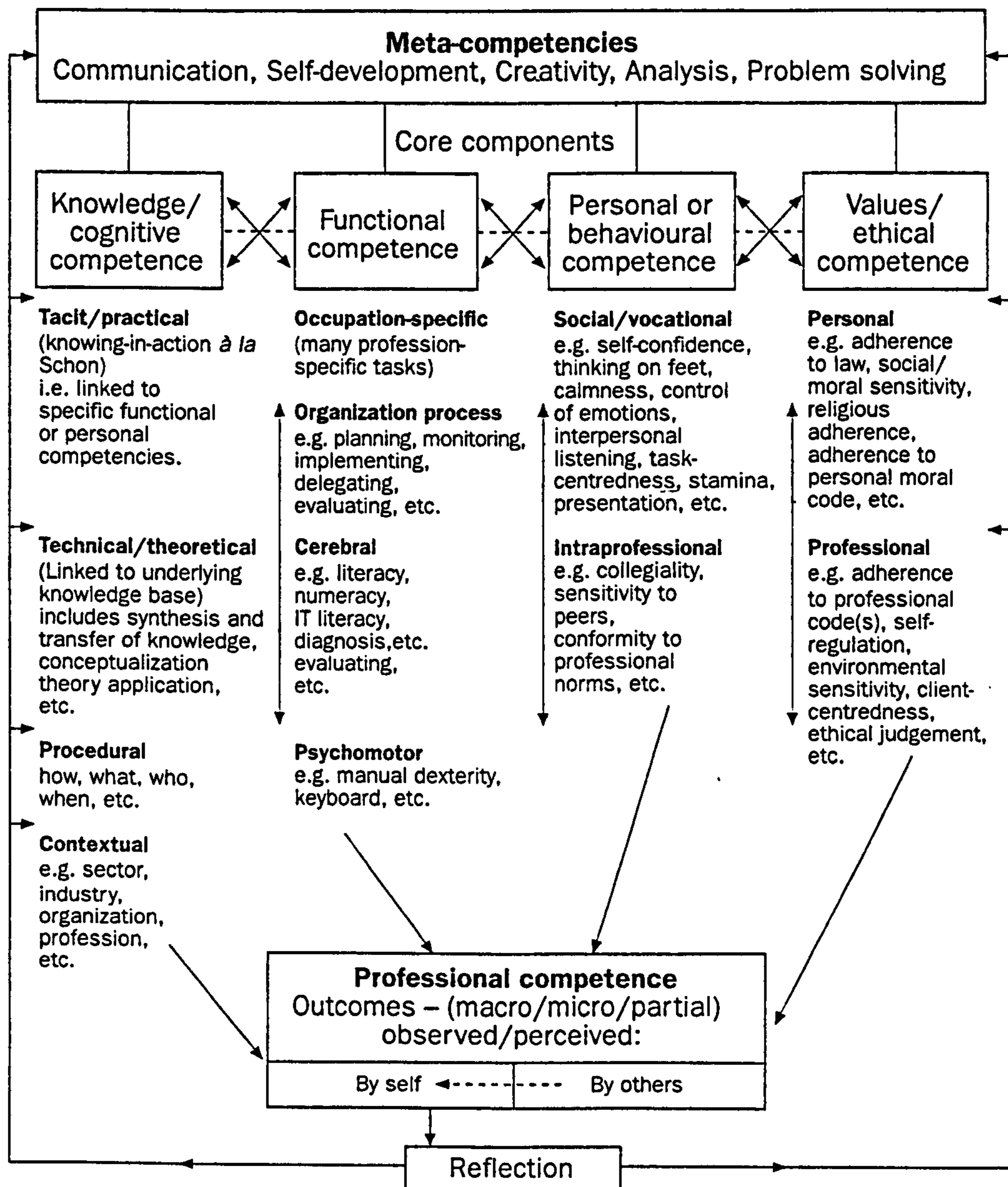


Figure 9: Provisional Model of Professional Competence

Interdependencies within the model

Returning to the four *core components*, though these were separated conceptually in the model, it was recognised that in practice they were likely to be interrelated at a number of

levels. For example, certain personal competencies may be needed in order to execute a particular functional competence effectively. Consider, for instance, 'delegation' which is seen in the model as a functional competence. Effective delegation may only be possible if a certain amount of 'assertiveness' is applied. Yet 'assertiveness' is seen in the model as a personal competence. Similarly 'implementing' (also seen as a functional competence) may require the attributes of 'task-centredness' (seen as personal competence) and 'social sensitivity' (seen in the model as an ethical competence). The likelihood of such interdependence was illustrated in the model by the sloping, arrowed lines between each of the *core components*.

This sort of interrelationship is consistent with the principle of the 'role/job environment' component found in the Job Competence Model (Mansfield and Mathews, 1985) described earlier in this chapter (pp. 175-176).

It was felt there were also likely to be interrelationships between different competencies within the same core component heading. For example, the execution of certain occupational-specific functional competencies may need to be supported by other functional competencies such as 'planning' and 'monitoring'. The likelihood of this sort of interdependence was illustrated in the diagram by the vertical, arrowed lines between each of the *core components*. This type of interrelationship is consistent with the 'task management' component of the Job Competence Model.

Mapping against Key Skills

On its completion, the *provisional model* was mapped against the UK Government's 'key skills' (DfEE, 1998b), discussed in an earlier section (p. 176). The key skills of 'communication', 'problem solving' and 'learning skills' were all directly included within the model in the form of *meta-competencies*. The last of these could also be seen as linked to the model's reflective cycle. Though they were not explicit to the model, 'working with numbers' and 'information technology' would both fit comfortably within the *functional competence* component, and 'working with others' could readily be accommodated within the *personal competence* component.

Typical application of model

In order to test how readily the generic model could be applied to a particular profession, and to provide a practical illustration, a hypothetical, profession-specific version was drawn up. The application chosen was a medical GP. This construction was speculative and based only on common knowledge about the profession, rather than any research data (see Figure 10).

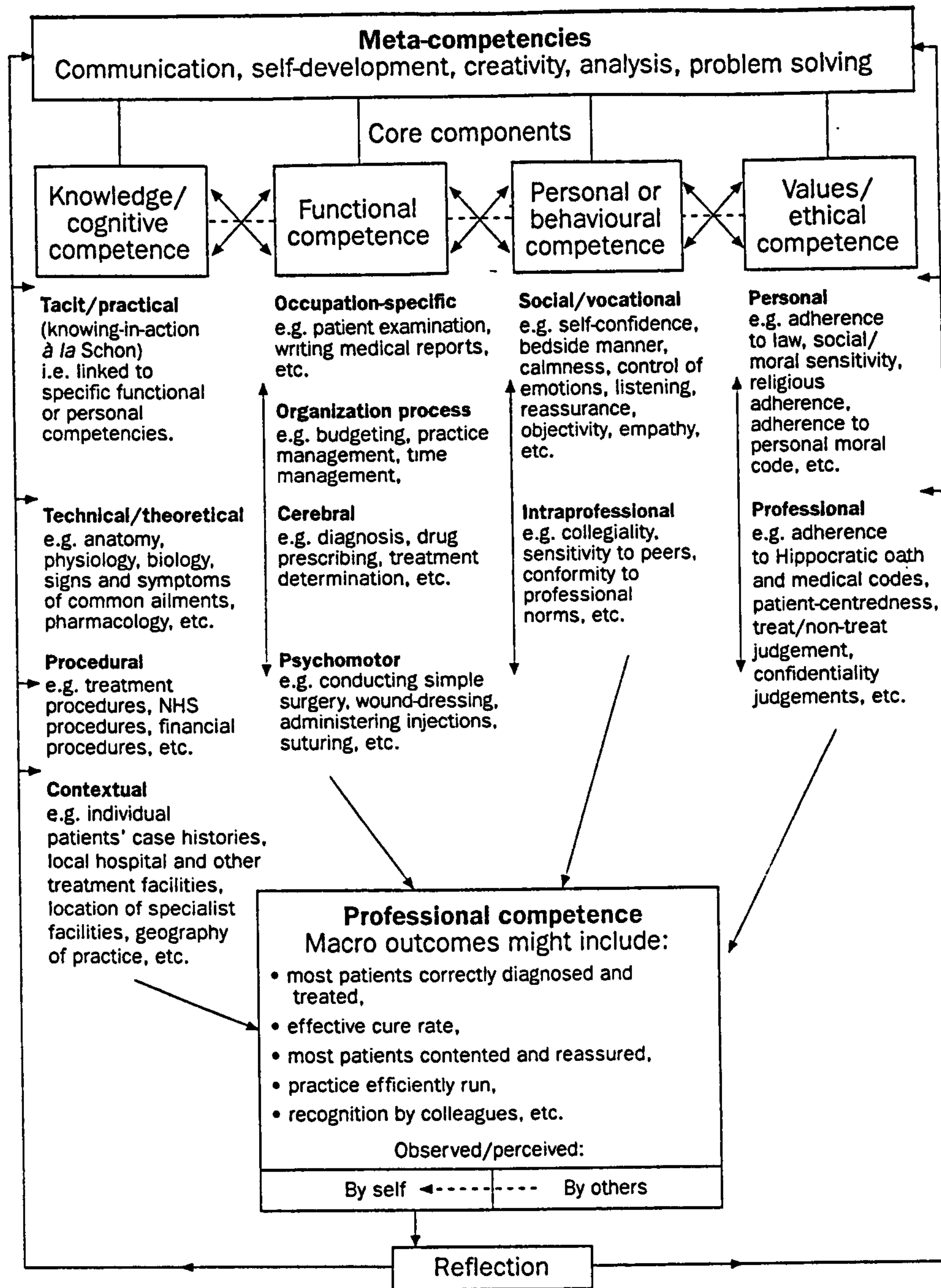


Figure 10: Example of Provisional Model applied to a medical GP.

Within the GP model, and in the general version of the model, distinctions between the various 'constituent' groupings should not be viewed too rigidly. For example, 'patient examination' has been placed under the 'occupation-specific' category. It might well have been placed under the 'psychomotor' heading. This distinction is of relatively little importance. The main purpose of the constituent headings was to provide a framework for the different types of competencies which might be involved, to ensure that none had been missed. They also offered a potential added value in bringing together competencies of a similar nature which might be susceptible to similar development techniques.

Associated Occupational Competence Mix Diagram

One fundamental difference between the *provisional model* and earlier models was that it afforded equal prominence to knowledge, functional competence, personal competence and ethics. These were all explicitly represented in the model. At the same time, it was recognised that the relative importance of these different components could vary between professions. Different professions might require a different mix of the *core components*, as might different branches or job roles within the same profession. To accommodate such variations, an 'occupational competence mix diagram' was designed to sit alongside the main model. This is illustrated in Figure 11.

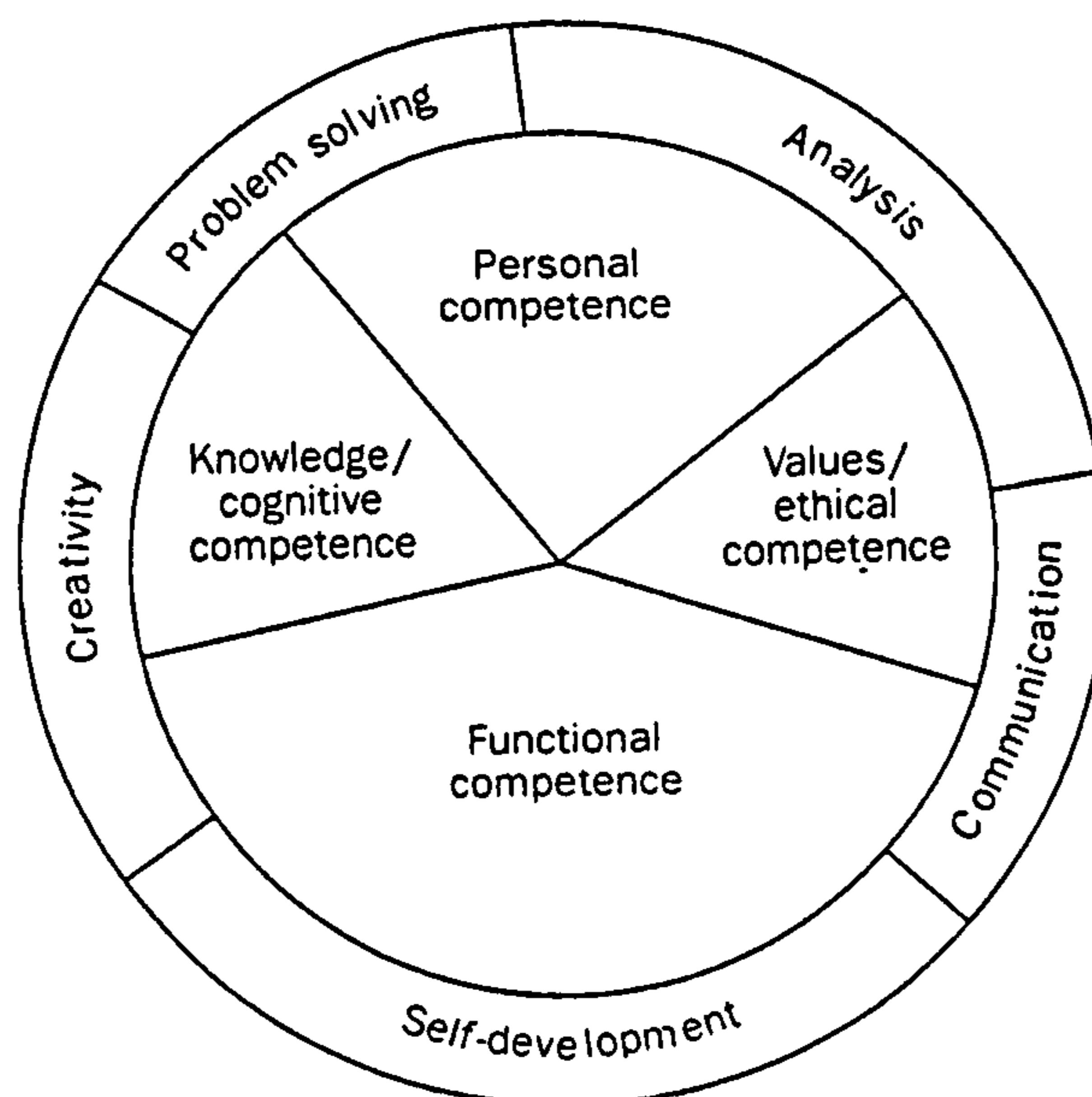


Figure 11: Occupational competence mix

In the *occupational competence mix diagram*, the relative importance of each of the *core components* to effective performance within a particular occupation was indicated by the size of (or angle subtended by) the segments. It was acknowledged that *meta-competencies* (shown round the perimeter) could also vary in their importance between professions. To demonstrate the potential difference between professions, hypothetical diagrams for two contrasting professions were drawn (Figure 12).

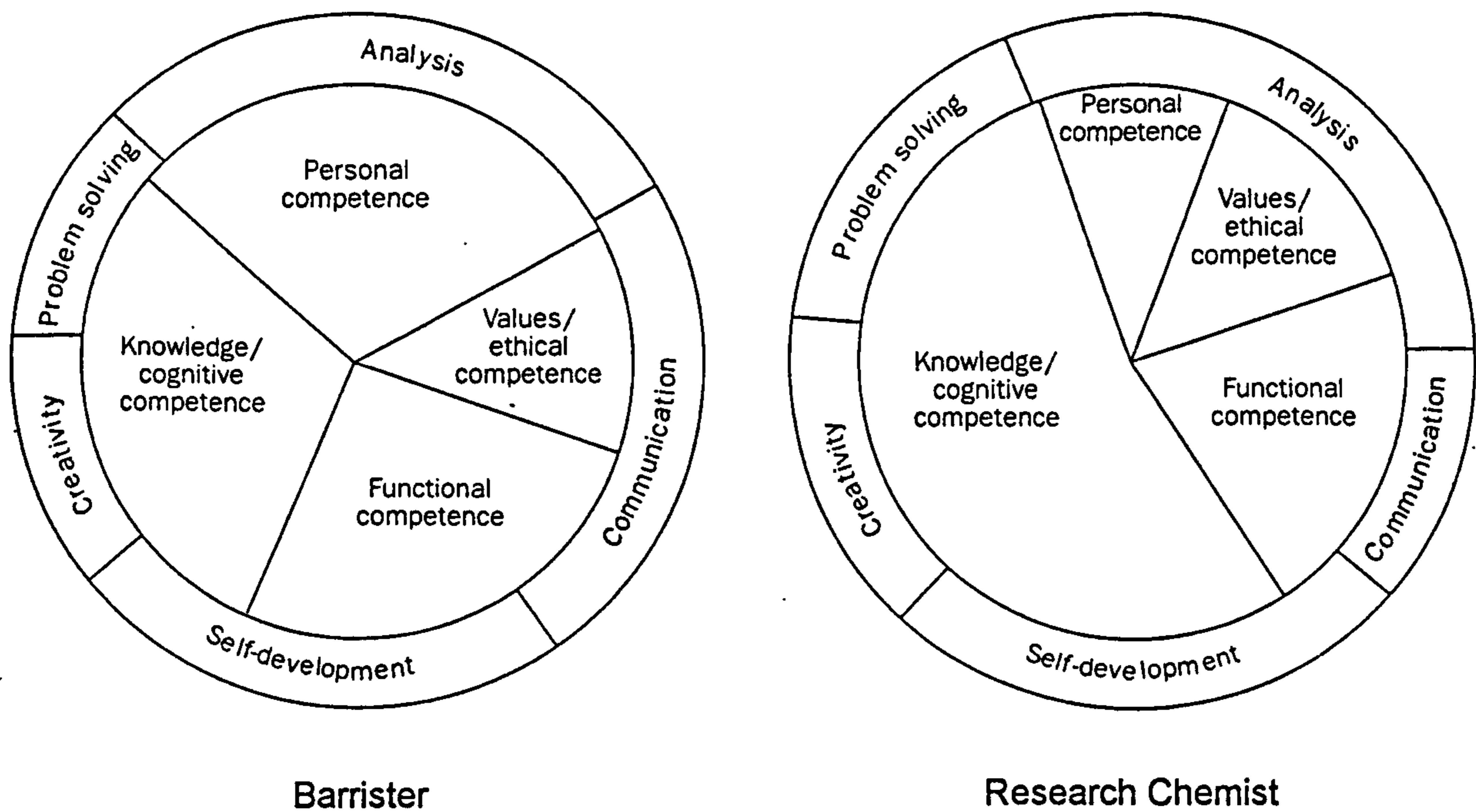


Figure 12: Occupational competence mix - hypothesised comparison of contrasting professional roles

As the diagrams illustrate, a barrister might be seen as requiring a strong cadre of personal competencies (such as 'self-confidence', 'self-presentation skills', incisiveness and 'ability to think on feet'). In contrast, a research chemist, though not perhaps requiring such highly developed personal competencies, might instead need an extensive knowledge base and a high order of cognitive competence. For him or her the ability to apply theory, transfer, synthesise and extrapolate knowledge may be all important.

A variant of the *occupational competence mix diagram*, given the name 'individual competence mix diagram', was also developed. This was a three dimensional version which illustrated how individual practitioners could vary in their competence within each of the *core component* areas against the ideal for their profession (Figure 13). It recognised that even after the necessary occupational mix for the profession had been acquired, a practitioner may continue to develop each one of the components further, increasing the depth of competence within each towards the highest levels of excellence. However, it was assumed that ongoing development was likely to proceed at different rates within different *core component* areas. This was accommodated within the diagram by the variation in height between segments. For simplicity, *meta-competencies* were not included in the illustration but it was assumed that these too were likely to develop differentially.

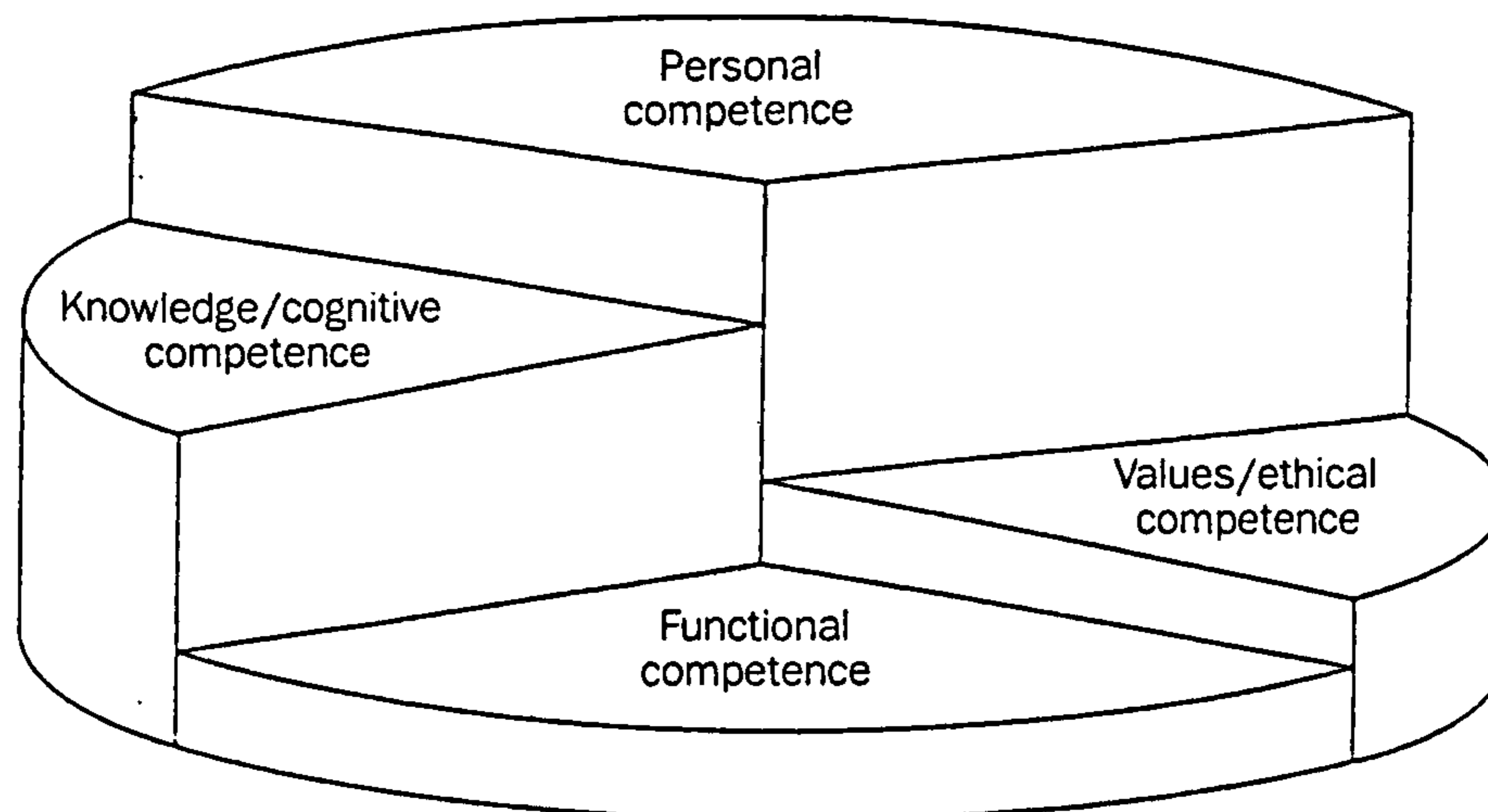


Figure 13: Individual competence mix

Testing the Model

Chapter 5 explained the methodology for testing the *provisional model*, so it is unnecessary to repeat this in detail here. However, in summary, the model was exposed to expert and academic criticism through:

- a conference paper (Cheetham and Chivers, 1996a);
- several publications (Cheetham and Chivers; 1996b; 1997; 1999);
- selected experts in professional development or occupational competence.

The model was also tested empirically through the practitioner interviews (as described in Chapter 5), following which it was revised. The postal surveys were later used to help validate a revised version of the model.

In relation to the critical exposure, comments were received from a total of 70 people, the most structured being from the selected experts and conference delegates who were each given a questionnaire for completion after studying the model. In total, 21 questionnaires were returned and comments were received, either orally or in writing, from a further 49 people. Some of these commented during the conference discussion session, while some wrote, e-mailed or telephoned after reading one of the journal articles. Several of the latter responses were from overseas. All comments were noted and analysed. A total of 16 respondents reported that they were either making use of the model or considering doing so. They were distributed across the following ten areas:

- Engineering
- Surveying
- the Church (both Anglican and United Reform)

- the Fire Service
- Teacher Training
- Librarianship
- Management Consultancy
- Training (corporate and general)
- Information Technology
- the Law (solicitors)

The following are typical examples of uses. The University of Cambridge (Programme for Industry) drew on the model in developing a European Record of Achievement for engineers, the Institute of Management Consultants used the model to help inform a credit accumulation and transfer system for their members, and Thames Valley University used it to help evaluate occupational standards for librarians.

Expert Criticisms of Provisional Model

The responses received following the model's exposure provided a valuable critique. On the whole, the comments made about the model were positive, but they contained a healthy mix of perceived weaknesses and strengths. The questionnaire used to invite responses from the expert group included both quantitative and qualitative sections. The quantitative section invited respondents to rate the provisional model on a five point scale (with 5 being the highest score) against four different attributes. These were: clarity/coherence; comprehensiveness; soundness; and effectiveness in linking the relevant concepts. The mean scores against each were:

clarity/coherence	3.9
comprehensiveness	4.1
soundness	4.1
effectiveness in linking concepts	4.2

These scores suggest that the model was generally well received, though 'clarity and coherence' lagged somewhat behind the other attributes. The qualitative section of the questionnaire provided the following critique.

Perceived Strengths

On the positive side, the model was variously described as 'clear', 'logical', 'accessible' 'easy to apply', and 'thought provoking'. Its main strength seemed to be its comprehensiveness. A number of respondents applauded the attempt to pull together a number of concepts which had previously been seen as disparate, one stating that it afforded, "... a more appropriate breadth to the subject of competence". Another felt it,

"... overcame many of the weaknesses of functional analysis". A further comment was, "It makes a complex matter more manageable and facilitates comparisons between and within professional groups". Several said that the model had helped them understand better, the different approaches to competence and offered them new insights on the linkages and interrelationships between these. More general statements were: "... it is extremely good news to see the various existing models drawn together ... and a very welcome change from seeing each battling for supremacy"; "I found it really interesting. I think I'll try to apply it in my own research work in the future".

Some respondents felt the model helped to overcome the shortcomings of other approaches - e.g. the functional competence approach. One respondent commented, "It deals with competence as a process, not just an outcome".

The model was seen as offering flexibility and a number of respondents welcomed its recognition that different professional roles may require a different mix of the *core components*, as illustrated through the *occupational competence mix diagram*. Most seemed to find the diagram, and its derivative the *individual competence mix diagram* useful. One described the latter as, "thought-provoking", another as, "helpful". One felt it supported his belief that, "... an inappropriate mix of competencies was counter-productive to effective performance".

Several respondents welcomed the inclusion of ethics and values as an explicit component.

Other more general comments included: "... impressive - would like to try it out myself"; "... the model is as good as any I have encountered"; "... an excellent, refreshing approach"; "... thank goodness someone has had similar thoughts to my own!".

Weaknesses

A number of specific weaknesses were identified by respondents. These related both to presentation and conceptual content.

The main criticisms related to the layout of the model and its complexity. One respondent, although conceding that a degree of complexity was unavoidable, given that competence itself was a complex issue, nonetheless felt the model was, "... over-schematic in its treatment of the links between the various components". He believed this could lead to, "compartmentalism". Another challenged the convention used for

representing the *core components*. He argued that concentric circles would be more appropriate than parallel boxes.

Some respondents found the various sets of arrows confusing. Others, found the model cramped and cluttered. One respondent suggested that a 'landscape' format would be better. Another suggested that a 'left to right reading' (as opposed to a top to bottom one) would be 'more natural'. Another felt that the *core component* boxes should fully encompass the *constituents* to make it clearer that the *constituents* are an integral part of the *core components*.

A number singled out the semantics of the model as a potential barrier, though it was acknowledged it was difficult to convey complex meanings through one-word titles in diagrams. Several were unhappy with, or unclear about, some of the terms used in the model; 'cerebral', 'macro' and 'meta' were particularly singled out. The model was also criticised for using a certain amount of 'academic short hand' - e.g. 'knowing-in-action - à la Schön'. It was suggested that understanding the model may require a fairly high level of prior knowledge on the part of the reader. One person commented that it could be confusing to non-academics and suggested that circular diagrams (presumably similar to the Kolb learning cycle, Chapt. 4, p. 107) were often clearer and more readily understood.

From a conceptual point of view, it was suggested that the model did not take sufficient account of personality, attitudes and the relationship between values and behaviour. Nor, in the view of one respondent, did it deal adequately with 'change over time'.

One respondent found the 3 dimensional *individual competence mix diagram* difficult to understand. Another was concerned by the inference within the *occupational competence mix diagram* that certain competencies, or in the model's jargon - *core components*, may be less important to some occupations than to others. He argued that all of these attributes should be regarded as of equally importance to all professions.

Suggested changes

A number of potential modifications were offered by respondents. One suggested that 'knowing-in-action' and other practice elements should be more central to the model to reflect their centrality to professional practice. Another felt that the *reflection* box should be larger or more prominent to emphasise its importance. It was suggested that the use within the *outcomes* box of the expression 'observed or otherwise perceived' may lead to problems relating to unobservable outcomes (requiring inferences to be made). It was suggested that it would be better to stick to observable outcomes.

A number suggested that a narrower definition of *meta-competency* might be more appropriate; for example, “a competency which aids the acquisition of other competencies”. Several pointed out that the definition used within the model included at least two different types of competency - those which aided acquisition and those which enhanced or mediated other competencies. It was suggested that these might each require different labels.

Several respondents argued that reflection was itself a meta-competency and that this ought, somehow, to be recognised in the model. One suggested giving *reflection* the sub-title ‘meta-most’. Another argued that *ethics and values* should be seen as *meta-competencies* because they permeated all other competencies. It was suggested by one person that an additional *meta-competency* might be ‘setting, acknowledging and observing the boundaries of professional expertise’ - i.e. knowing and admitting when you are not competent. Another respondent also stressed the importance of this characteristic but felt it should be located within the *values/ethical competence* component.

One person argued that *cerebral skills* (as opposed to more routine mental skills, such as arithmetic) might be better seen as linked to *knowledge/cognitive competence*, rather than as a *constituent of functional competence*. Another suggested that the *individual competence mix diagram* could be improved by using what he called, “... ‘stepped blocks’ laid in the order that particular competencies were acquired”. One suggested that the model should be set within broader ‘Systems Theory’.

One of the most strongly made points was the model’s lack of explicit recognition of the importance of context and work environment to competence - i.e. an acknowledgement that a person might be extremely competent in one particular context or environment, but less so when either of these changed. Boyatzis (1982) (Chapt. 3, p. 85) acknowledges the importance of what he calls ‘organisational environment’ to competence, Mansfield and Mathews (1985), cited earlier in this chapter (p. 175), include the ‘role/job environment’ in their model, and Zuboff (1988) (Chapt. 4, p. 128) stresses the importance of context.

The impact of both context and work environment on competence was confirmed by the interview stage, several interviewees describing changes to their work situation which they believed had affected both their confidence and competence, attributes which appear often to be quite closely linked.

Possible additions to the model suggested by respondents were:

- personality;
- attitudes, motivation and will to change;
- professional duty to keep up to date;
- responsibility for providing appropriate role models and for inducting new members into the profession;
- justification of practice and procedures to newcomers;
- application of professional ideas to new problems and developing new theories;

A few respondents counselled against adding to the model. A typical comment from this group was, "... adding further concepts could risk cluttering up something successfully simple".

Testing through the Practitioner Interviews

There was a two-way relationship between the model and the practitioner interviews. The content of the interviews was informed by the *provisional model*, and interviews contained elements which helped test the validity of the model. The latter included a series of questions aimed at probing the robustness of various parts of the model and an exercise in which interviewees were asked to construct *occupational competence mix diagrams* for their own profession. All the results obtained from the interviews will be presented and analysed in Chapter 7, along with discussions of their statistical significance. However, a number of findings which helped to test the model are outlined below.

It was explained in Chapter 5 that due to the difficulty of devising suitable methods for directly validating the model, it was necessary instead to use indirect methods. It is acknowledged that these were able to give no more than a broad indication that the model was on the right lines.

Support for core components

Although the model was not directly discussed with interviewees, they were asked to rate the importance to effective performance of each of the *core components*. Interviewees seemed readily to recognise the concept behind each of these, along with the different kinds of knowledge and competence referred to in the model. The four *core component* areas attracted broadly similar mean ratings. These were:

knowledge (all kinds)	3.98 (on 1 to 5 scale)
functional competence (full range)	3.78
personal competence	4.38
ethical competence	3.76

All of these were at least 75% of the way along the scale, suggesting they were each seen by interviewees as important elements of professional competence. This offers some support to the equal status afforded to each within the model, but does not confirm their relationship with each other, or with other elements within the model.

Support for concept of meta-competencies

Four attributes seen as possible *meta-competencies* attracted particularly high scores from interviewees:

oral communication	4.63
written communication	4.40
problem solving	4.24
analysis	4.31

A fifth, 'self-development', lagged some way behind at 3.81 and a sixth, 'creativity', was even further behind with a score of 3.38. Of course, the high scores for the first four do not prove that they are *meta-competencies*. It simply suggests that they are seen as important across all 20 professions. Conversely, the low score attracted by 'creativity' does not prove it is not a meta-competency. A particular feature of this attribute was the wide range of ratings between professions, suggesting it is perceived as much more important in some than in others. However, the relatively low rating of 'creativity' casts doubt on its generic nature, and genericism is said to be one of the characteristics of *meta-competencies* (Nordhaug, 1993) (Chapt. 3, p. 88).

A number of the proposed *meta-competencies*, in particular 'communication', 'analysis' and 'problem solving', were identified un-prompted by interviewees in the section concerned with competencies critical to effective performance (Chapt. 7, pp. 236-237). The most frequently cited was 'communication'. As with the *core components*, none of the data were able to throw light on the interrelationships between the proposed *meta-competencies* and other competencies.

Support for the central role of reflection and the model's dynamics

The interviews confirmed the importance of reflection across all professions. Around 96% of interviewees were aware of reflecting from time to time, and 81% claimed they reflected regularly about their professional work. Examples offered by interviewees confirmed that reflection was often concerned with outcomes of various kinds (as depicted in the model). However, the examples suggested that the depth, quality and mode of reflection varied considerably.

Around 94% of interviewees claimed that they modified the way they did things as a result of reflection, either regularly or sometimes. This provides support for the central role given to *reflection* in the model as well as its performance-improvement potential. The latter is seen as a key feature of the model's dynamics. The importance of feed-back in assisting self-assessment of performance also arose, un-prompted, in qualitative discussions with interviewees. This offered further, if limited, support for the model's dynamics.

Support for occupational competence mix concept

All interviewees seemed readily to understand and identify with the concepts within the *occupational competence mix diagram*, and all were able to produce a profession-specific version. Only one out of the 80 interviewees, before drawing the diagram, challenged the *core components* and in that case only to suggest a further sub-division of one of the segments, functional competence, into what he called 'knowledge-related skills'.

The small sample size for individual professions (N = 4) prevented statistically reliable comparisons from being made. However, the diagrams displayed a remarkable degree of consistency within professions and quite pronounced differences between them, the differences being consistent with the nature of the profession. For example, the largest *values/ethical competence* components were drawn by interviewees from the clergy and hospital doctors (see Appendix 4).

No attempt was made to test the 'individual competence mix' concept through the empirical work since this was considered to be too demanding of interviewees.

The Revised Model

After analysing and reflecting on the range of expert comments received and the data from the interviews, certain modifications were made to the model.

Conceptual modifications

Suggestions made by respondents had to be balanced against the indications coming from the empirical work. All the expert comments were carefully considered alongside the data from the interviews before the revised model was produced. It is worth stressing that even those suggestions that were not incorporated were nonetheless valuable because they focused attention on issues which may not previously have been considered. The changes made to the model were relatively modest, though significant.

The first of these was the recognition of the importance of both *context* of work and *work environment*. Examples of the impact on competence of both of these came up during the practitioner interviews.

Context of work was defined as: *the particular working situation in which an individual is required to operate.*

The importance of context was apparent in particular experiences related by several interviewees. For example, a solicitor recalled how when she moved from a small private practice to a large insurance company her competence was adversely affected, at least initially. This effect seems particularly likely if the new work requires a different specialism, but it may occur after almost any change. An attribute, such as 'considerative judgement', which could be a strength in one context, may become a weakness in a context where 'decisiveness' is required.

A tragic example of such a contextual change, drawn from beyond this research, is the 1989 Hillsborough Stadium disaster in which 95 football supporters died¹. The police Chief Superintendent who was acting as Match Commander had only recently been transferred back to the uniformed branch after many years as Head of CID, a post he had held with distinction and in which he had been highly effective. However, in the new context of 'operations', faced with split second, life or death decisions, he apparently 'froze' (Taylor, 1990).

Even a possessed attribute may not apply in all situations. An accountant described how he felt highly confident in his ability to add up figures, quickly and accurately in front of others, but a definite lack of confidence when speaking in large meetings.

Work environment was defined as: *the physical, cultural and social conditions which surround an individual at work.* The interviews threw up the importance of all three dimensions - i.e. *physical, cultural and social*. The qualitative discussions suggested that people interact with each of these in subtle ways and that competence could be affected if any of these aspects of work environment change (see Figure 14).

¹ The death toll rose to 96, some considerable time after the accident, following a court decision to allow the withdrawal of treatment from one of the severely injured casualties.

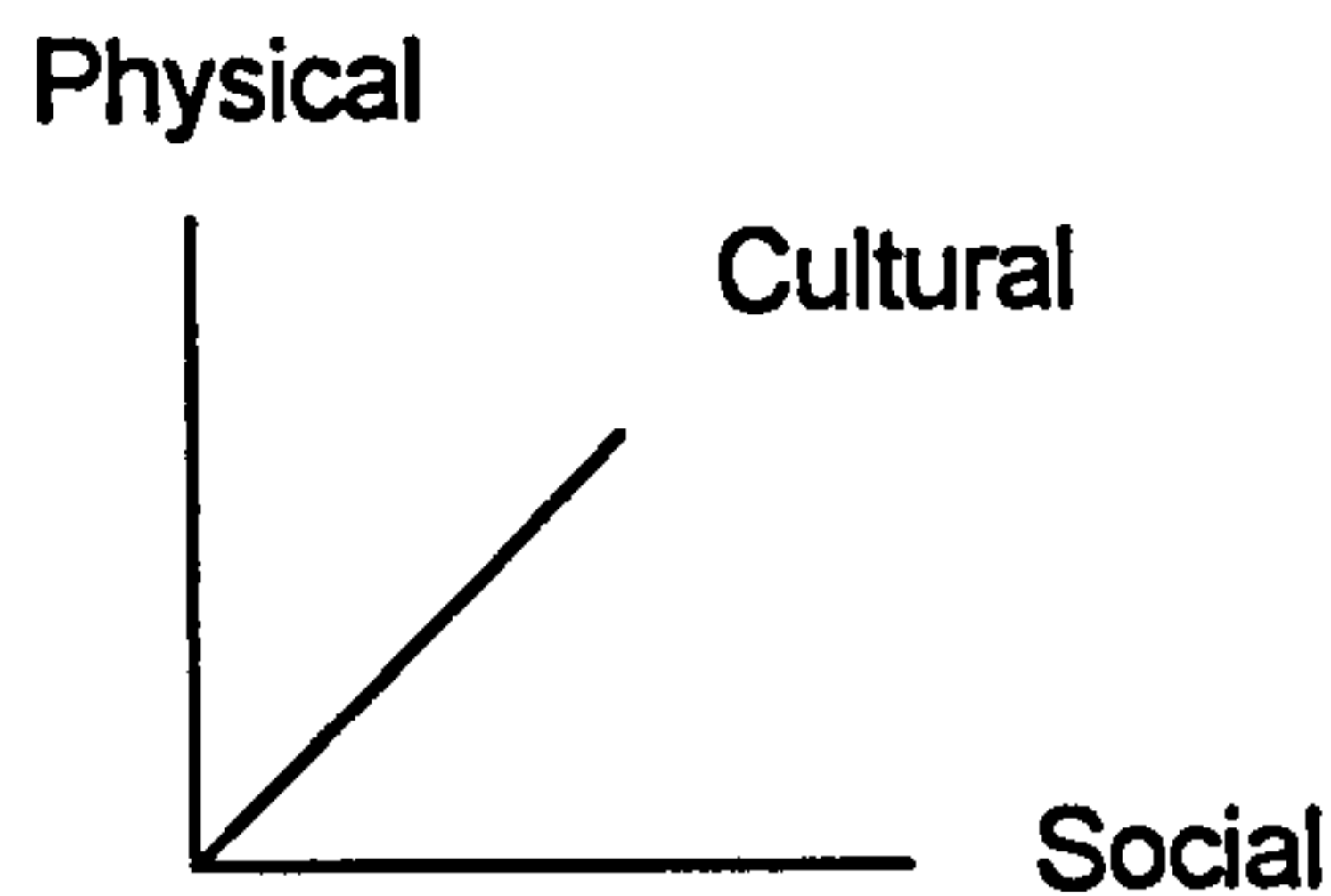


Figure 14: Dimensions of work environment

A typical example of a physical change affecting competence was described by an interviewee who had moved from an individual office to a large open plan one. Initially, this had interfered with his concentration and adversely affected his performance, but over time the new environment improved his confidence, due to having constantly to perform in front of others.

The impact on competence of a cultural change (for example, within an employing organisation) may be equally significant. This can result from a take-over or re-organisation, or from a change of employer. After such a change, one interviewee found she was required to operate in ways which did not suit her style and did not make the best use of her strengths. As a result, her performance suffered.

The effect on competence of the social environment may seem less obvious. But instances were offered of changes in interpersonal relations, resulting, for example, from joining a different team or working for a different superior, impacting on an individual's confidence, self esteem and ultimately competence.

It was considered that the two concepts (*context* and *work environment*), though distinct, were sufficiently similar to be jointly represented in the model in the form of a surrounding ellipse (see Figure 15).

The second conceptual modification concerned the *meta-competencies*. A narrower definition of a *meta-competency* was adopted, namely: *a competency that is beyond other competencies, and which enables individuals to monitor and/or develop other competencies*. These were the kinds of competency that enable individuals, as it were, to step outside their own performance to analyse the other competencies they possess and/or develop them. It was decided that it was necessary to make a distinction between these and a slightly different kind of 'super' competency which is not necessarily concerned with self-monitoring or developing other competencies, but nonetheless permeates other competencies,

mediating or enhancing them. Examples of these could be 'communication' and 'mental agility'. These were given the name 'trans-competencies'.

A trans-competency was defined as: *a competency which spans other competencies, enhancing or mediating them.* Because of their similar overarching position, *meta-competencies* and *trans-competencies* were bracketed together in the revised model.

The third change was the explicit recognition of *reflection* as itself a *meta-competency*. If the earlier definition is followed, there can be little doubt that it qualifies as such because reflection enables people to go *beyond* their other competencies, to analyse, modify and develop them. At the same time, *reflection* has a unique position, acting as a sort of 'gate-keeper' to certain kinds of development. For this reason, it was given the sub-title '*super-meta*'. It was decided to retain its position within the model whilst giving it a notional position amongst the other *meta and trans competencies*. To symbolise this, it is shown in parenthesis in the *meta/trans-competencies* box within the *revised model*.

The fourth main conceptual change was the explicit recognition that personality can have an impact on professional competence. This is acknowledged by the addition of a *personality* box above the *meta/trans-competencies* box, though this was not intended to imply that *personality* was mediated by *meta* or *trans-competencies*. Personality, it was hypothesised, could impinge on any aspect of competence, perhaps in some cases limiting potential. Different personality traits might help or hinder the performance of particular professional roles. However, professionals may be able to develop ways of doing things that suit their own personalities. The latter point, in particular, came out through the practitioner interviews and is backed by the work of Jarvinen (1991) which highlights the importance of trainee teachers developing their own 'professional personality' (Chapt. 3, pp. 68-69).

In the model, *personality* is regarded as static and not readily susceptible to change through reflection. It is not therefore shown as within the model cycle. However, it seems possible that, over the longer term, the process shown in the model could contribute to changes in personality. This would need to be confirmed by further research.

Fifthly, a *motivation* box was added alongside the *personality* box to afford explicit recognition to the importance of motivation both to competent performance and to the effective operation of the model's dynamics - e.g. reflection followed by improvement. Motivation was taken as incorporating 'attitudes', which may also have a key impact on professional competence as may other aspects of the affective domain, though it was

not considered practical to encapsulate all of these within the model. Motivation and personality both make an important contribution to professional competence and it was intended that these should be seen as within the revised model. However, no attempt was made to show the mechanisms through which they may operate. Despite their pervasive nature, neither motivation, nor personality was seen as falling within the definition of a meta or trans-competency. Indeed, neither could be regarded as a competency, as such, but rather as attributes which impact on competence.

Boyatzis (1982), influenced by McClelland (1951; 1971), recognises the importance to competence of both motivation and personality, and includes 'motives', 'self image' and 'social role' in his model (Chapt. 3, p. 85). The latter two could be seen as linked to personality. Therefore, affording *motivation* and *personality* a higher profile within the *revised model* has a distinguished precedent. As illustrated in an earlier section (p. 177), Jarvis (1983) includes motivation-type elements (such as 'willing to perform professionally') in his model, and Ozar (1993) stresses the role of motivation in ethical behaviour. The common use of personality tests in job selection and promotion assessment suggests a widespread acknowledgement of the contribution of personality to performance (see, for example, Spangenberg, 1990; Woodruffe, 1990; Dale and Iles, 1992).

More minor conceptual modifications in response to suggestions were as follows:

- i) within the *functional competence* component, replacement of the constituent heading '*cerebral*' with '*mental*' in recognition that *cerebral* skills may be seen as more closely linked to *cognitive competence* - the term '*mental*' is meant to cover more function-specific skills such as numeracy, literacy, IT skills, diagnosis (or similar kinds of professional reasoning);
- ii) adding to the *ethics and values* component - a) 'adoption of appropriate professional attitudes', and b) 'acknowledgement of - boundaries of own competence/duty to keep up to date/duty to help develop newcomers to the profession';
- iii) acknowledging that outcomes and performance ought to be observable by others but may be more a matter of perception than observation in the case of oneself, the term 'observed/perceived' was removed from the *outcomes* box - instead, 'observed' was added to the *by others* box and 'perceived' to the *by self* box;
- iv) a further constituent, 'knowledge application', was added to the *knowledge/cognitive competence component* to reinforce the importance of putting knowledge to work in professional practice;
- v) 'mental agility' was added to the *meta/trans-competencies* following Reynolds and Snell (1988) (Chapt. 3, p. 88).

In addition to these conceptual modifications, certain presentational or layout changes were made. These are described after Figure 15 which shows the revised version of the model:

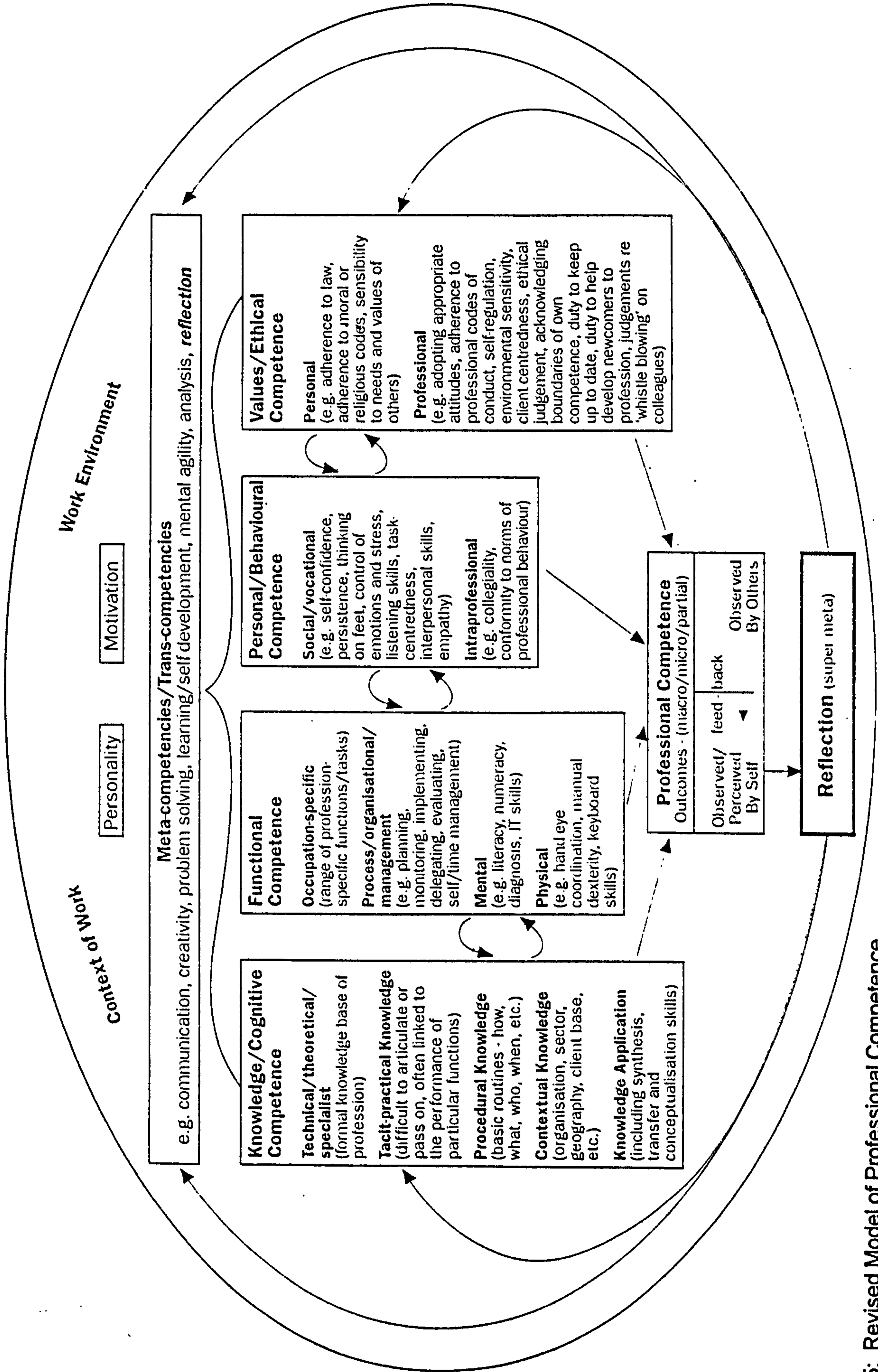


Figure 15: Revised Model of Professional Competence

Presentation and layout changes

The main presentational changes were as follows:

- i) a landscape format was adopted in order to make better use of space;
- ii) the *core components* were 'boxed in' in order to emphasise that the *constituents* were an integral part of these;
- iii) the lines between the *meta-competencies/trans-competencies* box and the *core components* were removed and replaced with a 'curly' bracket to emphasise their overarching or permeating nature;
- iv) greater prominence was afforded to the *reflection* box by giving it a bolder surround to emphasise its key importance;
- v) the arrows between the *core component* boxes were made curved to emphasise the constant interaction between different *core components* and their *constituents* (this interaction is not of course limited to those *components* which sit adjacent to each other in the diagram but can be between any of the *components* or their *constituents*);
- vi) some of the jargon or technical language used in the earlier version, such as 'psychomotor', 'knowing-in-action' and à la Schön' was removed to make the model more readily understood by non-experts;
- vii) the dynamic flow lines were made curved, partly to make them fit more easily within the surrounding ellipse, but also to emphasise the cyclical nature of the model.

Feed-back on the Revised Model

Revisions to the model were completed prior to the start of the postal surveys, so it was possible to use the surveys to conduct further validation. Feed-back on the *revised model* was also forthcoming following its publication in a trans-European journal (Cheetham and Chivers, 1998) and as a result of further expert scrutiny.

Postal surveys

In general, the surveys (N = 372) reinforced the interviews in supporting the validity of the model's four *core components*. Ratings (on a 1-5 scale) of their importance to effective performance produced the following means (interview scores shown in brackets):

knowledge (all kinds)	3.95	(3.98)
functional competence (full range)	3.91	(3.78)
personal competence	4.50	(4.38)
ethical competence	3.55	(3.76)

The statistical significance of the above and the following data will be discussed in Chapter 7. Both *functional competence* and *personal competence* were given rather higher ratings than in the interviews, and *ethical competence* rather less. All the scores were at least 71% of the

way along the scale (compared with 75% for the interviews). This provides reasonable support for their inclusion within the model, though it is acknowledged that the inclusion of the *ethical competence* component, on the strength of this evidence alone, could be open to challenge.

A number of the attributes identified as possible *meta-competencies* also attracted high aggregate scores in the surveys:

oral communication	4.75	(4.63)
written communication	4.35	(4.40)
problem solving	4.30	(4.24)
analysis	4.27	(4.31)
self-development	3.84	(3.81)

Self-development again lagged behind the other attributes with an aggregate score of 3.84 (3.81 in the interviews) as did creativity with a score of 3.73 (3.38 in the interviews).

The surveys confirmed the interview results in relation to the perceived importance of reflection. Across the 372 survey respondents, 97.8% were aware of reflecting (compared with 96.3% in the interviews) and 79.6% claimed they reflected regularly about their professional work (compared with 81.3% in the interviews).

A total of 96.8% of survey respondents claimed they modified the way they did things as a result of reflection, either regularly or sometimes (compared with 93.8% of interviewees). These data further support the central role given to *reflection* and its behaviour-modifying potential implied by the model's dynamics.

Of the 372 survey respondents, only 16 (4.3%) failed to produce an *occupational competence mix diagram* (none of the interviewees failed to do so), suggesting a high level of identification with the diagram, or at least a recognition of its *core components*. Of course, on the latter point, it cannot be said that respondents had a common understanding of what each core component entailed, even after reading the definitions. Only one of the 16 respondents who did not provide a diagram offered an explanation. He was an accountant who felt that the analysis was too simplistic, given that there are several strands of accountancy and many different roles.

Where diagrams were completed, they again showed clear similarities of competence mix within professions and distinct differences between professions, adding support to the

diagram's validity. In the case of the six surveyed professions, these differences were shown to be statistically significant, as Chapter 7 (pp. 241-242) will show.

Feed-back from further publication and expert comment

Comments on the *revised model* were received from a further 10 people who could be regarded as experts in the fields of competence or professional development. Two of these had previously commented on the provisional model. The comments were predominantly supportive and included such remarks as: "... this offers a clear exposition"; "The result [of the revision] is the most comprehensive model yet"; "The model provides the necessary theoretical underpinning for a third paradigm"; and "It helps to elucidate what is necessarily an elusive process".

On the negative side, a number of questions and criticisms were raised. One respondent said that some of the relationships within the model were not clear - e.g. the relationships between *personality* and the *meta-competencies*, *meta-competencies* and the *core components* and *personality* and the *core components*. On the last of these, he asked whether *personality* should be seen as impinging directly on each of the *core components* or was meant to be mediated by the *meta-competencies*. He also questioned whether the model implied that interactions could only take place between adjacent *core components*?

These were valid questions but it was decided to deal with them in accompanying explanations, rather than complicating the model further by attempting to show every possible interaction in the diagram. It was recognised that there would be interactions on many levels and between virtually any permutation of elements. In relation to the place of *personality* within the model, it had not been the intention to imply that *personality* was mediated by *meta-competencies*, nor was it judged that the position of the *personality* box (without any lines of interaction) gave this impression. It was decided that this point too could be dealt with in accompanying explanations.

Another respondent suggested that professional judgement should be acknowledged as critical to effective performance by linking it to reflection to form 'reflective judgement' and giving it the same central position within the model. Consideration was given to this suggestion because judgement had been highlighted by respondents as amongst the critical attributes (Chapt. 7, p. 237), but the idea was rejected because it was concluded that judgement and reflection were not always linked. Reflection could take place without judgement being involved and vice versa. Judgement, it was felt might best be seen as a personal competence or possibly a meta-competence, though there was insufficient empirical data to support the latter.

Other criticisms were that the use of the term 'super-meta', in parenthesis, within the *reflection* box, provided little or no added value, and that the distinction between *meta-competencies* and *trans-competencies* was an unnecessary added complication. In both cases, it was decided not to make any changes. In respect of *reflection*, it was felt that the words in parenthesis helped to acknowledge that reflection was itself a meta-competency. In respect of *meta-competencies* and *trans-competencies*, it was decided that since there were two quite distinct types of attribute, it was not conceptually defensible to give them the same name.

It is worth pointing out that even those who offered specific criticisms, appeared to be supportive of the main thrust of the model.

Profession-specific use of the model

Using the general model (provisional version) as a framework for deriving occupation-specific attributes proved to be relatively straight-forward. The collaborating practitioners seemed to identify with the model's components and apparently had little difficulty in proposing key attributes under each heading. It is not suggested that the frameworks thus constructed are anything more than exemplars. To have produced reliable profession-specific frameworks (or models) would have required extensive research involving large numbers of participants. Nonetheless, the exercise demonstrated that practitioners from three quite different professions were able to recognise the model's *core components* and *constituents* within their own profession. It therefore offered an indication of the model's general applicability.

The profession-specific versions are shown at Appendix 5. For ease of presentation, the derived attributes are listed under the model headings in framework format, rather than in diagrammatic form.

Critique of Model Development Method

The *provisional model* was developed inductively in response to a range of influences within the literature, rather than being devised deductively as a result of direct research. It is acknowledged that the use of the inductive method had a number of weaknesses as well as strengths. On the positive side, it offered an opportunity to draw on a wide range of earlier research, not just on the limited amount of empirical work which was possible within this research. However, there was often no way of judging how rigorous earlier pieces of research had been, whether the hypotheses offered had been adequately tested, whether the methodologies used had any in-built flaws or biases, etc.

In using the inductive method, it was necessary to be selective, incorporating some concepts into the model and not others. There were no objective benchmarks against which to assess the validity or utility of a particular concept. Often a judgement had to be made based on: how well the case was argued; how much support there was for it in the literature; whether it was supported by research evidence; and, inevitably, how well it accorded with the author's own experience. The latter, in particular, opens up considerable scope for the author's own prejudices to influence objectivity. This possibility was kept constantly in mind and a conscious effort was made to counter any tendency in this direction by being as detached and balanced as possible in considering each concept.

An alternative approach would have been to carry out the empirical work first, then attempt to deduce a model of competence from the results - i.e. following the principles of Grounded Theory (Glaser and Strauss, 1967) (see Chapter 5, p. 142). But the amount of empirical research needed to enable every aspect of professional competence to emerge naturally would have been considerable.

The method used for developing the *provisional model* could be criticised for being purely inductive. However, the methods used for testing and revising the model were more deductive. Therefore, the overall approach could be seen as combining inductive and deductive principles.

As already acknowledged, this process used for testing the model had its limitations. The model was not validated directly, but rather through a series of surrogates. These may have been insufficiently dependent on the validity of the model itself. They could at best be said to support the model's validity, but could never provide proof.

Although there is strong empirical support for the importance of reflection and its contribution to behavioural change, this, in itself, is insufficient to confirm the dynamics of the model. However, these were not seriously challenged by any of the expert respondents. But even if the dynamics are disputed, or even rejected, it can be argued that the model still has a utility as a framework which identifies the key components of professional competence. This utility was demonstrated through the elicitation of profession-specific attributes for three sample professions as described in the last section, and is supported by the use being made of the model by external parties.

Further test of the model's fitness for purpose

Boak (1998, p. 24) suggests a method of assessing a competence model's fitness for purpose which involves benchmarking against three basic characteristics:

- acceptability;
- accessibility; and
- accuracy.

This seems to be a useful, if simple, framework against which to offer a few evaluative comments. These are again inevitably subjective.

Acceptability

The *provisional model* was well received by the majority of experts and considerably more positive than negative comments were offered by them. Many of the suggestions made by respondents were adopted when the model was modified. In theory, this ought to have increased the model's acceptability. The fact that there is a small core of known users, or potential users, of the model is a further indication of its acceptability. However, no direct feed-back has been received from users on how effective the model proved to be.

Accessibility

The model's accessibility is supported by the apparent ease with which respondents were able to complete the occupational competence mix diagrams and discuss their profession in relation to the model. Only 16 out of 452 respondents (3.5%) failed to complete a diagram. No-one reported being unable to understand the diagram or the accompanying definitions of the *core components*. Of course, it is impossible to say to what extent there was a shared understanding of what these meant.

Accuracy

This characteristic is the most difficult to demonstrate. Indeed it probably could only be demonstrated through intensive use of profession-specific versions. This is beyond the scope of this research. The model did however appear to fit a variety of applications both real and hypothetical and, as far as could be judged, seemed to accord with the experience of respondents.

Despite the limitations of the methodology, taken together the results suggest that the new model of professional competence is reasonably robust and has the potential to be generally applicable. It is arguably more comprehensive than earlier models and seems to have been reasonably well received by the majority of those who appraised it or offered comments. But the model has its own limitations and should not be seen as definitive. It may nonetheless be capable of adding fresh illumination to what is a complex and elusive area.

.....

Chapter 7

Professional Practice: Presentation and Analysis of Empirical Results, Part 1

Chapter 7

Professional Practice: Presentation and Analysis of Empirical Results, Part 1

Introduction

The empirical study had two strands:

1. Interviews with practitioners from 20 professions.
2. Postal surveys of practitioners from six of the 20 professions.

The main purposes of the study were:

- a) to help validate the model of professional competence (see Chapt. 6);
- b) to provide information on the nature of modern professions;
- c) to test the validity of competing epistemologies of professional practice ('technical-rationality' versus 'reflection-in-action'; Chapt. 1, pp. 20-22);
- d) to identify key attributes required by modern professionals;
- e) to throw light on how people acquire and maintain their professional competence.

Item a) was addressed mainly through the interviews and Chapter 6 has already made use of the results in that area. Items b) to e) were addressed through both the interviews and surveys. The results relevant to items b), c) and d), which are all broadly about professional practice, will be reported in this chapter. The results relevant to item e), which is about how people become competent, will be reported in Chapter 8.

Chapter layout and content

The first section describes the demographic profile of respondents and the size and sectoral location of their employing organisations. The second discusses issues of sample size and statistical reliability. The third section looks at what the data have to say about the nature of modern professions, including the extent to which professions conform to the traditional characteristics discussed in Chapter 1. It also examines other aspects of the sampled professions, including pre-entry requirements, qualification and licensing. The fourth section uses the data to assess the validity of competing epistemologies of professional practice. The final section examines the nature of professional competence, including both generic and profession-specific attributes.

Each section will contain an element of comment, interpretation or explanation as appropriate, following the analysis of results. Where possible, this will include a brief discussion of the findings in relation to relevant parts of the literature.

Respondent Profiles

Interviews (N = 80)

Eighty people, from 20 different professions, were interviewed (four from each profession). Twenty-seven of the 80 (33.75%) were female. This was slightly higher than the proportion of women in professional jobs generally (around 30%, according to Government statistics - DfEE, 1997a). Three (3.75%) were from ethnic minority groups, again slightly higher than their representation across professions generally (around 3% according to the same source). The age range distribution of interviewees and their length of time in the profession are shown in Figures 16 and 17. These show a slight skewing towards older, more experienced professionals.

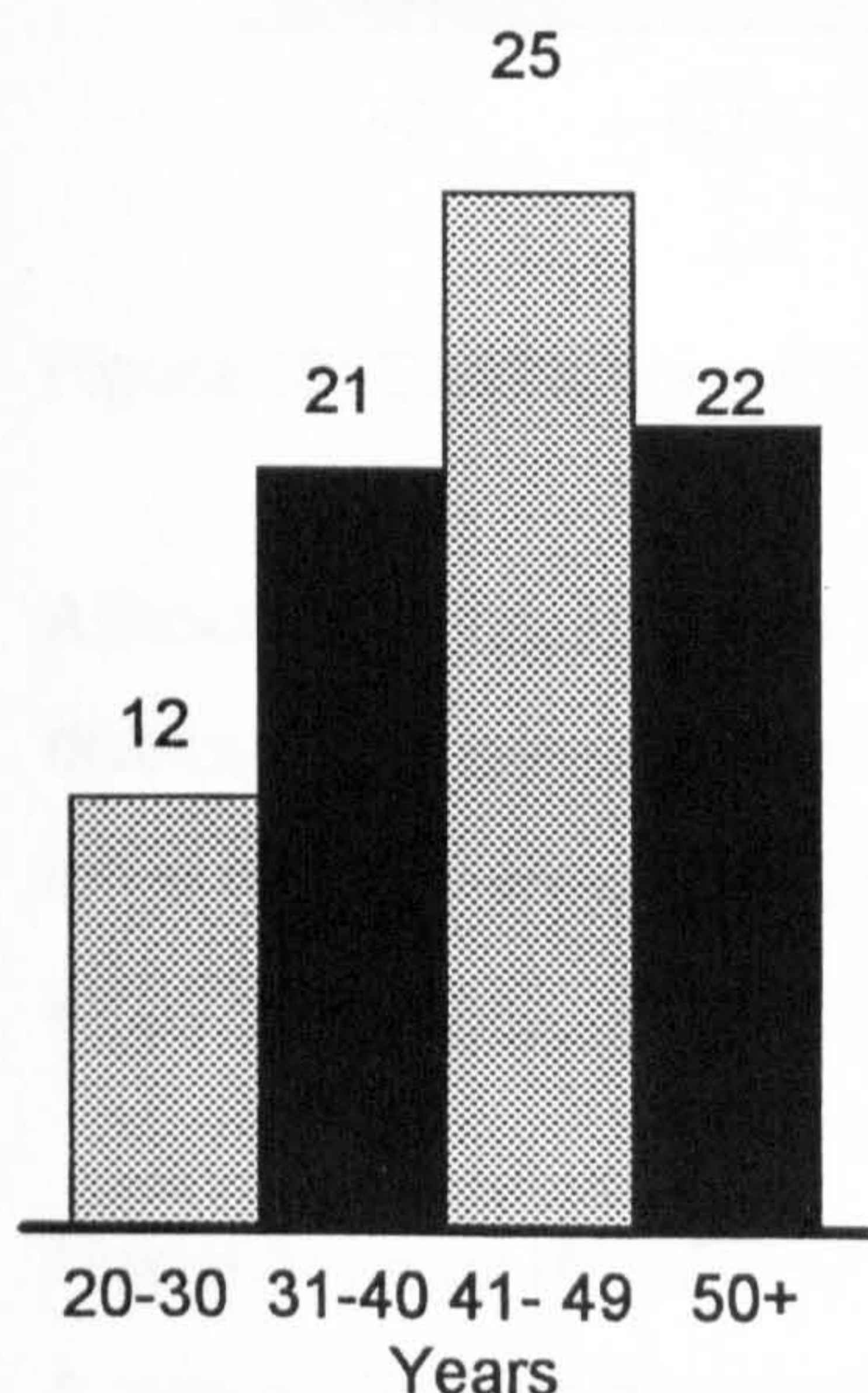


Figure 16: Distribution of interviewees - by age range

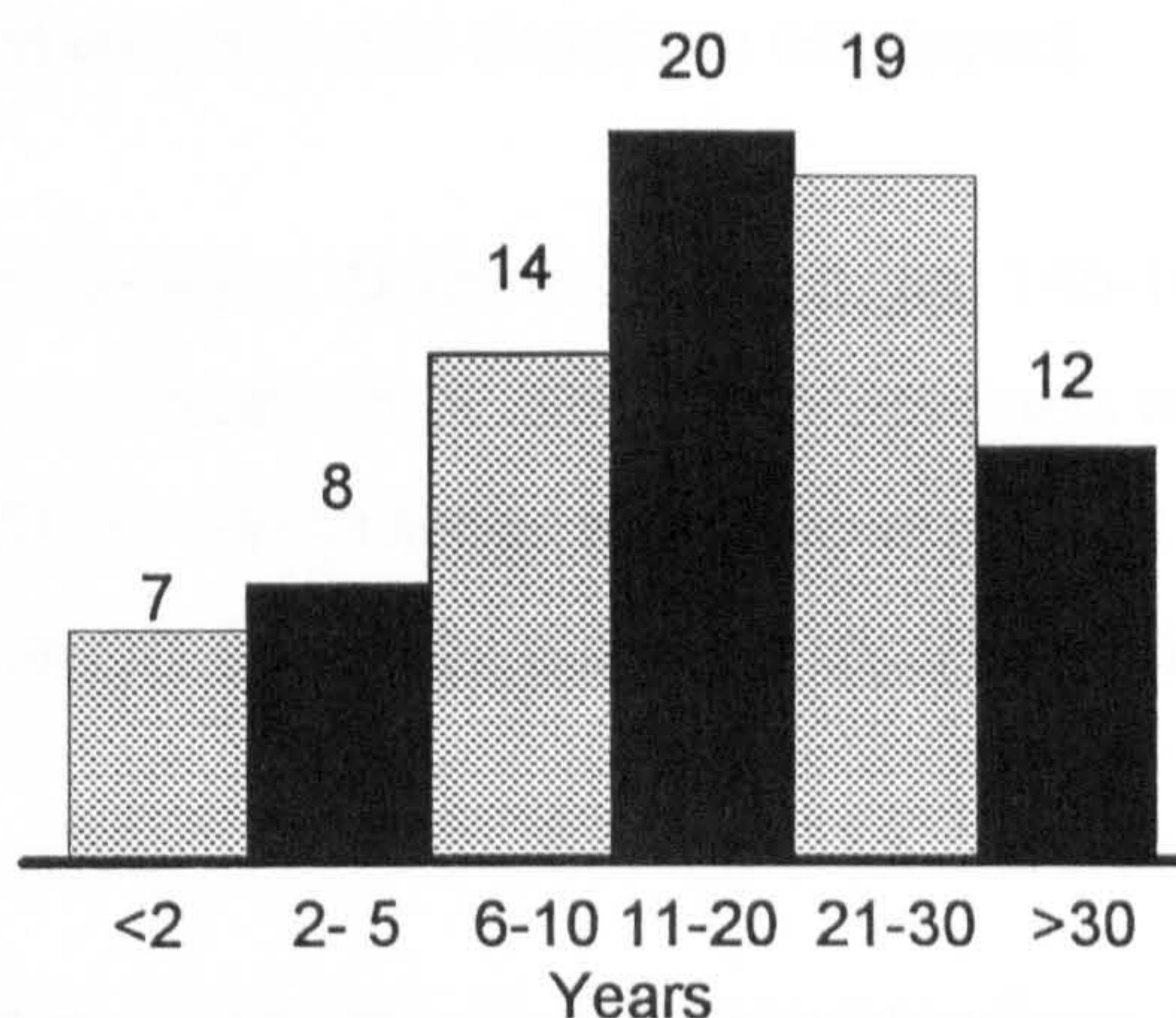


Figure 17: Distribution of interviewees - by time in profession

Based on the mid point in each category, the estimated average age was 43 and the estimated average length of service was 17 years. Given that an average professional career could be expected to span some 40 years, the means are reasonably close to the mid way point. The total, combined professional service of the practitioners interviewed was approximately 1,360 years.

Seventy of the 80 interviewees were working directly within the mainstream of their profession, the remaining 10 were in roles closely linked to the profession - e.g. an accountant employed as a Financial Director, a social worker employed as a Deputy Director of Social Services. In terms of sectoral location, 29 (36.25%) worked in the private sector, 27 (33.75%) worked in the public sector, 19 (23.75%) regarded their sectoral location as a mix of private and public sector and five (6.25%) worked for voluntary or charitable organisations. The majority, 59 out of 80 (73.75%), were employees, the remainder were self-employed.

The distribution by size of employing organisation is shown in Figure 18:

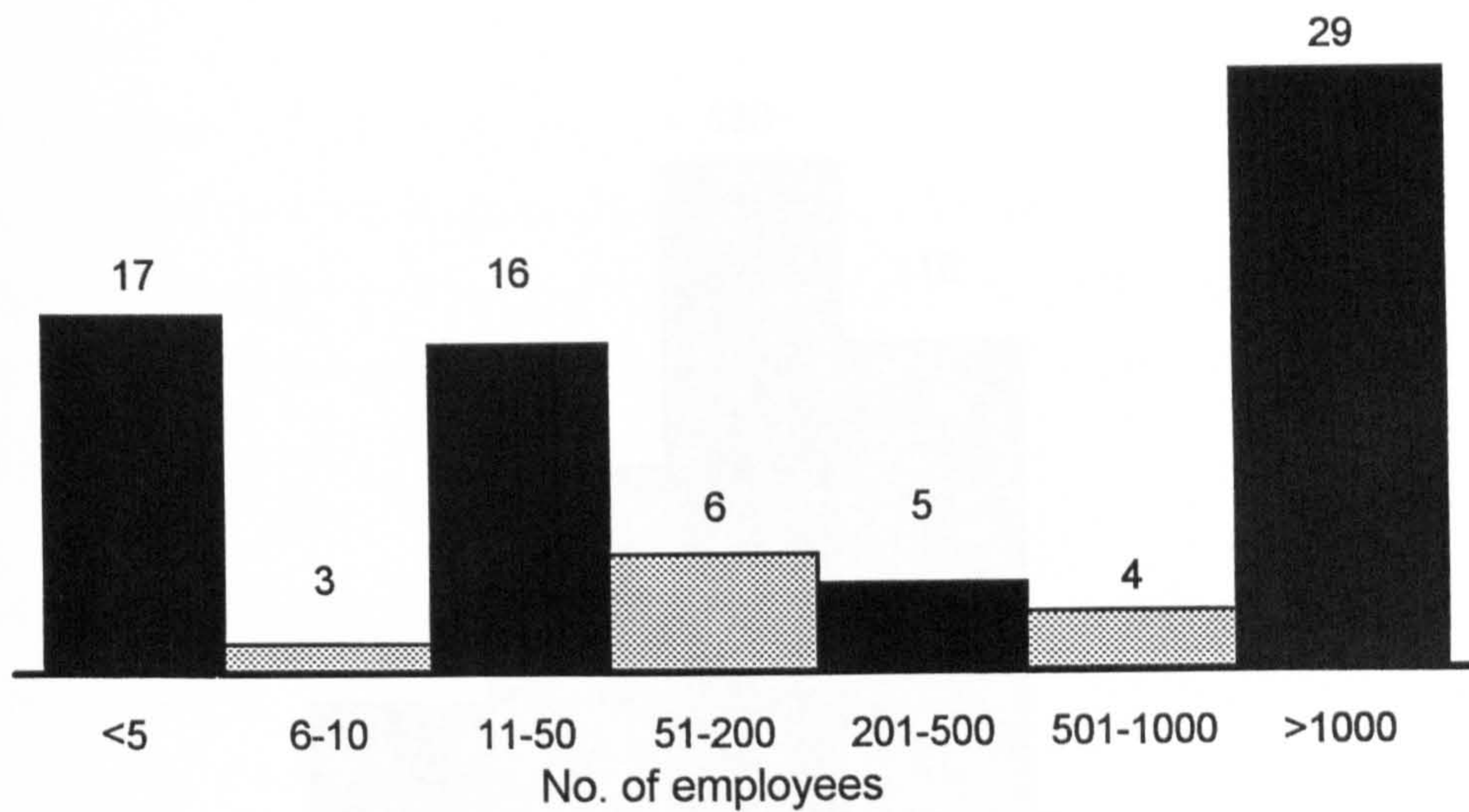


Figure 18: Distribution of interviewees by organisation size (numbers employed)

Although the interviewees were not selected purely at random (Chapt. 5, pp. 145-146), the distribution is consistent with the fact that a significant proportion of professionals work for large organisations (Watkins and Drury, 1995). At the other extreme, small and very small organisations (<50), typical of private practices, are also well represented.

Postal Surveys (N = 372)

A total of 391 survey forms were returned from across the six chosen professions, an overall responses rate of 54.3%. A number of these had to be discarded, the main reason being respondents not belonging to the selected profession. The highest proportion of unusable returns came from Training. This was due to the fact that the address list used included a number of personnel professionals as well as trainers.

After unusable returns had been set aside, 372 responses remained, a usable response rate of 51.7%. The highest (usable) response rate within an individual profession was 75.8% (Civil Service) and the lowest was 34.2% (Accountancy). The largest individual sample was 91 (Civil Service) and the smallest 41 (Accountancy). The average sample size was 62.

Of the 372 usable responses, 293 (79%) were from men and 78 (21%) were from women. The highest proportions of women respondents were from Training (48.4%) and the Civil Service (30.8%), the lowest proportions were from Surveying (4.4%) and the Church (3.1%). In the latter case, although a small number of women clergy were sent questionnaires, their response rate was only half that of their male colleagues. No information was obtained on

ethnicity, size of employing organisation or sectoral location of survey respondents. Their age range distribution is shown in Figure 19:

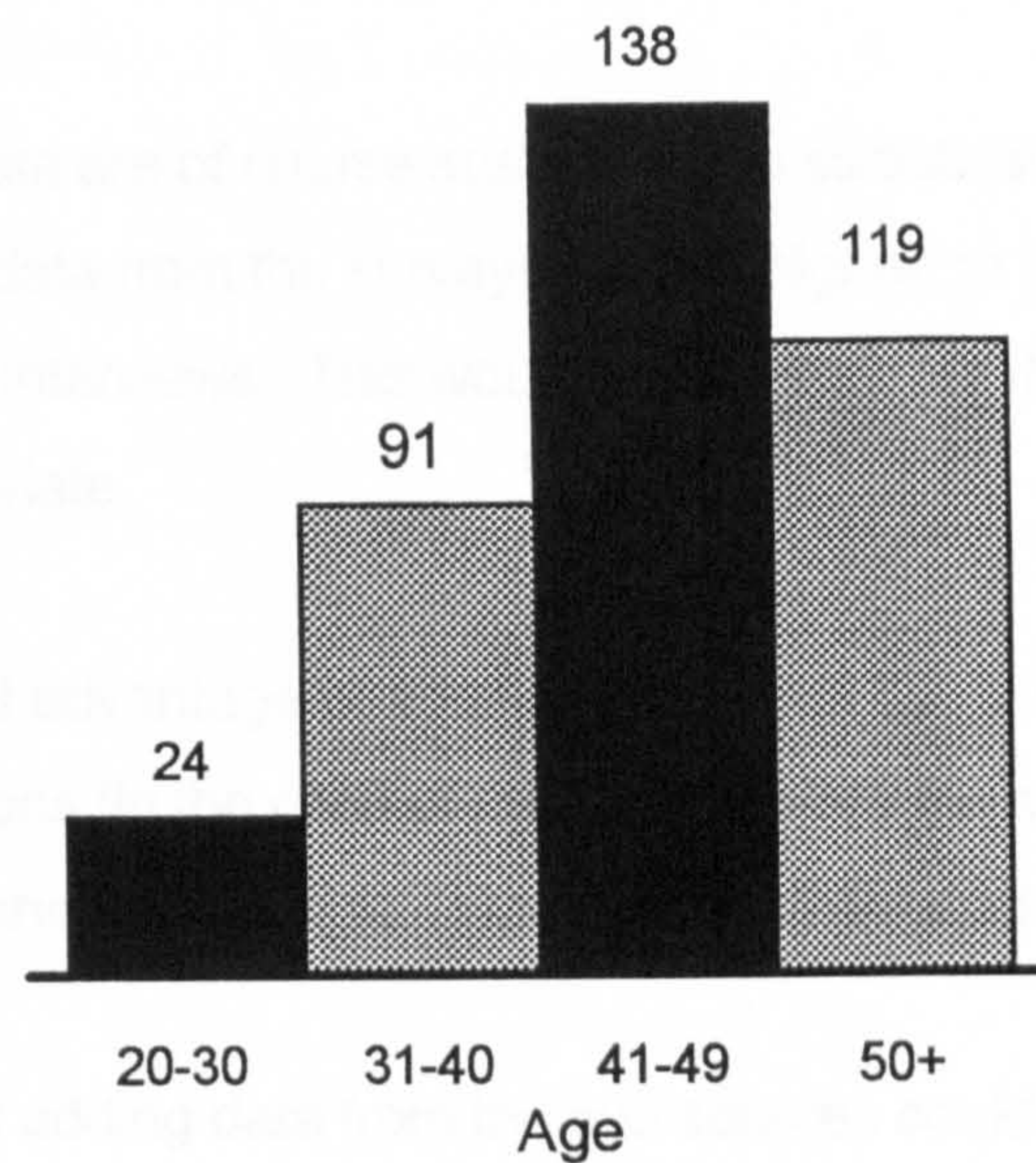


Figure 19: Distribution of survey respondents by age range

This distribution is similar to that for the interviews, despite the more random nature of the selection process, adding credibility to the interview sample. Based on the mid point in each category, the estimated average age was 45.1 (very similar to that for the interviewees). The length of time in the profession ranged from 6 months to 47 years (with one, still practising, super-numerary clergyman reporting 57 years). The average length of service was 17.9 years (again very similar to that for the interviewees). Each survey produced responses from a range of levels of professional, including some in quite senior positions. For example, Accountancy and Surveying respondents included a number of Practice Directors, Dentistry respondents included several Senior Partners, and clergy respondents included a Bishop, an Assistant Bishop and an Archdeacon.

Sample Sizes and Reliability

Both the interviews and surveys provided a combination of qualitative and quantitative data.

Qualitative data

The qualitative data are considered to be illuminative only and no statistical significance will be attached to the frequency with which particular points were made by respondents.

However, the results of a detailed content analysis will be offered and, in reporting respondents' comments, an indication will be given of how common they were. It might of course be argued that from the point of view of illumination, a profound insight offered by a

single respondent could be just as valuable as a more prosaic point repeatedly made by many.

Quantitative data

The quantitative data are of course susceptible to statistical analysis, including tests of significance. The data from the surveys were designed to be compatible with certain of the data sets from the interviews. This would allow data from the two sources to be added, if considered appropriate.

The main apparent advantage of adding data is that it increases the sample size, both of individual professions (in the case of the six that were the subject of surveys as well as interviews) and of the total sample. However, statistical advice on this matter was divided.

One view was that adding data from the two sources could be misleading: a) because the different modes of administration might have triggered different responses, even though the questions were identical; b) because the samples may be differently distributed; c) because the time differences between the two administrations may have affected responses.

An alternative opinion was that adding data could be acceptable, providing: a) care had been taken in the interviews to administer the quantitative questions as neutrally as possible; b) there were no factors such as time difference which might affect any answers; c) there was evidence that the samples were similarly distributed; and d) that key data sets from the two sources, when compared, showed a close correspondence.

After much consideration, it was decided that data from the two sources would be added in certain instances. This decision was supported by the following evidence.

Firstly, as Chapter 5 explained, considerable care was taken both in the ordering and administering of questions to minimise the risk of influencing answers. Secondly, it was not considered that any of the quantitative questions were likely to be time-influenced, at least not in the short term - i.e. the few months between the two administrations. Thirdly, a comparison of the age range distributions of interview and survey respondents showed a close correspondence (Figures 16 and 19). Fourthly, the mean ages of the two samples were similar (43 versus 45.1), so too was the average length of service (17 years versus 17.9 years). Fifthly, a comparison of common data sets from the two sources showed a close correspondence. One example is shown below in Table 5. This compares the mean ratings (on a 1-5 scale) of various attributes offered by the interviewees compared with those

offered by survey respondents. It can be seen that with the exception of 'creativity', the variance is less than 4.5%, and in most cases much less:

	Interviews (N = 80)	Surveys (N = 372)	% Variance
Written communication	4.40	4.35	1.1
Oral communication	4.63	4.75	2.5
Creativity	3.38	3.73	9.4
Analytical skills	4.31	4.27	0.9
Problem solving skills	4.24	4.30	1.4
Self-development	3.81	3.84	0.8
Numeracy	3.00	2.94	2.0
IT skills	3.36	3.21	4.5
Team working skills	4.06	4.02	1.0

Table 5: Correspondence of results - interviews versus surveys

Other data sets show a similar degree of correspondence.

Despite the decision to combine the quantitative data from the two sources before comparing means, in a number of other instances data from the interviews and surveys will be reported separately.

Data permutations

The decision about data combination having been made, the data permutations and sample sizes shown in Table 6 became possible:

Sample combination	Sample size (actual or average*)
Aggregated interview data plus survey data	452
Aggregated survey data	372
Aggregated interview data	80
Survey data plus interview data - individual professions	66*
Survey data plus interview data for individual profession	62*
Interview data analysed by functional group	13.3*
Interview data - results from single professions	4

Table 6: Sample sizes for different data source combinations

Not all the data are available from both sources. Considerably more items of both quantitative and qualitative data are available from the interviews than from the surveys -159 individual items of data from the interviewees versus 54 items from the surveys (see Appendixes 2 and 3 for interview and survey instruments). The reasonably close correspondence between common data sets (interviews versus surveys) helps to validate the interview data as a whole and adds credibility to the results of those interview questions which were not included in the survey questionnaire.

As data are presented and discussed, their source (whether from the surveys or interviews or both) will be stated, though for reasons of continuity the results under particular headings will normally be reported together.

Statistical significance testing

There were two main purposes to which the quantitative data were put. One was to examine the mean responses to individual questions across all the sampled professions; the other was to compare the responses obtained to each question from different professions. A number of statistical tests are available for use in such situations, all of them based on Probability Theory (Yule and Kendall, 1973; de Vaus, 1985). In this case, the method chosen was 'standard error of the mean' (de Vaus, 1985, pp. 149-151).

On the assumption that both the sample and the population it represents are normally distributed, the *standard error of the mean* can be used to estimate the range within which the mean of a particular population is likely to vary from the mean obtained from the sample. This enables the *confidence interval* to be calculated. The method was chosen because other tests of significance become unwieldy when comparing multiple numbers of means. Yule and Kendall (1973, p. 391) advise that the method is safe for use with samples of 1,000 down to 100 and may be used for small smaller samples (<100), though with diminishing reliability.

The *standard error of the mean* and *confidence interval* were calculated for each parameter, within each data combination. The \pm limits it yielded were then applied before comparing the means of different professions or different parameters. As a general rule, as the sample size increases, *standard error of the mean* and therefore the *confidence interval* will become smaller, providing the variation and consequently the standard deviation do not increase significantly. The calculation method is shown in Appendix 6, along with worked examples.

In relation to the mean segment angles used for the purposes of analysing occupational competence mix diagrams, an additional empirical test was used. This involved plotting a graph of the cumulative mean up to the point of each data entry and then examining the graph for the whole sample to see whether the cumulative mean had become stable. In all cases, the cumulative means thus plotted stabilised and remained steady to within ± 2 degrees for at least the last half of the entries. The means were therefore considered to be reasonably representative of the sample, though not necessarily of the population as a whole.

In the case of those professions where only interview data were available (14 in total), the sample size within each (N = 4) was too small, and the confidence intervals would have been too wide, for inter-professional comparisons to be reliably conducted. In respect of these professions, mean *occupational competence mix* diagrams have been included in Appendix 5 for exemplar purposes, but it is acknowledged that any apparent differences between professions are indicative only and are not statistically reliable. In the case of the six surveyed professions, the mean diagrams are considerably more reliable since they are based on an average sample of 66. Diagrams for each of these are presented later in this chapter (p. 241) and these will be used to make comparisons between professions.

Consideration was given to constructing mean *occupational competence mix* diagrams for each of the six functional groups (Teaching, Health Care, etc.), but as the above table shows, the *confidence intervals* are still wide at $\pm 12\%$, and an examination of the standard deviation and range for each group suggested that, from the point of view of competence mix, the various professions within each group were insufficiently homogenous.

The Nature of Modern Professions

This section presents the findings on the extent to which professions today conform to the characteristics described in Chapter 1 (p. 14). It also examines the data on pre-entry and educational requirements, and on professional body membership, etc. which can all be seen as factors which help to define the nature of professions.

Traditional characteristics

Respondents were invited to rate each of the characteristics traditionally associated with professions according to how applicable they were to their profession as it is today.

Mean ratings (on a 1-5 scale) from both the interviews and surveys, listed in descending order for the combined scores are shown in Table 7:

Characteristic	Interviews (N = 80)	Surveys (N = 372)	Combined (N = 452)
Client-focused	4.20	4.19	4.19 (± 0.08)
Autonomy within job role	3.81	3.61	3.64 (± 0.09)
Learnèd	3.99	3.55	3.63 (± 0.10)
Altruistic	3.57	3.56	3.57 (± 0.12)
Collegial	3.82	3.43	3.49 (± 0.10)
Self-regulating	3.85	3.27	3.37 (± 0.12)
Influential	3.10	3.22	3.20 (± 0.10)
Non-commercial	3.27	2.91	2.98 (± 0.14)
Conferring status	3.13	2.95	2.98 (± 0.10)

Table 7: Ratings of traditional characteristics

The *confidence intervals* (shown in brackets) indicate that the lead of 'client-focus' is statistically significant. So too is the lag of 'influence', 'non-commercialism' and 'status', though the differences between these three are not statistically significant. Nor are the differences between the middle order characteristics.

The data suggest that the characteristics still have some validity across professions as a whole though, with the exception of client focus, most ratings are only modest with some little more than 50% of the way along the scale.

Associated qualitative data from the interviews indicate that many interviewees felt their profession was changing. Most believed it was becoming more competitive and commercial, with altruism declining and profit-orientation increasing. A number of interviewees spoke about the need to become more client-centred as the climate became more commercial. These qualitative views support the quantitative data.

The low rating of 'status' may reflect changing social structures and attitudes - e.g. less educational differences between clients and professionals, less deference and a growing cadre of professionals within society which is making professional roles less rarefied. In a number of cases, e.g. Teaching, adverse media coverage of the profession was mentioned by some interviewees as a factor which had undermined status. The relatively poor showing of 'influence' may indicate a feeling amongst professionals that their profession's collective voice is now only one amongst many interest groups in society.

Differences between professions

An examination of the ratings offered by each of the six surveyed professions throws up some important differences. The following comparisons are based on combined scores (interviews plus surveys).

Altruism and Non-commercialism

The Church scored highest on both 'altruism' (4.87 ± 0.13) and 'non-commercialism' (4.45 ± 0.24). The Civil Service came next with mean scores of 4.15 (± 0.20) for 'altruism' and 3.89 (± 0.24) for 'non-commercialism'. The lowest ratings of both characteristics were given by Accountancy, with a score of 2.47 (± 0.40) for 'altruism' and 1.80 (± 0.36) for 'non-commercialism', and Surveying, with a score of 2.63 (± 0.28) for 'altruism' and 1.78 (± 0.22) for 'non-commercialism'. Given the *confidence intervals*, the differences between Accountancy and Surveying is not significant.

The lead of the Church on both 'altruism' and 'non-commercialism' is hardly surprising. The results in relation to Surveying and Accountancy support the view in the literature that these two (and similar) professions are becoming increasingly competitive and commercial (Radford, 1995; Kennie and Price, 1997) (Chapt. 1, pp. 4-5).

Autonomy and Self-regulation

The Church and Training gave 'autonomy' (within the job role) the highest ratings. The Church rated this at 4.32 (± 0.18) and Training at 4.10 (± 0.17); the difference between the two is not statistically significant. The Civil Service and Accountancy gave this characteristic the lowest ratings with 3.08 (± 0.21) and 3.27 (± 0.31) respectively (the difference between the two is not statistically significant but their lag behind other professions and the lead of the Church and Training is).

All the civil servants in the sample were engaged in policy work and several amongst those interviewed commented that their autonomy was restricted due to civil service conventions and the political control of Ministers. The relatively low rating of 'autonomy' by accountants is harder to explain. It may be linked to the rigidity of routines imposed by accountancy procedures.

Accountants were the group that gave 'self-regulation' the highest rating - 4.07 (± 0.35), along with dentists - 3.83 (± 0.35), though the relatively wide *confidence interval* in both cases suggests there were differences of opinion amongst respondents about the strength of this characteristic. Civil servants gave 'self-regulation' the lowest rating - 2.25 (± 0.25). A number of civil servant interviewees pointed out that they were instead regulated by legislation or constitutional rules of various kinds.

Learning

Of the surveyed professionals, dentists considered themselves to be the most 'learnèd', with a mean rating of 4.64 (± 0.16), 'learnèd' being defined as *requiring prolonged and specialist training*. This compared with a rating of 4.14 (± 0.24) offered by accountants and 3.96 (± 0.20) by the clergy (the difference between these two is not statistically significant). Civil servants scored lowest on this characteristic, giving it a rating of 2.47 (± 0.19).

The clear lead of dentists is consistent with the fact that, amongst the six surveyed professions, they reported the longest full-time training period¹ consisting of a four or five year degree followed by supervised initial practice. The relatively low rating of the

¹ Hospital doctors had an even longer training period but they were not included in the postal surveys and therefore these comparisons.

characteristic by civil servants can be seen as consistent with the fact that a majority of respondents from this profession reported no standardised professional training.

Influence

Clergy respondents gave 'influence' (within society) the highest rating - 4.04 (± 0.22). Civil servants were next with a rating of 3.62 (± 0.22) (the difference between the two is not statistically significant). Surveyors gave this characteristic the lowest rating - 2.56 (± 0.24), together with trainers - 2.83 (± 0.25) (the difference between these two is not statistically significant).

The lead of the clergy is difficult to explain, especially since most observers suggest that the general influence of the Church on society has declined significantly over the past 50 years. It may be that respondents translated a feeling of influence over their own congregation to a wider societal influence, or the perception may have been linked (given that respondents were all from the Church of England) to the constitutional position of the Established Church and the role of its Bishops within government. The degree of influence felt by civil servants may be due to their often close contact with Ministers and ability to recommend national policy.

Status

Although ratings for 'status' were generally relatively low, three professions were slightly ahead of the rest - Accountancy (3.51 ± 0.31), Dentistry (3.35 ± 0.28) and the Church (3.35 ± 0.27) (the differences between the three are not significant). Civil servants gave this characteristic the lowest score with a mean of 2.40 (± 0.21).

The low rating of this characteristic by civil servants is interesting, given their relatively high rating of influence. This suggests that influence and status do not necessarily go together. These results raise some intriguing questions about how professionals measure their influence and status.

Collegiality

There was relatively little difference between professions on 'collegiality'. The Church gave it the highest rating (3.97 ± 0.22), while Surveying and Accountancy gave it the lowest, with 3.08 (± 0.27) and 3.07 (± 0.28) respectively (both the lag and lead in relation to other professions are statistically significant but the difference between Surveying and Accountancy is not).

The results may be seen as lending support to the observation made by McGuire (1993) that collegiality is being undermined by intensifying competition (Chapt. 1, p. 5). Given the competitive environments in which accountants and surveyors, in particular, now operate (Radford, 1995; Kennie and Price, 1997) (Chapt. 1, pp. 4-5), it is perhaps to be expected that collegiality would not emerge as a strong characteristic for them.

Client focus

Finally on 'client focus', although ratings generally were high, trainers, dentists and surveyors gave it the highest ratings with 4.55 (± 0.19), 4.45 (± 0.20) and 4.32 (± 0.18) respectively (the differences between the three are not statistically significant). There was no clear candidate for the least client-focused, since the ratings given to this characteristic by the remaining professions were close together.

The position of Training may be linked to the fact that a significant number of respondents reported their job title as 'training consultant'. In such a capacity, their livelihood and future business might be especially dependent upon meeting the needs of clients as precisely as possible in a competitive training market. The position of dentists could reflect the fact that, as with all caring professions, the principal espoused professional objective is to meet the needs of patients.

Overall conformity

Ranking the six surveyed professions by their total scores across all nine characteristics (out of a possible total of 45) gives an indication of their relative degree of conformity:

The Church	36.72
Dentistry	32.67
Training	29.86
Accountancy	29.25
Civil Service	29.15
Surveying	27.85

The mean *confidence interval* for these data combinations is ± 1.98 .

The total scores indicate that the Church and Dentistry conform most closely to the characteristics as a whole. Surveying and the Civil Service appear to conform least.

Taken as a whole, these results lead to the conclusion that although the characteristics do still have some validity, they can no longer all be regarded as strong, general traits of modern professions. Some characteristics, like 'altruism', appear to apply more strongly to older, more traditional, service-type professions than they do to newer, commercial ones. Some characteristics no longer seem to apply strongly to any profession, at least in the perceptions

of practitioners - e.g. 'status'. The differences between professions against these characteristics may be seen as an indication of heterogeneity across modern professions.

Moving on from the general characteristics of professions, the next few sub-sections look at characteristics linked specifically to entry into professions and to professional training.

Entry qualifications

These results, drawn only from the interviews (N = 80), show the highest level of qualification possessed by respondents when they entered their profession. Entry means 'entry as a trainee', not as a qualified professional. Thus if the professional training programme commenced with a vocational degree, the entry qualification is likely to appear as 'A Level'.

Table 8 summarises the results:

Highest Qualification on Entry	No. of Interviewees	%age of N = 80
'O Level' (GCSE) or equivalent	11	13.75
'A Level'	33	41.25
HNC/HND etc.	4	5.0
1st Degree (3 years full time)	24	30.0
1st Degree (more than 3 years full time)	3	3.75
Higher Degree	5	6.25

Table 8: Highest qualification on entry by proportion of interviewees

Little comment is needed on these results, other than to note that they suggest that the majority of people who enter professions as trainees are qualified to 'A Level' or beyond. The results displayed in the table include interviewees of all ages. If the line for 'O Level (GCSE) or equivalent' is disaggregated for different age categories, it can be seen that the proportion who entered with this level of qualification reduces with age.

50 plus - 31.8%
 41-50 - 12%
 31-40 - 4.8%
 20-30 - 0

This trend could be seen as supporting the assertion by Rice and Richlin (1993) that professional entry requirements tend progressively to tighten over the years (Chapt. 1, p. 26). Alternatively, it could simply reflect an increase in the general level of education over the last 30 to 40 years.

Pre-entry requirements

Both interview and postal survey respondents were asked whether their profession had any formal pre-entry requirements. The proportions answering 'yes' were:

- interviewees - 73.8% (\pm 9.8%);
- survey respondents - 80.4% (\pm 4.1%);
- overall - 79.2% (\pm 3.8%).

Of the 20 professions, there were 11 where all (or almost all) respondents answered 'yes'.

These were:

Architecture	the Law (solicitors)	the Bar (barristers)
Secondary Teaching	Primary Teaching	Physiotherapy
Dentistry	Medicine (hospital doctors)	Nursing
Surveying	Accountancy	

In the case of the remaining nine professions, a significant number of respondents answered 'no', or were unsure whether or not there were any formal pre-entry requirements.

Actual pre-entry requirements reported by interviewees only (N = 80) varied considerably across a spectrum which included: a specified number of 'O Levels'/GCSEs and/or a pre-entry test; a specified number of 'A Levels' (sometimes at minimum grades); a degree (sometimes at honours level); and a higher degree.

Interviewees, who reported that their profession did have formal pre-entry requirements, rated the relevance of these (on a 1-5 scale) as 3.72 on average. This suggests only a moderate degree of perceived relevance of entry requirements.

Changes in the profession's pre-entry requirements (since the respondent entered) were reported by 56% of those interviewees saying that their profession had formal requirements. Over three quarters of these believed that the pre-entry requirements had been tightened since they entered.

This offers further support for the view that professional entry barriers tend to be raised progressively over time (Rice and Richlin, 1993) (Chapt. 1, p. 26).

Standardised education or training programme

Both interview and survey respondents were asked whether their profession had a standardised education or training programme through which entrants normally passed. In this case, the proportions answering 'yes' were:

- interviewees - 73.8% (\pm 9.8%);
- survey respondents - 78.0% (\pm 4.3%);
- overall - 77.2% (\pm 3.9%).

Of the 20 professions, there were 13 where all (or almost all) respondents answered 'yes'.

These were:

Architecture	the Law (solicitors)	the Bar (barristers)
Secondary Teaching	Primary Teaching	Physiotherapy
Dentistry	Medicine (hospital doctors)	Nursing
Surveying	Accountancy	Librarianship
the Church		

It should be stressed here that the question did not relate to whether any education or training programme was available, but to whether entrants were normally required to undertake such a programme. It should also be borne in mind that this research used a relatively broad definition of a profession (Chapt. 1, p. 20) and deliberately included occupations such as Training, Personnel Management and IT consultancy, which some people would reject as professions. It is acknowledged that the inclusion of such occupations in the sample will to some extent have affected the results obtained against these parameters. But it is also the case that a number of the more traditional professions included in the sample did not conform to one or other of the parameters. Examples are: the Church where pre-entry requirements are flexible; the Civil Service where many entrants do not undergo any formal or standardised training; and University Teaching where very few undergo any specific training on entry, beyond perhaps basic induction.

Those interviewees who had undertaken an initial professional development programme were asked a series of additional questions about its strengths and weaknesses. It will be more appropriate to report the answers to these questions in the second part of the presentation of results (Chapter 8) which will focus on the various factors aiding competence acquisition.

The last two sub-sections have demonstrated that neither formal pre-entry requirements, nor standardised education and training programmes were by any means universal amongst the sampled professions. Over 20% of respondents reported not having one or other requirement within their profession, or were unsure whether this was the case. The notion that (fixed) entry barriers and compulsory, standardised training are characteristic of professions (Caplow, 1954) (Chapt. 1, pp. 14-15) is therefore challenged, particularly in relation to newer professions.

Some programme details

Interviewees, but not survey respondents, (N = 80) each provided an outline of the professional development programme they had undertaken. Five main models emerge from the outlines offered:

- a vocationally-related degree (often with placement elements) followed by a period of in-practice training - e.g. Dentistry, Medicine, Surveying, Architecture, Accountancy;
- a full-time post graduate course following a relevant degree - e.g. Secondary Teaching;
- a full-time post-graduate training course following an often unrelated degree, followed by further in-practice training - e.g. the Bar, the Law;
- a full time vocational course, post 'A' levels or equivalent - e.g. Nursing, Physiotherapy, Primary Teaching;
- part-time study alongside full-time practice -e.g. Personnel Management, Training.

On average, the practical elements amounted to around 34% of the total programme content across the interviewed professions (N = 80). This included all types of practice, not just placements.

The average time for interviewees to reach full professional status was 4.2 years, though this varied widely between one year for those who had been graduate teacher trainees and nine years for one part-time surveying trainee.

Assessment

Of the 59 interviewees who stated that their profession had standardised education or training programmes, all except one said these included some form of examination or assessment. Types of assessment reported by the 58 interviewees concerned were:

- | | |
|---------------------------------------|----------------------|
| • Staged written examinations | 50 out of 58 (86.2%) |
| • Staged practical tests | 39 out of 58 (67.2%) |
| • Continuous assessment (written) | 33 out of 58 (56.9%) |
| • Continuous assessment of skills | 20 out of 58 (34.5%) |
| • Marked projects or assignments | 48 out of 58 (82.8%) |
| • Appraisal by a mentor | 24 out of 58 (41.4%) |
| • Final written examinations | 51 out of 58 (87.9%) |
| • Overall competence based assessment | 20 out of 58 (34.5%) |
| • Assessment of personal skills | 11 out of 58 (19.0%) |
| • Assessment of ethical skills | 11 out of 58 (19.0%) |

In relation to competence based assessment, some groups, e.g. surveyors, reported that this took the form of submitting a portfolio of experience and/or undertaking a simulated practical exercise. Others, for example recently-trained nurses and teachers, reported the use of 'checklists' of skills/competencies against which they were assessed by practice tutors or mentors. Those who reported being assessed against personal competencies mostly linked

this to some form of mentor assessment. Where the assessment of ethical issues was reported, this usually took the form of a question in the final examination on the profession's code of conduct, or a more general question with an ethical dimension.

The responses to the more evaluative questions relating to initial professional development programmes will be reported in the next chapter.

The results revealed a wider range of assessment methods than had been anticipated. They demonstrate that less formal methods of assessment are not uncommon, although written examinations, together with marked projects and assignments, were the most commonly reported approaches. The proportion of interviewees claiming some form of competence based assessment was also higher than expected (34.5% of those who were assessed) as was the proportion claiming to have been assessed against personal and ethical skills (19% each). In each case, these tended to be the most recently-qualified practitioners.

Licensing and Chartered Status

Of the 80 professionals interviewed, 40 (50%) reported that their professions offered some kind of licence to practice. The professions concerned were:

Architecture	the Law (solicitors)	the Bar (barristers)
Secondary Teaching	Primary Teaching	Physiotherapy
Dentistry	Medicine (hospital doctors)	Nursing
the Church		

Accountants reported that registration was needed for certain classes of work.

Twenty of the interviewees (25%) reported that their profession offered Chartered status.

The professions concerned were:

Architecture	Surveying	Accountancy
Librarianship	Physiotherapy	

None of the interviewees reported being required to undertake any form of periodic re-assessment or re-qualification as a condition of continued certification, though a number pointed to the obligatory nature of their profession's CPD requirements.

The lack of re-assessment and/or re-qualification is perhaps surprising, given the fast moving nature of knowledge and practice techniques within certain professions (McGuire, 1993) (Chapt. 1, p. 4). It suggests that the UK is not yet displaying the re-qualification trend which (Norcini and Shea, 1993) note in the USA though, as reported in Chapter 1 (p. 32), some professions, e.g. Dentistry, are said to be planning to re-accredit practitioners periodically.

Professional body membership

A total of 56 of the 80 interviewees (70%) belonged to professional bodies (confidence interval $\pm 10.2\%$). Eleven (13.75% of interviewees) reported that membership was compulsory. The proportion reporting membership of more than one professional body was 40% ($\pm 10.9\%$). A further analysis showed that 62.5% ($\pm 17.1\%$) of those who had university degrees (1st or Higher) belonged to a professional body, whereas amongst those who did not have degrees, the proportion was 75% ($\pm 12.5\%$).

These results demonstrate that professional body membership is by no means a universal trait amongst professionals. Indeed, 30% of the interviewees did not belong to a professional body. This was partly because not all the sampled professions had a widely recognised professional association (as distinct from a trade union) - e.g. the teaching professions. However, a proportion of interviewees expressed the view that professional body membership offered little added value for them. Given the confidence intervals concerned, no significant difference in professional body membership can be inferred between those with university degrees and those without.

The results cast some doubt on the view that collective organisation is a general characteristic of professions (Carr-Saunders, 1928; Waddington, 1985), or is a necessary stage in the process of professionalisation (Caplow, 1954; Wilensky, 1964) (Chapt. 1, pp. 14-15). However, this may depend on how the term 'collective organisation' is defined. Barristers, for example, do not normally belong to a professional association, but may regard their Inn of Court or the Bar Council as their 'professional body'. Similarly clergy who also have no professional association may be seen as being collectively organised through, for example, chapters.

The significant proportion of interviewees reporting multiple membership of professional associations (40% $\pm 10.9\%$) could be an indication of mobility within the labour market, with some people qualifying in one area, then moving on to another. Some of these may be seen as practising in more than one profession at the same time. In some cases, the additional membership reported related to an association linked to a particular specialism. This may reflect an increasing sub-division within professions (Child and Schriesheim, 1979) (Chapt. 1, p. 8).

The Nature of Professional Practice

The purpose of this part of the research was to explore how professionals operate. It sought, in particular, to test two different epistemologies of professional practice - *technical-rationality* (criticised by Schön, 1983 and 1987 as not an accurate description of how professionals

operate) and *reflection-in-action* (Schön's alternative epistemology) (Chapt. 3, pp. 62-63). It also examined the incidence and nature of reflection and its importance to professional practice.

Which epistemology?

This group of questions was administered to interviewees only (N = 80), not to postal survey respondents.

A moderate proportion of interviewees, 37.5% ($\pm 10.8\%$), saw their professional practice as primarily the application of their specialist knowledge. In contrast, only 10% ($\pm 6.7\%$) saw their practice as 'more of an art than a science' - i.e. similar to Schön's 'artistry'.

The largest proportion, 46.3% ($\pm 11.1\%$), felt their practice was 'a combination of art and science', sometimes drawing directly on specialist knowledge or theory, sometimes using tacit knowledge and 'gut feeling'.

The remaining 6.3% ($\pm 5.4\%$) felt their own professional practice did not conform to any of the alternatives offered. Although, given the *confidence intervals*, there could be some doubt about the lead of the 'combination' approach over 'specialist knowledge', the lead of these two together over 'artistry' is significant. The data, however, suggest that the use of 'artistry' is not insignificant with a total of 56.3% of interviewees recognising some element within their professional practice.

In relation to problem solving, a much smaller proportion, 7.5% ($\pm 5.9\%$), said they drew primarily on their specialist knowledge, and only one out of the 80 interviewees, 1.3% ($\pm 2.5\%$), said that drawing on repertoires of solutions was his primary approach, the latter being the approach suggested by Schön as dominant among professionals (Chapt. 3, p. 62).

The majority, 86.3% ($\pm 7.7\%$) reported using a combination of approaches, including applying specialist or theoretical knowledge to the problem, drawing on a repertoire of previous solutions and using common sense. Many interviewees said the approach they used varied according to the type of problem.

A number flatly rejected the idea of drawing on repertoires on the grounds that each problem was unique and therefore required a unique (not an 'off-the-shelf') solution. Some felt that relying on repertoires could be misleading and result in flawed solutions. Several mentioned

the use of techniques similar to Schön's 're-framing' (Chapt. 3, p. 62), but the most common aid to problem solving reported was conferring with colleagues.

The extent to which professionals apply technical-rational approaches may to some extent depend upon the nature of the profession. It is possible that the more technically-constrained professions would be more likely to apply technical-rational approaches than the more creative ones. There was insufficient data and the sample sizes were too small to test this out.

Overall, the findings, though based on a relatively simple study, suggest that neither the 'technical-rational' epistemology, nor Schön's 'reflection-in-action' offer a satisfactory explanation of how professionals operate in practice. The answer, if the data are to be believed, would seem to lie somewhere in between the two epistemologies, one where practice is grounded in technical or specialist knowledge but nonetheless involves a deal of extemporisation. This alternative epistemology, which will be called *technically-grounded extemporisation*, will be developed in Chapter 9.

Reflection

Schön's epistemology of professional practice places considerable emphasis on the use by professionals of reflection. This section looks at the extent to which this was borne out by the results from both the interviews and postal surveys.

The combined data (N = 452) show that 97.6% ($\pm 1.44\%$) of respondents claimed to be aware of reflecting about their professional work. Rather less, 79.9% ($\pm 3.8\%$) claimed they reflected on a regular basis.

In relation to the rather more important question of whether respondents modified the way they did things as a result of reflection, 39% ($\pm 4.6\%$) said they did so on a regular basis and 57% ($\pm 4.7\%$) said they did so sometimes. In combination, therefore, a total of 96% ($\pm 1.8\%$) claimed they modified the way they did things as a result of reflection.

Interviewees but not survey respondents (N = 80) were also invited to rate the importance of reflection to their professional performance. The mean rating given (on a 1-5 scale) was 4.32 (± 0.17).

The data suggest a strong tendency of professionals to reflect, and to change the way they do things as a result, at least sometimes. The data also indicate a strong recognition amongst professionals of the importance of reflection to effective performance.

Gender and age differences?

The data enabled a tentative examination of whether the propensity to reflect was linked to gender or age. In relation to gender, the percentage of respondents reporting regular reflection is shown in Table 9:

	Interviews (N = 80) %	Surveys (N = 372) %	Combined (N = 452) %
Male	81	79	79.4 (± 3.8%)
Female	81.5	82	81.9 (± 3.6)

Table 9: Regular reflection - by gender

Given the *confidence intervals*, the results suggest there is no significant difference between men and women in respect of their propensity to reflect regularly.

In relation to age, the percentage of respondents in each age category reporting regular reflection is shown in Table 10:

Age Range	Interviews (N = 80) %	Surveys (N = 372) %	Combined (N = 452) %
20 - 30	91.7	82.6	85.7 (± 3.29%)
31- 40	85.7	81	82 (± 3.61%)
41 - 49	84	81.1	81.6 (± 3.65%)
50 plus	68.2	75.6	74.5 (± 4.10%)

Table 10: Regular reflection - by age range

Again, bearing in mind the *confidence intervals*, there appears to be no general link between age and reflection, though respondents in the 50 plus age group may have a slight tendency to be less reflective than the younger age groups. However, this only becomes statistically significant when compared with the 20-30 age group.

Differences between professions/functional groups?

If the interview data on those reporting 'regular reflection' are aggregated for the professions within each of the six functional groups (Chapt. 5, p. 145), the following results are obtained:

Health Care	93.8%
Policy & Administrative	83.3%
Teaching/Training	81.3%
Legal & Financial	75.0%
Technical & Scientific	75.0%
Pastoral/Spiritual Care	75.0%

It would be tempting to deduce from this that certain types of profession are more reflective than others. However, since the average sample size per group is only 13.3 and the mean confidence interval is wide ($\pm 12\%$), such a deduction cannot be reliably made from these data.

Comparing the tendency to reflect regularly between the six surveyed professions, where the sample size is of course larger ($N = 66$ on average for interview and survey data combined), produces the following rankings:

Dentistry	91.8%	($\pm 7.8\%$)
Training	90.9%	($\pm 7.1\%$)
the Church	88.4%	($\pm 7.7\%$)
Civil Service	73.7%	($\pm 9.0\%$)
Surveying	72.2%	($\pm 10.6\%$)
Accountancy	62.2%	($\pm 14.5\%$)

In this case, the results do show a statistically significant difference between the top two and the bottom three, though the intermediate differences do not appear to be significant.

If these professions are taken as being representative of their functional group (perhaps a rather risky assumption) and the results examined alongside the earlier functional group figures, there may be some grounds for postulating that Health Care professionals are more reflective than certain other groups. However, much more data would be needed before such a hypothesis could be substantiated.

If there are indeed differences, these might have something to do with the nature of the work. For example, it could be that in professions with a large amount of routine, rule bound work (such as Accountancy) reflection is less natural or less necessary, but such a conjecture is perhaps premature.

Types of reflection

The majority of the 80 interviewees, 68.8% ($\pm 10.4\%$), were conscious of reflecting both after an event and in the middle of an event ('reflection about action' and 'reflection in action', the two modes of reflection identified by Schön, 1983). However, 18.8% ($\pm 8.7\%$) were not conscious of reflecting in action, believing they only reflected after an event. Conversely, a small minority of interviewees, 8.8% ($\pm 6.3\%$), said they only reflected in the middle of an event and not after an event. A number spoke of reflecting before an event, planning how they would approach a particular situation or action.

The point about reflecting before an event raises an interesting question of whether such mental activity can properly be called reflection. Is reflection, by definition, something that can only be done after or during an event?

There are references in the literature to the place of reflection before an event. For example, Boud et al. (1985, p. 10) recommend, "... reflecting before learning - in anticipation of the learning experience" (Chapt. 3, p. 67) and Watson (1996, p. 448) writes of his own reflection before engaging in a particular piece of teaching. Support for the broader use of the word, 'reflection' also comes from two dictionary definitions. The Concise Oxford Dictionary offers, "An idea arising in the mind", and Collins - New Compact Dictionary offers, "Careful and long consideration". It does therefore seem acceptable to speak of 'reflection before action'. It is likely of course that reflection before action will include reflection about what has been learned from previous actions.

Interview respondents (N = 80) were invited to give examples of their own professional reflection. The vast majority (92.5%) was able to do so. The examples revealed that, for most of the interviewees, reflection was largely unstructured or even automatic. A number described the way they reflected about particular professional problems during their leisure time - while mowing the lawn, doing housework, etc. Some said they tried to add a degree of system to this by jotting down the random thoughts that came to them at such times. A number pointed out that the outcomes of reflection need not necessarily be practical - i.e. changes in behaviour or better ways of doing things. The outcomes could instead be psychological or even spiritual. One respondent, a clergyman, described how he used reflection to gain a better understanding of himself and others, and to seek insights or to alter his own perceptions. Another clergyman referred to what he called 'theological reflection' and suggested that this kind of reflection may be very close to prayer.

Relatively few reported undertaking formal or systematic reflection. Those who did, described such things as writing a reflective journal, undergoing structured debriefings or participating in collective exercises such as peer reviews, medical audits, etc.

A number of interviewees described how they found themselves reflecting about different aspects of their professional practice as they became more experienced. For example, a dentist found himself reflecting on the mastery of particular clinical techniques during the final stages of his professional training. Then, shortly into his first practice, he reflected more about patient interaction - e.g. how he might improve his chair side manner. Now, much later in his career, he tended to reflect on organisational or business issues, such as the financial viability of the practice.

Such examples support the findings of Jarvinen (1991) which suggest that the object (or topic) of reflection, as well as the level of reflection, may be linked to the stage of development reached (Chapt. 3, pp. 68-69).

As reported in Chapter 6, the examples of reflection offered suggested that the depth, quality and mode of reflection (before, during or after) varied considerably (Chapt. 6, p. 198). The objects of reflection (following Jarvinen, *ibid.*) reported by interviewees appeared to fall under the following broad headings:

- performance (own or other people's);
- procedures (the way things are done);
- problems; and
- philosophy (of what is done).

A number of interviewees pointed out that the increased self-awareness associated with reflection was not always beneficial. It could lead to people becoming over self-conscious and obsessed with their own shortcomings with a consequent loss of confidence (some first-hand experiences of this effect were offered). The key, it was suggested by one respondent, was to ensure that reflection always led to positive/optimistic feelings and outcomes. A few felt that too much reflection could lead to indecision. A typical comment from this group was, "If you reflect too much, you never get anything done".

Taken as a whole, the data strongly support the key role of reflection within professional practice, supporting one of the major elements of Schön's hypothesis. However, the process in most cases appears to be unplanned and unstructured and it would be unwise to suggest that the majority of professionals are 'reflective practitioners' in the sense that Schön uses the term.

The Nature of Professional Competence

Interviewees (N = 80) were asked how they recognised 'professional competence' in people from professions, other than their own. The replies produced some interesting attributes. A minority of these were linked to technical ability or functional skills - such things as:

subject knowledge	technical skills	track record of success
appropriate qualifications	problem solving	analytical skills
organisational skills	managerial skills	efficiency

The majority of attributes cited related to personal type competencies as follows:

confidence	listening skills	verbal communication
empathy	assertiveness	detachment
calmness	enthusiasm	self-assurance
convincing manner	self-belief	authoritative manner
good self-presentation	apparently in control	inter-personal skills
equanimity	re-assurance	at ease with self
'unflashy'	unhesitant	politeness
control of emotions	gravitas (unfrivolous)	relaxed in job role

A number of interviewees also added - 'personal appearance' (particularly dress) or 'speech'.

When asked how they recognised competent individuals within their own profession, most again cited similar attributes. A typical comment was, "The same as for other professions". Some added a few additional characteristics, but again these tended to be behavioural, rather than functional. A number stated that they 'took as read' the assumption that practitioners both in their own and other professions would be functionally competent. Several pointed to the difficulty of judging whether, for example, the treatment carried out by a dentist was of a high quality.

These results suggest that although different people recognise competence in different ways, personal or behavioural type competencies, coupled with certain subjective factors such as appearance and speech, may be more important signals of professional competence than functional competence, at least on a superficial level. They may of course simply be easier to perceive in an individual without needing to be well acquainted with them. It is perhaps more surprising that when considering the competence of peers from within their own profession, functional competence, technical skills and the ability to achieve the necessary task outcomes were not more to the fore.

The results suggest that personal competencies, in particular, may be important signals of professional competence both to peers and clients. It may be worth speculating that some people might be better at giving off 'competence signals' than others. Some may learn to give off such signals without necessarily being particularly competent, whilst other, highly competent individuals may never learn to do so.

This could be seen as similar to the parallel modes of human communication addressed by Goffman (1969) who suggests that people 'give off' signals or cues through body language etc. alongside their verbal communication. Sometimes the two modes may convey the same message, sometimes they may conflict. Learning how to send 'competence signals' may be an important, though unrecognised part of professional socialisation. Such signals may help to encourage a client's or patient's confidence in a practitioner, something of particular importance within the caring professions where it may have an impact on patient recovery.

From these results, it could be inferred that there are two kinds of professional competence:

- *objective competence*; and
- *subjective competence*.

The first of these would be the more susceptible to analysis and assessment and might show itself through concrete outcomes. It is of course acknowledged that competence can never be purely objective because it has to be inferred from what is seen or heard (Gonczi et al., 1990; Homes and Joyce, 1993), but it is argued here that something approximating to objective competence can be envisaged. The second kind of competence, subjective competence, would not be readily susceptible to analysis or assessment but rather, would be perceived by a third party as an impression. One could speculate that, although the former is necessary for achieving results, the latter may be more important to career progress, promotion, peer respect and client confidence.

Within the same vein, a third category of professional competence might be added - 'self-perceived competence'. This could also be seen as to some extent subjective. It may or may not be congruent with either of the others. The inter-relationship between the three might be illustrated as a Venn diagram as in Figure 20:

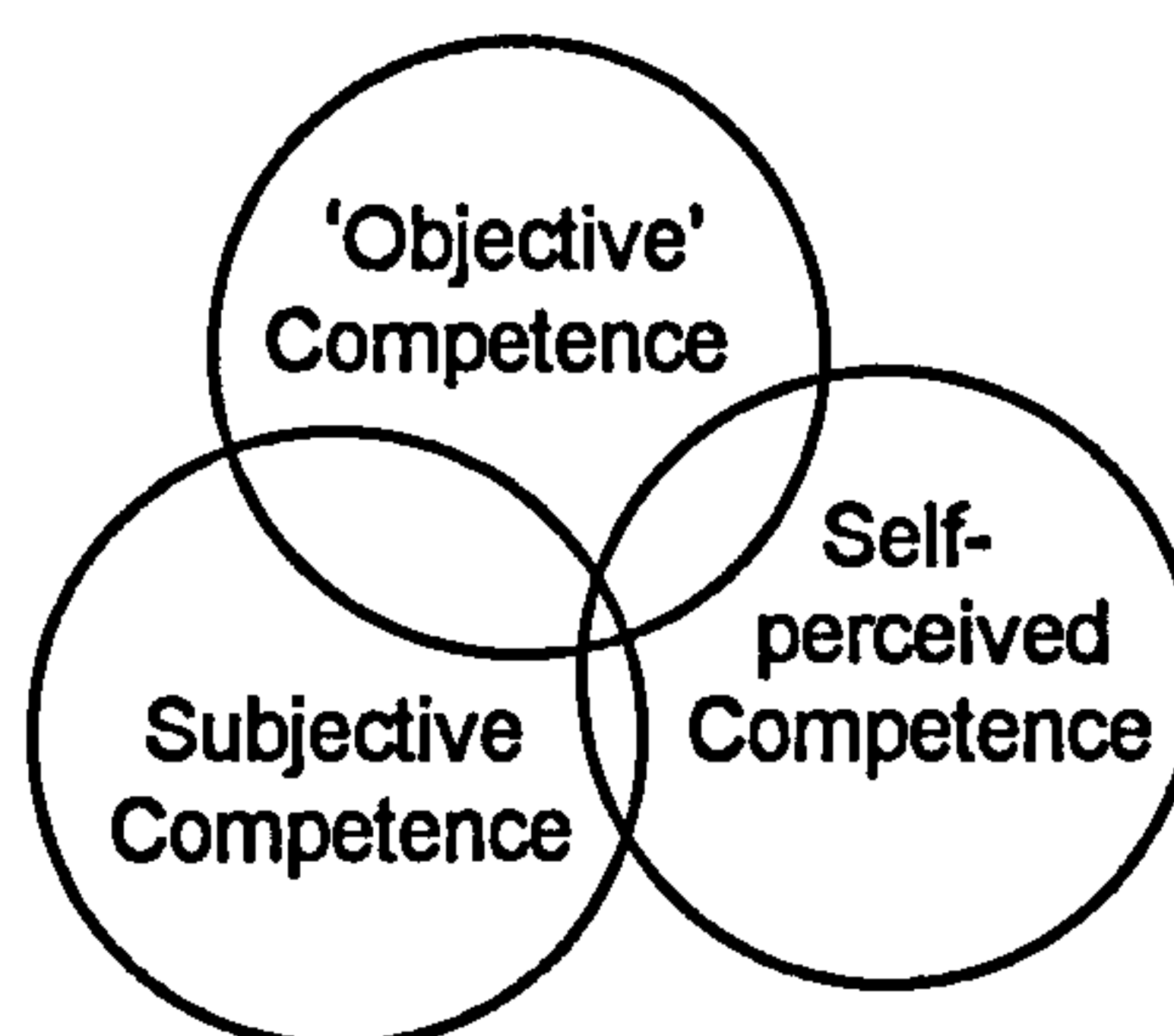


Figure 20: Inter-relationship between objective competence, subjective competence and self-perceived competence

It seems possible, and indeed probable, that where a person has doubts about his or her own competence, this may somehow be communicated to others via the mechanism of *subjective competence*.

Critical Competencies

Interviewees (N = 80) were invited to identify the competencies which they considered critical to effective performance in their own profession. This yielded a number of profession-specific attributes such as manual dexterity, forensic and clinical skills for surgeons and dentists, spatial perception for architects, and voice and cross-examination skills for

barristers. But the majority of competencies offered could again be seen as either personal competencies or meta-competencies. The former included judgement, empathy, detachment, patience, calmness, listening, ability to instil confidence, control of emotions, resilience, interpersonal skills and influencing skills. The latter included oral and written communication, analysis, problem solving and creativity.

The data reiterate the importance to effective professional performance of personal competencies and offer support for the criticality of several competencies, identified as possible meta-competencies (Chapt. 3, p. 88).

Generic attributes

Quantitative data were collected on the importance of certain, specific attributes (skills or competencies), identified in the literature as generic to all professions. These included the 'key skills' (DfEE, 1998b) (Chapt. 6, p. 176) and certain competencies, identified in the literature as possible meta-competencies (Hall, 1986; Reynolds and Snell, 1988; Linstead, 1991; Fleming, 1991; Nordhaug, 1993) (Chapt. 3, p. 88). Average ratings (on a 1-5 scale) of these various attributes from both the interviews and surveys, listed in descending order for the combined scores (*confidence intervals* in brackets) are shown in Table 11:

Attribute	Interviews (N = 80)	Surveys (N = 372)	Combined (N = 452)
Oral communication	4.63	4.75	4.73 (± 0.05)
Written communication	4.40	4.35	4.36 (± 0.08)
Problem solving skills	4.24	4.30	4.29 (± 0.07)
Analytical skills	4.31	4.27	4.28 (± 0.07)
Team working skills	4.06	4.02	4.03 (± 0.10)
Self-development skills	3.81	3.84	3.83 (± 0.08)
Creativity	3.38	3.73	3.67 (± 0.09)
IT skills	3.36	3.21	3.24 (± 0.11)
Numeracy	3.00	2.94	2.94 (± 0.11)

Table 11: Ratings of potentially generic attributes

The ratings drawn from the two sources are similar. The standard deviations for this block of data were relatively small, giving narrow *confidence intervals*. There is no doubt about the lead of 'oral communication' or the lag of 'numeracy'. However, some of the intermediate ratings need to be treated with caution. 'Problem solving' and 'analytical skills' should be considered to be on a par. The differences between 'written communication' and 'problem solving skills' and between 'self-development skills' and 'creativity' are too small to be counted as significant.

The results reinforce data reported earlier in underlining the importance to professional performance of oral communication. They also provide support for regarding 'communication', 'problem solving' and 'analytical skills' as meta-competencies. Though the results cannot prove the concept of meta-competence, they do suggest that these competencies are both important and generic across professions. 'Team working skills', 'self-development skills' and 'creativity' are arguably also generic, possibly qualifying as meta-competencies.

The relatively poor showing of 'IT skills' and 'numeracy', both considered by the UK government to be key skills, is interesting. Clearly, many professionals believe they do not need a strong cadre of either, casting doubts on their generic nature. Given the rapid expansion of information and communications technologies and their reported growing impact on almost all professions (Chapt. 1, p. 4), a higher rating of IT had been expected. The results may mean that many respondents have not yet felt the full impact of IT, or it may suggest that reports of its ubiquitous nature within professions are exaggerated, or it may be that technologies, other than information technology, are having a greater impact. It could also be that certain professionals do not consider IT skills to be important to them personally because they are supported by staff who have the necessary skills.

Differences between professions

Table 12 shows a comparison of the combined scores (interviews and surveys) for each of the six surveyed professions (N = 45-95).

Attribute	Civ Ser	Survey	Accoun	Train	Church	Dentist
Oral communication	4.59 (± 0.11)	4.60 (± 0.15)	4.58 (± 0.19)	4.87 (± 0.08)	4.88 (± 0.13)	4.86 (± 0.12)
Written communication	4.73 (± 0.11)	4.71 (± 0.13)	4.67 (± 0.19)	4.48 (± 0.15)	4.12 (± 0.26)	3.19 (± 0.33)
Problem solving skills	4.19 (± 0.13)	4.29 (± 0.17)	4.51 (± 0.17)	4.28 (± 0.19)	4.15 (± 0.21)	4.55 (± 0.20)
Analytical skills	4.36 (± 0.13)	4.26 (± 0.18)	4.61 (± 0.17)	4.19 (± 0.18)	4.03 (± 0.21)	4.22 (± 0.27)
Team working skills	4.12 (± 0.20)	3.88 (± 0.26)	3.89 (± 0.28)	4.02 (± 0.23)	4.00 (± 0.27)	4.27 (± 0.29)
Self-development skills	3.43 (± 0.16)	3.61 (± 0.21)	3.57 (± 0.20)	4.32 (± 0.20)	4.23 (± 0.19)	3.96 (± 0.28)
Creativity	3.46 (± 0.17)	3.29 (± 0.24)	3.34 (± 0.28)	4.10 (± 0.18)	4.38 (± 0.18)	3.63 (± 0.26)
IT skills	3.28 (± 0.22)	3.53 (± 0.28)	4.00 (± 0.29)	3.54 (± 0.21)	2.61 (± 0.28)	2.30 (± 0.33)
Numeracy	2.72 (± 0.19)	3.93 (± 0.25)	4.31 (± 0.23)	2.72 (± 0.20)	2.19 (± 0.24)	2.07 (± 0.32)

Table 12: Ratings of potentially generic attributes - comparison between professions

The table reveals a number of differences between professions. For example, there is a clear lead on 'oral communication' by trainers, the clergy and dentists. However, dentists lag significantly behind most of the other professions in the importance they attach to 'written communication', 'IT skills' and 'numeracy'. 'Creativity' seems to be significantly more important to the Church and Training than to any of the other four professions. The same pair (along with dentists) also rate 'self-development skills' more highly than the rest. Accountants and surveyors scored highest on 'numeracy', though in the case of the latter were not significantly ahead of civil servants.

The lead of trainers and clergy on 'oral communication' seems logical, but the importance attached to this attribute by dentists may appear more puzzling. However, this rating was supported by the qualitative comments of the dentists interviewed who all stressed the importance they attached to communicating with patients. The high rating of self-development skills by trainers is perhaps to be expected, if they are to practice what they preach. The relatively high rating of numeracy by accountants should also be no surprise, nor too should the fact that surveyors also see this attribute as important. They too make extensive use of calculations.

As well as throwing up some interesting differences between profession, these comparisons serve a secondary purpose of demonstrating sensitivity in the measures used. This helps to validate the use made of the data in Chapter 6 in testing the model of competence.

Other key attributes

Both interview and survey respondents were invited to rate various other attributes (types of knowledge and skills) in relation to their importance to effective performance within their profession. The combined mean scores (on a 1-5 scale) for the interviews and surveys (N = 452) were:

knowledge

Specialist/technical knowledge	4.23	(± 0.09)
Tacit/practical knowledge (knowing-in-action)	3.96	(± 0.08)
Procedural knowledge	3.82	(± 0.09)
Contextual knowledge	3.96	(± 0.10)

skill/competencies

Functional competence (full range)	3.89	(± 0.10)
Organisational/management skills	3.94	(± 0.09)
Commercial/entrepreneurial skills	3.10	(± 0.12)
Cerebral/mental skills	4.21	(± 0.08)
Physical skills	2.40	(± 0.13)
Personal competence	4.48	(± 0.06)
Interpersonal skills	4.39	(± 0.07)
Ethical competence	3.58	(± 0.11)

The high rating of 'specialist/technical knowledge' for its contribution to effective performance may be seen as a further challenge to Schön's rejection¹ of technical-rationality (Chapt. 3, pp. 62-63). 'Tacit knowledge' (linked closely to Schön's 'knowing-in-action'), though clearly recognised by practitioners as being of importance, ranks only on a par with 'contextual knowledge' and, given the *confidence intervals*, with 'procedural knowledge'. The high ratings given to 'personal competence' and 'interpersonal skills' is particularly note worthy, as is the rating of 'cerebral/mental skills'. A comparison of 'personal competence' with 'functional competence' again emphasises the perceived importance of the former.

Differences between professions

Dentists gave contextual knowledge the lowest rating - 3.43 (± 0.29) and civil servants the highest - 4.43 (± 0.14). Both 'personal competence' and 'interpersonal skills' achieve consistently high scores across all the sampled professions. Other attributes show marked differences between professions. 'Physical skills', though scoring little more than 2.00 for most professions, was rated at 4.89 (± 0.11) by dentists. The lowest rating of this attribute was offered by the Church - 2.06 (± 0.28) and Accountancy 2.07 (± 0.30).

There were relatively small differences between professions on 'organisational/management skills'. Training and Accountancy scored highest with ratings of 4.15 (± 0.20) and 4.05 (± 0.23), though the latter was not significantly ahead of the Civil Service with 4.01 (± 0.19). There was no clear candidate for the lowest position. 'Commercial/entrepreneurial skills' showed wider differences. Accountants and surveyors led with scores of 4.14 (± 0.23) and 4.01 (± 0.22) respectively. The Church lagged behind the rest with a score of 2.21 (± 0.25). Dentists gave the highest rating to functional competence (4.34 ± 0.25), though they awarded an even higher score to personal competence (4.80 ± 0.11). The highest rating of personal competence was offered by trainers (4.83 ± 0.09).

The Church and Dentistry showed a clear lead on the perceived importance of 'ethical competence' with ratings of 4.39 (± 0.21) and 4.17 (± 0.25). The *confidence intervals* make the distinction between the two insignificant. The lowest rating of 'ethical competence' was given by the Civil Service - 2.92 (± 0.21).

This group of data, whilst reflecting differences between professions, also indicate the importance to certain professions of a number of attributes (such as 'ethical competence', 'personal competence', 'organisational/management skills' and 'commercial/entrepreneurial skills') which appear not to feature strongly in many current professional development programmes (Grover, 1998) (Chapt. 1, p. 5). The importance attached to 'contextual

¹ as the dominant *modus operandi*

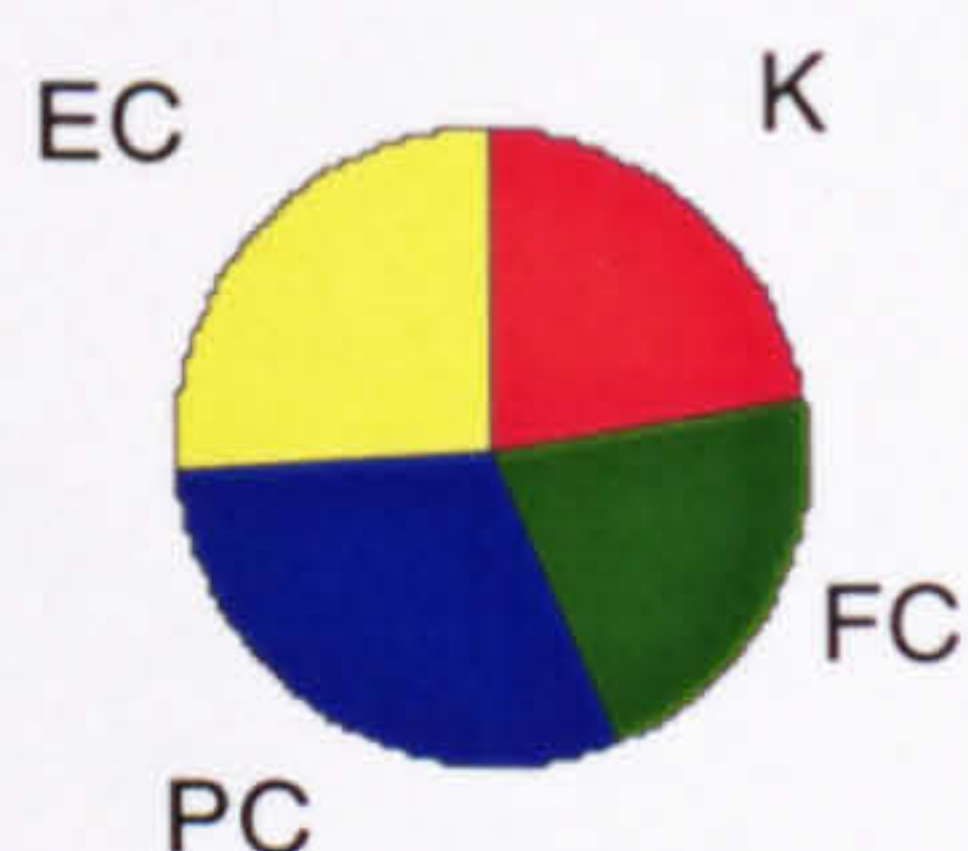
knowledge' by civil servants may reflect the multiplicity of different functions and policy areas in which civil servants may find themselves engaged. A move from one policy area to another may require extensive contextual learning. Dentists, on the other hand, could change practices or geographical areas and be fully proficient almost at once.

The above data, with their sensitivity to differences between professions, provide a broad profile against which a profession's development programme might be examined. Of similar utility are the *occupational competence mix diagrams* which all 452 respondents were invited to produce. Those for the six surveyed professions (N = 45-95) are shown in Figure 21. The associated segment angles (in degrees) are shown in Table 13:

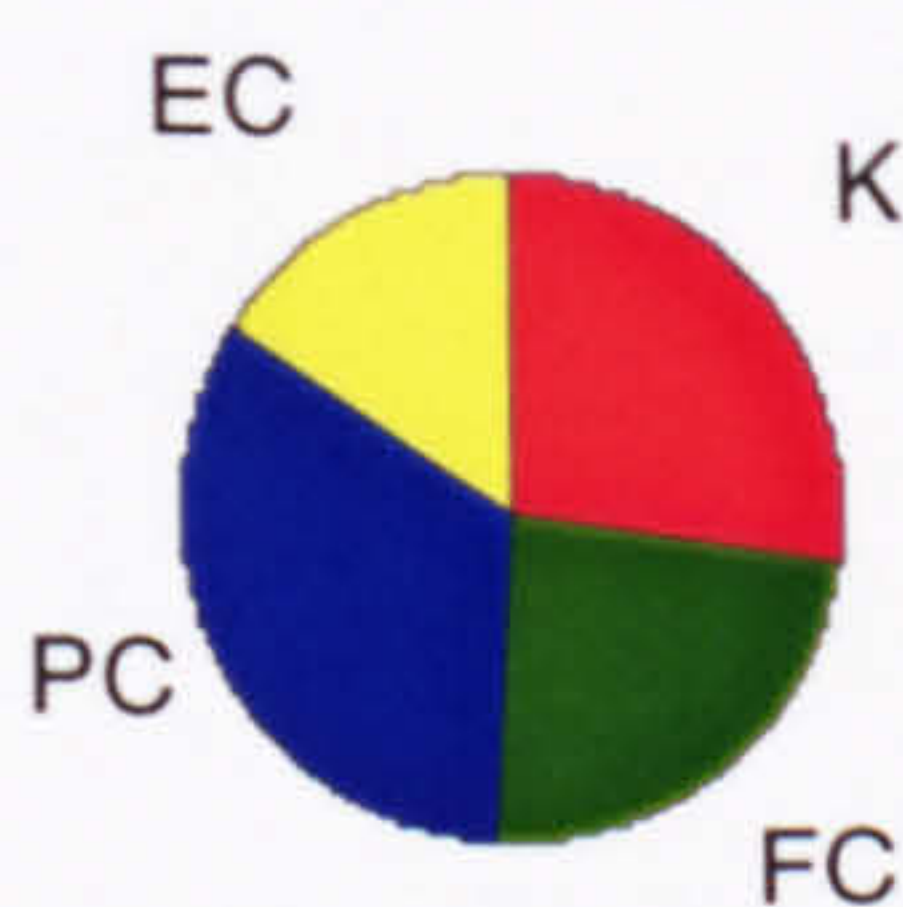
Component	Civ Serv	Surveyors	Accounts	Trainers	Church	Dentists
Functional Comp	101.93	97.64	96	84.57	76.69	106.13
Personal Comp	111.15	87.65	90.02	119.06	108.65	93.83
Knowledge	98.8	118.88	119.83	98.88	79.52	91.02
Ethical Comp	48.11	55.83	54.15	57.49	95.14	69.02
<i>confidence inters</i>	± 4.9	± 6.6	± 8.2	± 6	± 6.2	± 6.7

Table 13: Occupational competence mix of profession - segment angles

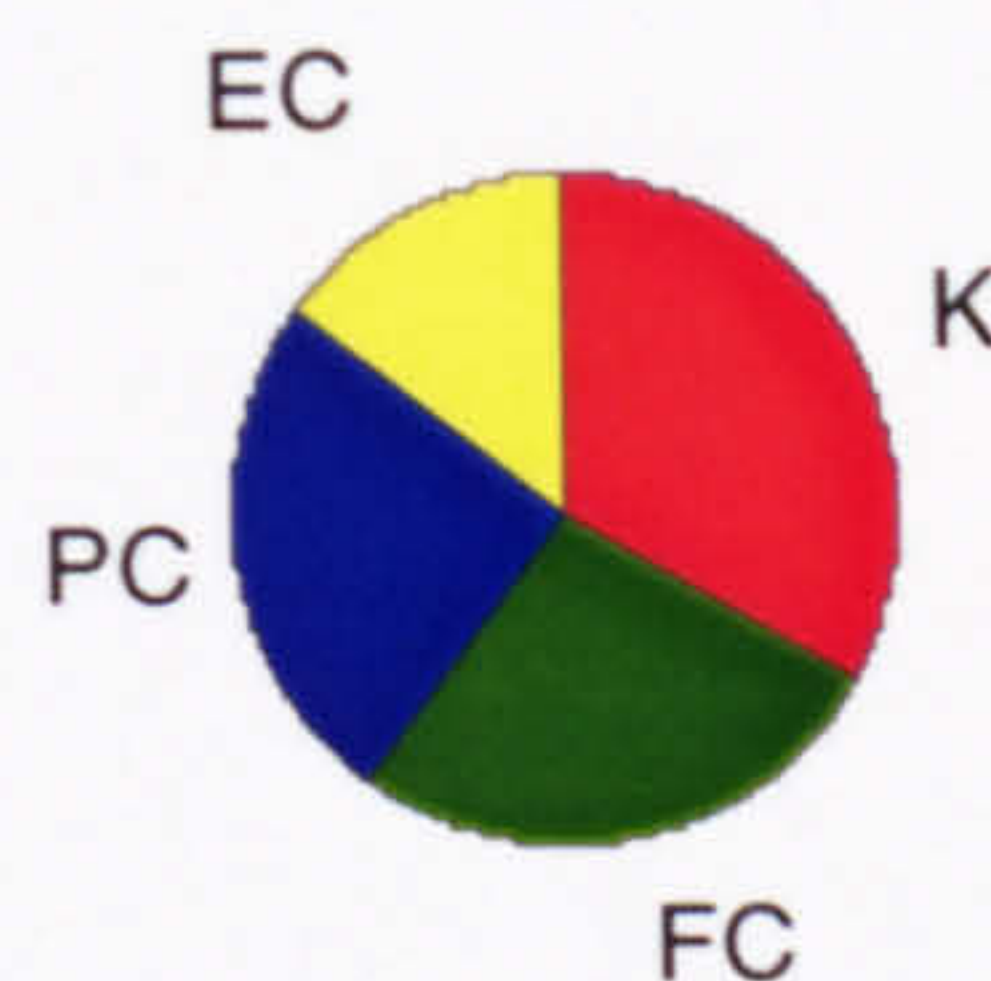
Anglican Clergy



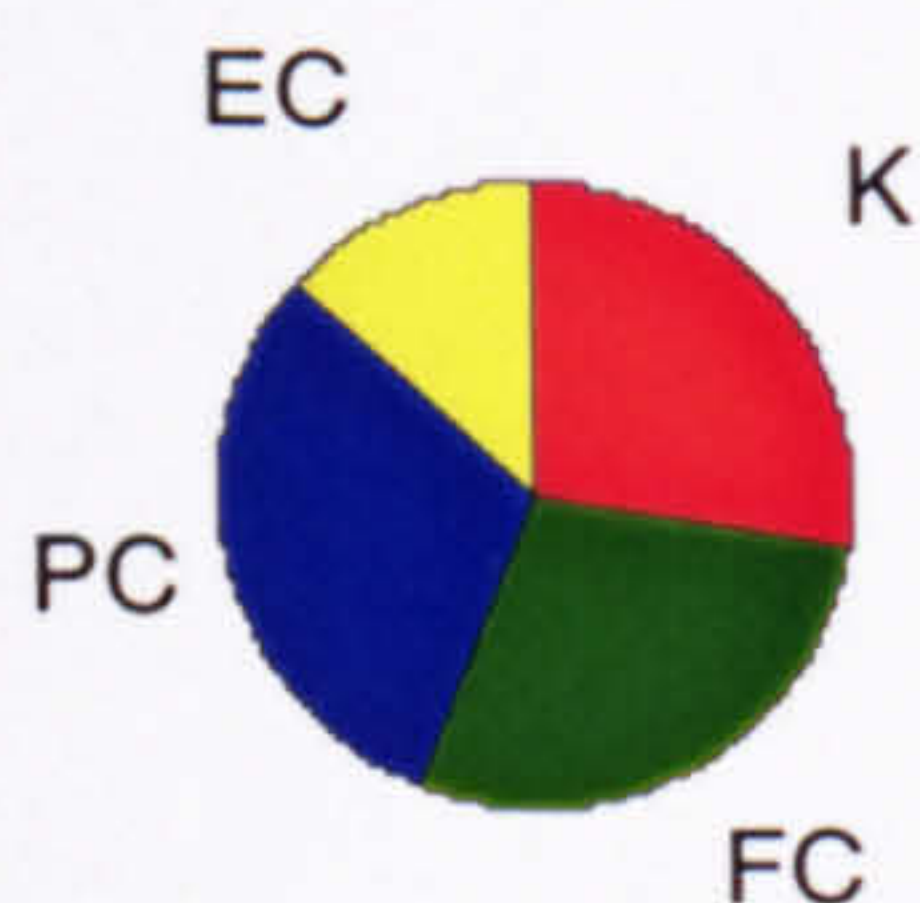
Trainers



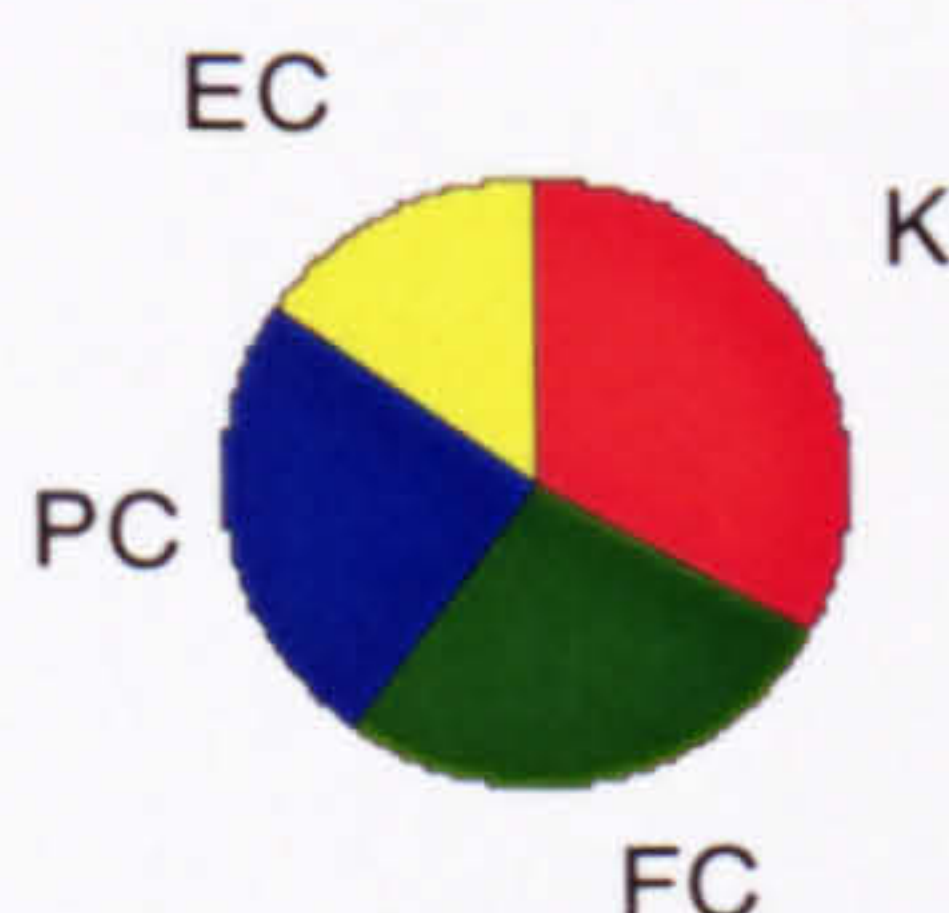
Accountants



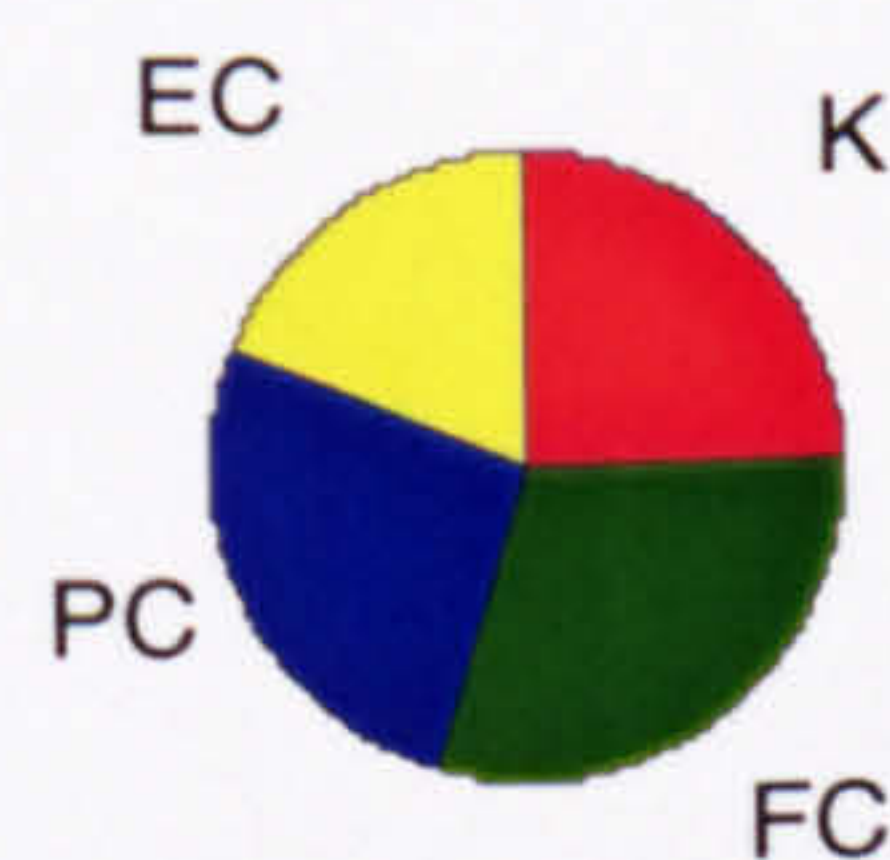
Civil Servants



Surveyors



Dentists



Key

K = Knowledge/Cognitive Competence
 FC = Functional Competence

PC = Personal Competence
 EC = Ethical Competence

Figure 21: Occupational competence mix diagrams for surveyed professions

The diagrams (and the corresponding data in Table 13) display some important, and statistically significant, differences between the six professions. These differences show a remarkable degree of correlation with the results obtained against questions under the heading 'other key attributes' reported earlier (pp. 239-240). Comparing the relative size of core components in the *occupational competence mix diagrams* with the ratings of these components reported earlier provides the following examples:

- *knowledge* (all types combined) both show accountants in the lead;
- *ethical competence* - both show the clergy with a significant lead, dentists in second position and civil servants lagging behind the other professions;
- *functional competence* - both show dentists in the lead with civil servants in second position;
- *personal competence* - both show trainers in the lead with both them and the clergy attaching significantly greater importance to this component than to 'functional competence'.

The diagrams and corresponding tabulated segment angles offer further evidence of the importance of personal competence, relative to functional competence. The consistency between the results obtained via the two different methods provides support for the validity of *the occupational competence mix diagram* concept. Though simple, such diagrams could provide a tool for evaluating current areas of emphasis within professional development programmes and serve as an aid to curriculum planning at a broad level. *Occupational competence mix diagrams* for all 20 professions covered by the interviews are shown at Appendix 4.

Chapter Summary

The data presented above suggest that modern professions do not conform closely to the traditional characteristics of professions suggested in the literature, though some of these still have some validity. The extent to which each characteristic applies varies between professions, as does overall conformance. The results suggest that these characteristics should no longer be regarded as general traits of professions.

Whilst a majority of the professions studied had both formal pre-entry requirements and standardised development programmes, which all entrants were required to undertake, a significant minority of professions lacked one or the other, or both. Whilst this was more likely to be the case with the newer professions included in the sample, it also applied to some older professions - e.g. the Civil Service and the Church. The result challenges the view that fixed entry barriers and standardised training are (invariably) characteristic

of professions, again as suggested in the literature. Where they did exist, pre-entry requirements were perceived as only moderately relevant.

Professional development programmes varied widely in their design, the emphasis they placed on the development of practical skills and on the assessment methods used. Evaluative data about professional development programmes will be presented in the next chapter.

Half of the 20 professions sampled issued a licence to practice of some kind, and a quarter offered Chartered status.

A majority of interviewees were members of professional bodies, but around a third were not. This demonstrates that professional body membership is by no means a universal trait amongst professionals and challenges the view within the literature that collective organisation is characteristic of professions or a necessary stage in the process of professionalisation.

The data relating to how professionals operate cast doubts on some of Schön's assertions, particularly his epistemology of practice, but support other parts of his hypothesis, particularly in relation to the importance of reflection. Equally, the data suggest that the alternative epistemology of technical-rationality does not offer a wholly satisfactory explanation. This result suggests that a new explanation of professional practice is required.

The qualitative data on how professional competence is recognised suggest that personal or behavioural competencies, and certain subjective factors such as appearance, may be important signals of competence, perhaps even more so than functional competence. The quantitative data on a range of potentially generic competencies support the view that there are certain attributes that are a universal requirement of professions. Oral communication was seen as the most important of these. Certain other attributes, identified in the literature as crucial to all occupations, e.g. some of the UK government's 'key skills', were seen as less important.

Amongst other key attributes explored, personal competence and interpersonal skills were seen as more important to effective performance than functional competence, though it could be that the latter was taken for granted. Technical or specialist knowledge was seen as significantly more important to effective performance than tacit knowledge, casting doubts on Schön's rejection of 'technical-rationality'.

Different professions displayed clear differences in relation to the perceived contribution to effective performance of the four *core components*, as predicated by the model of professional competence described in Chapter 6. This adds support to the validity of the model.

.....

Chapter 8

Pathways to Professional Competence: Presentation and Analysis of Empirical Results, Part 2

Chapter 8

Pathways to Professional Competence: Presentation and Analysis of Empirical Results, Part 2

Introduction

This, the second of the chapters devoted to the presentation of results, focuses on the issue that is perhaps most central to this research - how professionals become competent. Both interviewees and survey respondents were invited to assess the importance of a number of factors in helping them to become competent professionals, including their professional development programme and other formal and less formal methods. In addition, respondents were invited to identify specific experiences or events that had proved particularly formative for them, together with situations or environments they had found conducive to their development.

As in the previous chapter, a combination of qualitative and quantitative data from both the interviews and surveys will be presented. The results will again be presented thematically, rather than according to whether the data came from interviews or surveys but, in all cases, data sources will be made clear, as will statistical significance in the case of quantitative data.

Chapter layout and content

The first section will concentrate on formal methods of development, presenting respondents' appraisals of the professional development programmes they had undertaken, together with their suggestions for improvements. The second section will concentrate on less formal methods of development, drawing both on quantitative data (which include ratings of certain common processes such as mentoring and role modelling) and on the unprompted insights of respondents in relation to their other formative experiences. The third section will offer an analysis of the informal learning experiences identified by respondents, organised in the form of a taxonomy. The fourth section will draw on respondents' insights into the environmental and other factors they had found helpful to their professional development. The final section will present the findings in relation to continuing professional development.

As in the previous chapter, comment, interpretation and possible explanations will be offered as appropriate within each section. Again, an attempt will be made to compare the findings with relevant parts of the literature.

Contribution to Competence of Formal Learning

Interviewees were asked a series of questions, some factual and some evaluative, about the professional development programme they had undertaken, including its practical elements and assessment procedures. It should be stressed here that respondents were commenting on their profession's development programme as it was when they entered the profession. It is possible, and indeed likely, that some of the programmes will have changed in various ways since then. This is a further acknowledged limitation of the methodology, which is hopefully compensated to some extent by an up-to-date literature review.

Importance of professional development programmes

As the last chapter illustrated, by no means all respondents reported standardised professional education or training programmes within their profession. To recap, of the 80 people interviewed, 59 (73.8%) reported such programmes, and 290 of the 372 survey respondents (78%) did so. Across both groups (N = 452), the average rating given to development programmes (by those who had undertaken them) for their contribution to their professional competence was 4.23 (± 0.09) on a 1-5 scale. Amongst the six professions, where both interviews and surveys were conducted, dentists gave their development programmes the highest mean rating (4.85 ± 0.12). In contrast, civil servants, only a minority of whom (43.8%) reported undertaking a formal programme, gave it a score of only 3.48 (± 0.23). Given the confidence intervals, the difference between the two is statistically significant.

The data suggest that, overall, professional development programmes were perceived as making an important contribution to professional competence, but with marked differences between professions. Their contribution was seen as particularly important by dentists, but considerably less so by civil servants. This may reflect differences in the practical nature of the two types of occupation, together with the more generalist and varied nature of Civil Service work which may make the construction of relevant formal training elements more difficult.

Overall effectiveness of professional development programmes

Interviewees only (N = 80) were invited to rate their professional development programme against three parameters - relevance, comprehensiveness and effectiveness. The following mean scores were obtained across all the interviewed professions:

relevance	3.80
comprehensiveness	3.78
effectiveness	3.53

The same group was invited to rate their programme's effectiveness in developing particular professional attributes. The mean scores for each were:

professional knowledge	3.96
professional practice skills	3.45
personal competence	3.23
ethical competence	3.19
suitable professional behaviours	3.48

The results suggest that interviewees were only moderately convinced of the relevance, effectiveness and comprehensiveness of the programmes they undertook. Programmes were perceived as having been better at developing 'professional knowledge' than attributes such as 'personal competence' which, as reported in the last chapter, respondents considered to be particularly important to effective performance, and 'ethical competence'.

Time to reach full professional competence

Interviewees were each asked to estimate how long it had taken them, after entering the profession or initially qualifying, before they felt fully competent. The results are shown in Table 14:

Time to reach full competence	No. of Interviewees	% of all Interviewees
Immediately on qualification	14	17.5
Within a year of qualification	14	17.5
1-2 years after qualification	15	18.8
2-3 years after qualification	8	10.0
After some other period	19 *	23.8
Do not yet feel fully competent	7	8.8
Unable to say	3	3.8

* the average 'other period' offered was 6.1 years

Table 14: Time to reach full professional competence

These results illustrate the extent of professional learning that clearly must take place post formal training, and therefore highlight the limitations of initial professional development programmes in 'getting people fully up to speed'.

Rating of practical elements of programmes

The mean score across all professions (interviews and surveys, N = 452) for practical elements (of all kinds) was 3.91 (± 0.10). Dentists gave these elements the highest rating (4.87 ± 0.11) and clergy the lowest (3.56 ± 0.26), a statistically significant difference. Dentists were also significantly ahead of the next highest, accountants, who scored 4.00 (± 0.31), but the lag of clergy behind the next lowest, civil servants, (3.72 ± 0.23) is not statistically significant.

Where programmes had included simulations of various kinds, these were given a mean rating across the interview and surveys (N = 452) of 3.49 (± 0.11). Dentists gave simulations the highest rating (4.69 ± 0.19), civil servants the lowest (3.00 ± 0.30), a statistically significant difference. Dentists were also significantly ahead of all other professions, though the lag of civil servants was less definitive.

Finally, in this group of questions, respondents were invited to rate the effectiveness of the placement element(s) of their programme (if any). The mean score was 3.85 (± 0.14). Dentists, along with accountants, gave placements the highest ratings (4.09 ± 0.30 and 4.05 ± 0.58 respectively). There is no significant difference between the two. Clergy, together with civil servants, rated placements the lowest (3.59 ± 0.27 and 3.67 ± 0.28 respectively). Again, the confidence intervals imply that the two should be seen as on a par.

The relatively wide confidence interval on the rating given by accountants to placements (± 0.58) suggests there may have been some variability in quality. Overall, the data suggest that for many professional programmes, the practical elements are perceived by participants as only moderately effective. This was confirmed by interviewees' qualitative observations on the strengths and weaknesses of programmes. These results will be presented later. Dentistry appears to stand out as an exception and perhaps as an exemplary model of professional development.

Structure of practical elements

The 59 interviewees who reported undertaking professional development programmes were each asked a series of questions about the degree of structure of the practical elements.

The results were:

- 20 of the 59 (33.9%) reported that the practical aspects were structured;
- 22 of the 59 (37.3%) reported the practical aspects were left largely to chance;
- 16 of the 59 (27.1%) reported a combination of these approaches.

These data indicate a significant proportion of programmes in which some or all of the practical development had been left largely to chance. This observation was borne out by the qualitative comments of interviewees, many of whom saw the lack of structure as a weakness.

Assessment linked to practical elements

The same group of interviewees was asked whether the practical elements were examined/assessed and/or separately certificated. The results were:

practical work assessed	41 out of 59 (69.5%)
practical work separately certificated	10 out of 59 (16.9%)

This may appear a reasonable incidence but, given the critical importance of practice skills, it is perhaps surprising that almost a third of respondents had not had their practical work assessed. It is of course possible that current programmes now have a higher incidence of assessed practical work. This might perhaps be expected, given the recent emphasis on practical competence at a national level - e.g. through standards and NVQs.

Where interviewees reported that their practical work had been assessed, they only gave the assessment process a modest rating (3.66) in terms of its relevance to real practice.

Though these results are not claimed as representative of professions as a whole, they suggest there may be scope for devising assessment methods that more closely relate to what professionals actually need to be able to do. This is one of the key recommendations made by McGaguie (1993) (Chapt. 3, p. 91).

Evaluation of practical elements

Interviewees only (N = 80) were invited to rate (on a 1-5 scale) the practical work they undertook against three further parameters as shown below:

relevance to subsequent practice	4.06
effectiveness of practical training	4.02
adequacy of amount	3.69

These results suggest a reasonable level of satisfaction with the relevance and effectiveness of practical elements, though less with the amount received. This point was supported by the qualitative comments of interviewees. A large proportion of respondents said they had not received as much practical training as they would have liked. Even those who reported the highest amounts of practical training often said they would have preferred more.

The implication of this seems to be that, from a trainee perspective, the practical content of programmes should be as high as possible.

Strengths and Weaknesses of Programmes

Those interviewees who had been through a professional development programme were asked to identify its strengths and weaknesses. The main themes within their answers are briefly summarised below under the six headings of:

- *content;*
- *teaching/learning methods;*
- *teaching quality;*
- *practical element;*

- *assessment*; and
- *social aspects*.

Content - strengths

Relatively few positive comments were made about programme content. Many programmes were perceived by respondents as heavy in academic content. The main strength suggested for this type of programme was that it provided strong grounding in related theory and stimulated the acquisition of large amounts of professional knowledge.

Content - weaknesses

Many more weaknesses than strengths were offered in relation to content. Common criticisms were that college-based elements were too idealised, hypothetical and insufficiently related to 'the real world'. Some said that their subsequent experience had confirmed to them that some of the course content had been out of date and lagging behind current practice.

Another frequent complaint was about the lack of coherence between, and integration of, different disciplines. A number of respondents felt that their course content had been unnecessarily wide, sometimes including elements that were only of marginal relevance. Some believed the course content had included a degree of 'padding'.

Several, particularly from Social Work, Nursing and Teaching, felt that having an explicit, value-laden course philosophy had been a burden which sometimes got in the way of learning. Two of the examples offered were: an 'anti-repressive practice' philosophy (Social Work); and a 'non-medical model' of nurse development. The interviewees concerned said they would have preferred more pragmatic and value-free approaches.

In terms of what was missing from programmes, the development of management and commercial skills was cited by a number, particularly from Surveying, Architecture and Accountancy. Several clergy said their courses had omitted church and parish administration, financing etc., concentrating wholly on the priestly aspects of their role. Interviewees from a number of professions observed that their programmes had lacked a specific, ethical dimension, or that this had been poorly executed. Other content weaknesses identified were the lack of emphasis on the development of personal and interpersonal skills, and especially oral communication.

Teaching/Learning methods - strengths

The minority of interviewees who had undertaken their professional education on a part-time basis, saw this as a real strength. Several argued that this had helped them relate theory to practice. One felt that the necessity to study in his own time had developed discipline, self-reliance and motivation. The small number who had studied using distance learning seemed to appreciate the flexibility this offered.

Sandwich courses were generally highly rated. Benefits claimed were: they had provided a valuable insight into the 'real world'; and had enabled greater responsibility to be taken earlier in the first appointment than would otherwise have been possible. Programmes which offered early exposure to clients or patients, typically through short placements, were also perceived as beneficial. They were seen as providing valuable 'tasters' of the professional role in a relatively safe environment.

Where programmes had included probationary periods following initial training, these were mainly seen as having been an advantage. The two main benefits cited were: they provided a less abrupt introduction to practice; and they offered support during early practice. Similarly, respondents who had been allowed progressively increasing autonomy in the later stages of their training, but with support available as needed, felt that this had helped to build their confidence and independence, prior to being released into practice.

Other methods identified as strengths were those that involved trainees giving presentations or otherwise articulating or defending their work, perhaps to tutors and fellow students. Apart from helping to develop presentation skills, it was suggested that this helped consolidate what had been learned.

One interviewee who had been given a chance to travel abroad during her professional training, saw this as a particular strength. She believed she had learned a lot through exposure to alternative cultures and perspectives.

Teaching/Learning methods - weaknesses

A common complaint from respondents was that courses tended to concentrate too much on theory and not enough on practice. Where there were practical elements, another common criticism was the lack of co-ordination between theory and practice, with the practice sometimes coming before the relevant theory had been taught.

Several respondents complained about over-didactic or uninspiring lectures, others about the necessity for too much memory and rote learning. Minority criticisms included: a lack of

recognition (and incorporation) of students' prior experience and/or prior learning; and a lack of consideration for the differing needs and learning styles of students.

Teaching quality - strengths

Very few positive comments were made about teaching quality. A number spoke of the value of having tutors with real and recent practical experience¹. Where this was the case, it was seen as: lending credibility to the course; providing reassurance of its relevance; and offering the chance of tutor anecdotes that drew on practical experience.

Teaching quality - weaknesses

The exact opposite point was frequently offered as a weakness, namely that tutors had not been practitioners, or if they had, their experience was not recent. One Barrister spoke of his Bar School lecturers as, "failed lawyers". Many interviewees had general criticisms of teaching quality, though these were usually non-specific.

Practical element - strengths

Those who had experienced lengthy or frequent placements had almost always found these beneficial, particularly where they had offered exposure to a wide range of 'hands-on' practice. A number of respondents had particularly appreciated situations where they could call on support as necessary without being over-supervised. Those who reported having an effective practice supervisor or mentor identified the feed-back this provided as the main benefit.

A few spoke of the benefits of relevant practical experience, obtained prior to commencing their formal training - for example, a social worker who had done voluntary social work before deciding to enter a formal course.

Practical element - weaknesses

By far the most common complaint about the practical element of programmes was that it was insufficient. Almost all respondents said they would have liked more. But even though practical work, and particularly placements, were almost universally welcomed, they apparently often left a lot to be desired.

The lack of structure to many placements was mentioned earlier. This was identified as a weakness by a significant number of interviewees. Specific complaints included: being left

¹ For a useful account of the benefits of "practitioner lecturers" within Nursing see Murphy and Reading (1992)

too much to one's own devices; inadequate supervision or briefing leading to too many 'deep-end, sink or swim' situations; having to waste valuable placement time doing menial tasks; what was learned being left too much to chance; and not getting the range of practical experiences expected. As a result, many felt that placements had left gaps in their learning which would not have occurred had the planning been better.

A number criticised the quality of mentoring they had received, some suggesting that this may have been due to poor selection or inadequate training. Others complained about too much variability in the quality of mentoring. Several reported a lack of compatibility with their mentors.

Assessment - strengths

A number of interview questions focused specifically on assessment. The results of these are presented elsewhere, both in Chapter 7 (pp. 226-227) and later in this chapter (pp. 255-256). The comments reported here arose while discussing the strengths and weaknesses of programmes more generally.

Where practical skills were specifically tested, this was seen by respondents as positive and useful, providing it was done effectively. Testing seemed to be most valued for the feedback it provided. Many interviewees appeared highly conscious of the importance of practical skills and seemed to welcome any opportunity to be told how they were doing in respect of these.

In relation to more general assessment, the existence of external, nationally-set examinations, as is the case in Accountancy, was seen as an advantage, offering assurance of fairness against a common standard. But few reported such arrangements.

Assessment - weaknesses

A number of specific criticisms were made of examination and assessment procedures. A few felt that the examination practices had been too rigid and formalised, and tended to test knowledge and memory, rather than application. Several interviewees who had undergone separate 'tests of professional competence' some time after qualifying academically, felt that these had not reflected the reality of practice. Another complaint was that such tests had been too dependent on paper-based evidence.

Social aspects - strengths

Several interviewees saw the opportunity to mix with a wide diversity of students as a real strength. Two advantages claimed were that it offered exposure to other perspectives and assisted peer-based learning.

Two of the four barristers interviewed had found the enforced socialisation with senior members of their profession through Inns of Court 'dinners' an advantage, at least in retrospect, believing it had helped them develop a professional identity and a sense of belonging to the profession.

Several respondents who had been on lengthy residential courses in closed communities, i.e. theological colleges, felt that this had helped them develop personal and interpersonal skills. One claimed that the process of what he described as 'living in a goldfish bowl' had helped him overcome a problem of shyness.

Social aspects - weaknesses

The other half of the sample of barristers interviewed either saw the enforced attendance at 'dinners' as, "irrelevant" or as " a positively unhelpful anachronism".

A weakness identified in certain professions, mainly in the area of Health Care, was the problem of learning in a very hierarchical setting. Some felt that this had made it difficult for them to challenge what was being taught, admit mistakes or even ask questions (more will be said of this problem later in relation to learning environments).

All of the above strengths and weaknesses relate to specific programmes, at a particular institution and a particular point in time. Nonetheless, they offer some useful pointers to the sorts of thing trainees find helpful, as well as factors that can make programmes less effective than they might be.

Suggested improvements in professional development programmes

After identifying strengths and weaknesses in programmes, interviewees were invited to suggest improvements. The more generic ones may be summarised as:

- provide more and a broader range of placements;
- improve supervision, organisation and structure of placements;
- identify and specify skills/competencies to be developed in practice elements;
- achieve better linkage/co-ordination between theory and practice;
- improve selection and training of mentors;

- make more use of experienced, practising professionals as tutors;
- place greater emphasis on workplace competence with better methods of assessing this;
- include more project-based learning methods;
- include the development of management/administrative/commercial skills.

More specific suggestions included: the use of 'what if' scenarios to develop ethical awareness; tuition in presentation techniques; exercises aimed at developing personal competencies and oral communication skills; and the greater use of collaborative learning methods.

Suggested improvements to assessment

In relation to examination and assessment, the 58 interviewees who reported being assessed said they would like to see the following changes made:

Made more rigorous	19 out of 58 (32.8%)
Made less rigorous	6 out of 58 (10.3%)
Made more flexible	19 out of 58 (32.8%)
Made more relevant (to what professionals do)	26 out of 58 (44.8%)
Made more practically-based	28 out of 58 (48.3%)
Made more competence based	31 out of 58 (53.4%)
Made more academic/knowledge-based	6 out of 58 (10.3%)
To include assessment of personal competence	37 out of 58 (63.8%)
To include assessment of ethical competence	28 out of 58 (48.3%)

These results were rather inconclusive as to whether levels of rigour should be increased or reduced. However, the data suggest a modest enthusiasm for making assessment methods more reflective of what practitioners need to be able to do, and similarly for making assessment more practically-based. There was also a clear, though small, majority in favour of making assessment more competence based.

Perhaps the biggest surprise was the proportion in favour of including assessment of personal competence (63.8%). This may be seen as a further endorsement of the importance of this component to effective professional performance. The support for assessing ethical competence was also significant (48.3%), though less than a majority. In the case of both personal and ethical competence, interviewees often said that although they felt assessment was desirable, they were not sure how in practice this could be done.

Other suggested improvements to assessment

A range of further suggestions for improving assessment were offered by interviewees.

These may be summarised as:

- give mentors a more active role in assessment, especially in relation to personal competence and ethics;

- simplify assessment procedures and reduce bureaucracy;
- make greater use of group-based assessment;
- involve experienced practitioners in assessment;
- include assessment of communication skills;
- make greater use of oral examinations;
- provide more feed-back as part of assessment;
- make greater use of continuous assessment methods;
- reduce variations in assessment quality - provide clearer assessment guideline;
- make greater use of 'open book' examinations to test application, rather than memory;
- incorporate practical exercises within final examinations;
- include assessment of managerial skills.

Preferred learning methods

No attempt was made to analyse respondents' learning styles in any formal way; time did not permit. However, respondents were asked what sort of learning techniques and delivery styles best suited them. This was unprompted.

A significant number preferred ordinary reading or straight-forward, didactic presentations. A significant number were critical of interactive styles of presentation. Syndicate groups within seminars were singled out by several as often being a waste of time. Typical comments were, "Syndicate groups are like the blind leading the blind"; "I much prefer a straight-forward presentation from someone who knows what they're talking about and can put it across well". Very few expressed a liking for role plays, though a number felt they had some value, for example, in learning how to deal with difficult interpersonal situations.

The apparent preference for didactic style presentations may appear to conflict with the data presented earlier under 'teaching and learning method weaknesses'. But there is an important distinction between the two sets of results. In the earlier case, people were identifying weaknesses in their initial professional development programme. In the latter case, they were talking more generally about what methods they now prefer. Many were referring to the short seminars which they had attended as part of their updating. It was apparent that they wanted these to be as time efficient as possible, and high quality lectures, delivered by people who know what they are talking about, were seen by many as the best way of achieving this.

Informal Professional Learning Methods

The first part of this section deals with a block of mainly quantitative data relating to less formal learning methods. Both interview and survey respondents (N = 452) were invited to rate the importance of each of ten types of informal learning method or experience (drawn from the literature) in helping them to become fully competent. The mean ratings (on a 1-5 scale) and confidence intervals across the total sample are illustrated in Figure 22:

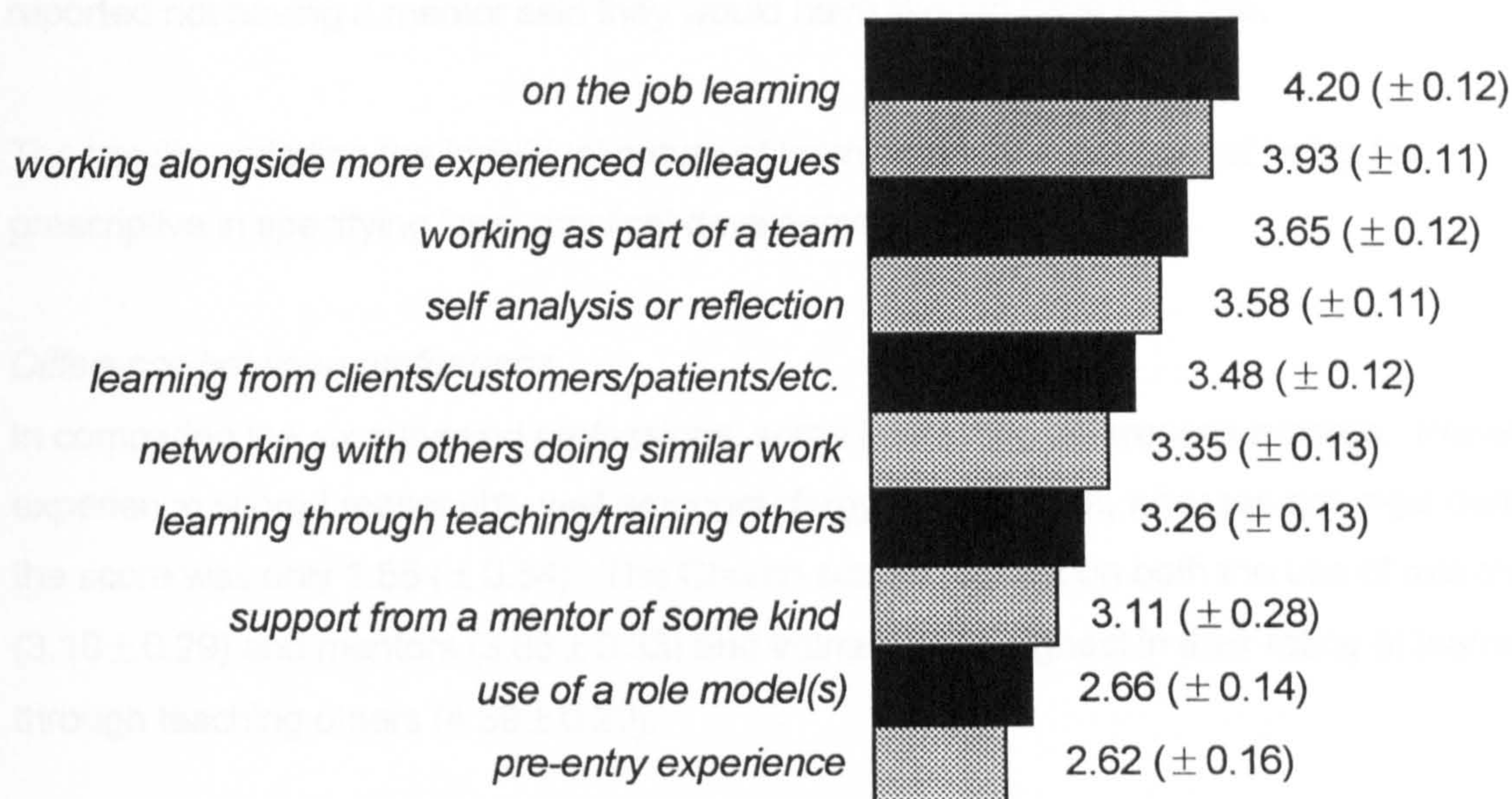


Figure 22: Contribution to competence of various informal experiences

Due to the confidence intervals, some of the smaller differences between types of experience are insignificant. Nonetheless, the data provide a useful indication of the relative importance of each and offer a broad ranking.

On the job learning, working alongside more experienced colleagues and team working all seem to be major influences, but mentor support and the use of role models, each considered by some researchers to be major influences, score relatively poorly. Of course, the contribution of different factors varied from one individual to another. Some, for example, had found role models useful, whereas others had not. Where significant numbers of respondents had not experienced a particular factor, e.g. mentoring, this will have had the effect of reducing the mean rating.

The relatively modest rating of 'self analysis or reflection' (3.58) contrasts with the previously reported, high rating of 'reflection' for its contribution towards effective performance (4.32) (Chapt. 7, p. 230). However, the questions were different. The rating reported in this section related to initial development, whereas the one reported in Chapter 7 related to

ongoing professional performance. The contrasting results suggest that reflection is perceived as being more important to the latter than the former. This could cast doubt on the wisdom of placing too much emphasis on reflection within initial development programmes. It may be that reflection does not become fully effective until practitioners have built up sufficient experience against which to reflect. In relation to mentoring, although the question was meant to encompass informal as well as formal mentors, some respondents may have taken it to mean only the latter. It may be worth reporting that a number of interviewees who reported not having a mentor said they would have liked to have had one.

The results underline the individual nature of learning and the dangers of being too prescriptive in specifying 'best practice' development methods.

Difference between professions

In comparing the six surveyed professions, some interesting differences emerge. Pre-entry experience scored reasonably well amongst clergy (3.88 ± 0.30), whereas amongst dentists the score was only $1.55 (\pm 0.34)$. The Church scored highest on both the use of role models (3.18 ± 0.29) and mentors (3.86 ± 0.33) and trainers were highest in their rating of learning through teaching others (4.39 ± 0.20).

The difference between the Church and Dentistry on 'pre-entry experience' suggests that for the former, life experiences are seen as providing a valuable, if not essential, grounding, whereas for the latter, they contribute little. They could also reflect the de facto situation - i.e. that many clergy have worked in other occupations before joining the Church, whereas most dentists go straight into dental training from school.

The clergy's relatively high rating of 'role modelling' and 'mentoring' may be due to the perceived importance of developing an appropriate professional character, and a culture of pastoral support. The high rating of 'learning through teaching' given by trainers is unsurprising.

Other Formative Experiences

The following data also draw on both the interviews and surveys. In each case, respondents were asked to describe experiences that had proved particularly formative to them. In the case of the interviewees, the probing went considerably further, for example by asking them about particular difficulties they had faced in their early practice and how these had been overcome, and about how they continue to cope with difficult or stressful situations.

Large numbers of comments and personal anecdotes were offered. These must inevitably be synthesised in this presentation. From time to time, the experiences reported overlap with the learning methods touched on in the last section which resulted from prompted, quantitative questions. The results set out below all stem from unprompted insights offered by respondents in answer to more qualitative questions. The experiences reported are presented under a series of general themes. These will later be regrouped in the form of a taxonomy.

Reflection

Responses to a number of questions specifically about reflection have already been reported in some detail (Chapt. 7, pp. 230-234). However a number of interviewees mentioned reflection again when asked more generally about their learning experiences. This could of course have been influenced by the earlier questions and discussions about reflection. Nonetheless, additional examples and anecdotes were offered which support the earlier findings about the high incidence of reflection. Examples of reflection offered at this stage in the interview tended to be of more systematic forms - e.g. debriefing (including self-debriefing), team based reflection, keeping reflective journals, and reflection linked to peer review or practice audit. A number of interviewees particularly stressed the value of reflecting jointly with others. Several advocated the use of a suitable framework against which to reflect.

Repetition, practice and rehearsal

Many respondents highlighted the importance of repetition and practice, or what one described as 'iteration' in becoming proficient in any particular area. There seemed to be a general adherence to the old adage, "practice makes perfect". Some referred simply to the benefits of doing things many times over, though it is worth mentioning that several also reported reaching plateaux in their performance, and even sometimes regressing in their effectiveness. For example, a young curate felt the quality of his funerals had tapered off, even though he was getting plenty of experience.

Others described how they rehearsed before particular activities - e.g. important meetings, presentations or interviews. However, the style and extent of rehearsal described varied considerably. Some reported rehearsing physically, speaking their words out loud and going through their actions in full, for example, before presentations. Others said they rehearsed only mentally, but nonetheless stressed the value of this activity. Referring to how they dealt with particularly difficult situations, e. g. hospital doctors who had to give bad news to patients, a number said not only did they rehearse what they were going to say, but they also

drew on standard phrases or ways of saying things. One referred to working from 'a kind of script'.

Almost all interviewees spoke of the importance of preparation, some valuing the added assurance they gained from over-preparing. However, a few believed that over-preparation could be counter productive. One stated that over-preparation or over-rehearsal made him feel more self-conscious and less spontaneous when the event came along. Many stressed the need to remain flexible in case circumstances on the day were not as anticipated. It was apparent that the more experienced, and perhaps more confident professionals, although still valuing preparation and often rehearsal, tended to prepare more in outline and less in detail.

Speaking of how he prepares for important meetings, one senior civil servant said, "I plan what I want to say but not how I am going to say it, or indeed when".

In relation to presentations, etc., several suggested that getting into the right state of mind was just as important as preparing what they were going to say (this may in itself be seen as a kind of rehearsal). There was, however, a divergence of views on what sort of mental state was best. Some said they expected, and almost welcomed, a feeling of nervousness, believing that this would trigger the rush of adrenaline they felt was necessary to an effective performance. Others took the opposite view. They tried to keep themselves as calm as possible, believing their best performance was more likely if they were relaxed.

These results suggest that iteration, as acknowledged by Fitts (1986) in his model of skill learning (Chapt. 4, p. 123), as well as rehearsal and preparation are important to effective performance. Mental preparation, and adopting appropriate mental models or mind-sets, also appears to be important. This accords with the work of Gagné (1967) (Chapt. 4, p. 98). However, different people may need to determine which mental state works best for them, then try to attain this before an important event. The results also demonstrate that repetition does not always lead to continuously increasing performance (both plateaux on learning curves and regression are well known to psychologists, e.g. Drever, 1964). The reported use of standard phrases, especially in difficult situations, has strong echoes of Goffman (1969) who suggests that people often interact with others using appropriate 'scripts'. The phenomenon might also be seen as similar to the use by professionals of 'repertoires of solutions' as proposed by Schön (1983) (Chapt. 3, p. 62).

Over-learning

A number of interviewees spoke of early difficulties which were overcome by subsequent high levels of exposure to the very thing they found difficult. Several examples were offered. A physiotherapist who had initially found it hard to control her emotions when dealing with severely sick or handicapped patients, found she had overcome this problem after a spell working at a hospice where everyone was terminally ill. A hospital doctor who had initially found making clinical decisions difficult had a spell supervising critically ill patients in an Intensive Care Unit. After this, in her own words, "no-one seemed ill any more". A civil servant had worked for a time in the personnel function and had volunteered to be a 'guinea pig' interviewee for the training of promotion panel members. As a result of being the interviewee in dozens of mock panels, she claimed she had completely lost her fear of interviews and similar situations.

These, and other examples offered, demonstrated how over-learning, whether deliberately sought, accidental or enforced can in effect turn a weakness into a strength, and perhaps help professionals to react almost automatically in difficult situations.

The phenomenon of over-learning is extensively covered in the psychology literature, though it is seen as a phenomenon that may have negative as well as positive effects (Drever, 1964, p. 198). In this case, all the effects reported were positive.

Observation

Many highlighted the importance of observing colleagues. One respondent, a surgeon, commented, "A good surgeon should be able to observe a procedure once, then carry it out". She agreed this may sound frighteningly optimistic, but believed she had, herself, developed the art of close observation. "See one, assist at one, then do one" was an adage offered by another surgeon. Both recognised there were potential dangers in relying on observation and both admitted there were currently insufficient competence checks within surgery. Much depended on an individual surgeon's willingness to recognise his or her limitations and to work within them.

Some interviewees felt that observing colleagues' behaviours had been particularly useful in helping them develop their own personal skills. A few stressed that observation needed to be close and purposeful, rather than casual. Several said they used some form of structure or framework to help them observe more critically or acutely.

The key role of observation in competence development seems uncontroversial and is stressed by many theorists, some of whom suggest ways of making it more effective, for

example, Bandura (1986) (Chapt. 4, pp. 112-113); Kolb (1984) (Chapt. 4, pp. 107-108); Wales et al. (1993) (Chapt. 4, p. 113). Those who reported using observation aids may have been tacitly adopting Bandura's model (Chapt. 4, pp. 112-113).

Role models

As already discussed in relation to the quantitative data, there was a divergence of view about the importance of role models. Some respondents flatly denied drawing on a role model, saying things like, "It is important to be your own person, not copy someone else". Others had found role models particularly influential. The majority who claimed to have found role models useful said they had copied elements from a number of different people, rather than modelling themselves on any one person. Examples offered of things people had consciously tried to copy from role models were: chairing meetings effectively; being direct with clients; remaining calm in a crisis; and being assertive without being unpleasant.

A few respondents identified particular individuals on whom they had deliberately tried to model themselves. Others pointed to individuals who had been influential at particular points in their lives or careers, and perhaps whose influence had remained with them. A moving example offered by one of the survey respondents, a clergyman, related to the terminal illness and death of his mother when he was aged only twelve. The parish priest, who had so sensitively ministered to himself and his family at the time, had left a lasting impression which had awakened his own desire to enter the ministry, and had provided him with a pattern he was still trying to emulate.

One interviewee stated he did not use role models but did use 'activity models'. He copied particular ways of doing things, rather than personality traits. Another also stressed that he modelled behaviour, rather than people. A number made the point that adapting a behaviour to suit one's own style was more effective than simple trying to copy someone else. An interviewee from Architecture offered a slight variation on the theme of role modelling, stating that he used what he called 'building models'. These were particular buildings which he admired and which to some extent he tried to emulate in his own work, not in detail, but in their general character and ethos. This could still be seen as a form of role modelling - i.e. modelling a particular genre or style of doing things, rather than a particular individual's behaviour.

An analysis of the various experiences offered by interviewees of their use of role models suggests that three levels of modelling may operate. See Table 15:

Level	Process	Characteristics
1	Synthesising	'Bits and pieces' are absorbed, perhaps from a number of different people, more or less unconsciously, or through a process of osmosis.
2	Emulating	A conscious effort is made to act like a particular individual in some respects or in performing particular tasks.
3	Actualising	The practitioner actually feels in some way like the role model (as one interviewee admitted, "I hear myself saying the sorts of things she would say and sounding just like her").

Table 15: Levels of role modelling

Levels 2 and 3 are similar to the 'imitation' and 'identification' modes of role modelling suggested by Bandura (1986) (Chapt. 4, p. 113). The first is consistent with the fragmented forms of role modelling identified by Bucher and Stelling (1977) (Chapt. 4, p. 113).

Several respondents reported being influenced by 'negative role models' - i.e. people who provided examples of how not to do things and whose approach they consciously tried to avoid. One interviewee claimed his own boss was both a positive and a negative role model. There were some things about him he attempted to copy, but others he strived hard not to emulate.

Though the use of role models seems to be less widespread than some writers (e.g. Wales et al., 1993) suggest, where they are used they may be an important influence on the development of individual professionals. It is possible that some of those who denied using role models were nonetheless being shaped by people around them without realising this was the case.

Negative role models also appear to influence an individual's professional behaviour, though this might seem to be contrary to behaviourist principles, and especially those relating to behavioural modelling (e.g. Moses and Ritchie, 1976; Bandura, 1977; Sprafkin and Goldstein, 1990) (Chapt. 4, p. 97-98), which specify that only models who display ideal/positive behaviours should be observed for fear of negative traits being picked up by trainees. Negative role models were, however, identified in the research of Bucher and Stelling (1977) as one of the types of role model influencing the formation of what they call 'professional identities' (Chapt. 4, p. 113).

Mentoring

Relatively few interviewees reported having formally-appointed mentors, though a significant number identified individuals who had acted as unofficial mentors. A number said that the formal mentoring arrangements they had been involved in had proved disappointing. In

some cases, the arrangements appeared to have been little more than nominal. Of those who identified mentoring as an important contributor to their development, several said the person concerned was not their formal mentor, but someone with whom they had developed an unofficial mentoring relationship. Sometimes, the person concerned was outside of their own organisation. Some formal arrangements did appear to have worked well and, in a few cases, had resulted in on-going relationships which had continued long after the initial training period was over. One barrister spoke warmly of his pupil master whom he still used as a sounding board, even though he was now a senior judge.

The mentors described were not always within an interviewee's profession or directly concerned with their occupation. Some spoke of what might be termed 'life mentors' - i.e. people who had advised them on their life in general, or steered them towards their chosen career. Others referred to what may be called 'functional mentors' - i.e. people within a related occupation who had helped them develop important ancillary skills. An example of this was offered by a priest who looked upon one of his parishioners (an ex senior industrial manager) as his mentor in the area of administration and management. Other clergy interviewees spoke of having 'spiritual directors' - i.e. experienced colleagues who offered advice and counselling as required. These were self-selected, rather than imposed.

Though the use of mentoring was not as prevalent as some authors suggest (e.g. Pearce, 1987; Hawkins and Shoheit, 1989) (Chapt. 4, p. 114), where it did exist, compatibility as much as coaching ability seems to have been the key to its success. The examples of informal and self-selected mentoring arrangements working well are consistent with the findings of Bennetts (1998) (Chapt. 4, p. 115).

Learning from complex or multi-faceted problems

A number of interviewees believed that being faced with complex or multi-faceted problems early in their careers had been an excellent source of learning. These were the sorts of problem which forced them to draw on a range of different principles covered in their initial training, bringing these together and applying them in a holistic way. A number of examples were offered. One of these was a social worker who became involved in a very difficult and complex child protection case. This necessitated instigating legal procedures, working with other agencies, risk assessment, negotiation, and a number of other things she had learned about only in theory. She said that after the experience she felt she had become, "a much more rounded professional".

Several identified experiences which they had found traumatic but at the same time extremely formative. A theatre sister, early in her career, had assisted at an operation which

started as a simple hernia repair but became complicated by the discovery of a tumour and a range of other complications. This involved calling in numerous specialists and a greatly extended procedure. She claimed this single event had taught her a great deal.

Innovative and pioneering experiences

A particular form of stretching experience reported by several involved undertaking work that was pioneering or innovative. Such events were identified as valuable sources of development. A primary teacher described how, early in her career, she had learned a great deal through being engaged in setting up a new school from scratch. A university lecturer described similar learning benefits from being involved in designing and launching a new high level course.

Working above grade

A number of respondents pointed to experiences where they were offered an opportunity, or were obliged, to operate at a higher level than their normal grade early in their careers. This had typically involved standing in for a senior colleague or representing their organisation at high level meetings. Typical benefits described for such experiences were: "it helps you see things from a more strategic perspective"; "it gives you an insight into how senior professionals work"; and, "it gives you confidence that you could operate at that level". It may also provide junior professionals with a level of role model, not normally accessible to them.

The common thread running through the last three sub-sections seems to be the formative nature of stretching and challenging experiences. These seem to offer more holistic learning opportunities, though without support they could prove overwhelming. The results broadly support the principles of Gestalt Theory which suggest that learning is more effective if it is holistic, rather than fragmented (Chapt. 4, p. 99). This group of experiences may also be similar to what Eraut et al. (1997) refer to as 'the challenge of work itself' in their list of 'learning episodes', observed in their study of work based learning' (Chapt. 4, p. 130). However, the experiences described above seem to be stretching as well as challenging.

Working alongside more experienced colleagues

Many interviewees said they had found working with experienced colleagues a rich source of learning, a number reporting an almost unconscious absorption of skills through a form of osmosis. This seemed to have happened without particularly close observation of colleagues or any conscious effort to copy them. Some felt that the process had been

particularly effective in developing more tacit forms of knowledge, i.e. professional 'know-how' of a variety not easily articulated, as well as how to behave as a professional.

This process seems to have much in common with the form of learning that was typical of the traditional 'apprenticeship model' of professional development (Bines (1992) (Chapt. 1, pp. 20-21). The phenomenon of learning through osmosis is acknowledged by Eraut (1997) (Chapt. 4, p. 119).

Networking

Many interviewees identified networking with fellow professionals, particularly from other organisations or specialisms, as a significant source of development. Benefits described by respondents were: "it allows you to compare notes on how things are done"; "it offers you help with solving particular problems"; and "it gives you reassurance that what you are doing is on the right lines". Some respondents reported involvement in formal networking arrangements where there was a regular and planned sharing of experiences. Others networked more randomly and informally. There is insufficient data to indicate whether the more formal and systematic arrangements confer any advantage.

Team Working

Many interviewees identified the positive learning benefits they had derived from working in teams and from other forms of collaboration. Team working seems to have been especially effective when new or challenging work had been undertaken collectively. The reasons for this, respondents suggested, were: "a difficult task often appears less daunting when being tackled by a team"; "different members bring different skills to the group"; and "these different skills tend to 'rub off' onto other members of the team". It was also suggested that collaborative efforts usually achieve better end results than individual efforts and this can have beneficial effects on the morale and confidence of learners.

Several examples of the formative benefits of team working were offered. These included the improvement of communication skills and empathy. Others referred to the supportive and even therapeutic benefits which can be obtained within teams. These can help reduce stress and provide catharsis when needed following traumatic situations.

Several said that being co-located in a team office or being put into some other communal situation with colleagues had helped improve their confidence. A telling remark was, "You can't hide away in your own little bolt hole, you have to do everything in front of others. This helps you overcome self-consciousness".

A number highlighted the positive benefits of diversity within teams and of working with people who have different styles and approaches: "You can learn from their different ways of doing things", was a typical comment. However, several pointed to the need for shared values within teams. Incompatible values, it was suggested, could lead to tensions and ethical dilemmas for individuals within the team.

Learning within teams could be seen as a particular form of collaborative learning - see Sharan and Sharan (1992); Eraut (1997) (Chapt. 4, pp. 119-120), the effect possibly being partially due to what (Vygotsky (1978) refers to as the 'zone of proximal development' (Chapt. 4, p. 120). It may also result in part from the group dynamics which develop within teams (Belbin, 1981). The issue of shared values and their importance to professional development seems to accord with one of the elements of 'Social Learning Theory' (Bandura (1977) (Chapt. 4, p.101).

Multi-disciplinary working

A number who were either currently working closely with people from other professions, or had in the past done so, or had trained alongside people from other disciplines, had found these experiences very formative. Respondents reported that such experiences had exposed them to different ways of doing things, different technical perspectives and different ways of seeing the world. One social worker pointed out that she sometimes worked with the police and, although she had a very different outlook from police officers, she had nonetheless learned a lot from them.

Respondents suggested that multi-disciplinary working also encouraged practitioners to look more critically at their own profession, to challenge established practices and to import useful approaches from the other disciplines. Other formative benefits claimed by respondents for multi-disciplinary working were:

- a cross-fertilisation of ideas leading to more effective problem solving or more creative brainstorming;
- a more holistic view of professional activity which can promote better 'dovetailing' between professions;
- a cross-transfer of skills between professions leading to more multi-skilled individuals.

It would seem that in the sort of inter-disciplinary activity reported above, each professional has something to learn from the other, both procedurally and conceptually. The experience may also modify participants' ways of viewing the world, perhaps permanently.

Switching perspectives

A significant number of interviewees reported the formative benefits of being forced to change perspectives, giving them an opportunity of seeing their profession, or a particular situation, from another standpoint. A number of examples were offered. A barrister had spent a period of time sitting with a judge, as a 'marshal'. This had enabled him to observe the advocacy of fellow barristers from the bench's perspective and caused him to modify his own approach in certain respects when he returned to the floor of the court. Several Health Care workers had found that becoming patients themselves had helped them to understand better the concerns and frustrations of patients. Several teachers had experienced similar enlightenment when their own child started school and they took on the parent's role. Others reported similar changes of perspective that had resulted in improved empathy with clients or patients. Some interviewees spoke of the benefits of 'shadowing' senior people. This had helped them see things from a broader, more strategic perspective.

For others, the change of perspective came from working or training with people from other professional disciplines. Several said that the change of perspective had aided their own professional development by showing them new ways of doing things, or had made them more sensitive to clients/patients.

Some spoke of gaining new insights simply from mental perspective switching - e.g. deliberately trying to see things from the patient's, or client's, point of view. This might be seen as a particular form of reflection.

Learning from clients/patients/customers

A significant number of interviewees stressed the importance of listening skills and a number identified clients, patients or customers as a rich source of learning. For example, a nurse pointed out that the patient was the best person to explain what it felt like to suffer from a particular condition, and perhaps provide tips on how to cope with it. She had found such insights valuable when working with other patients. A training consultant described a quasi-Socratic approach to solving client's problems, believing that the client is the best person to solve his or her own problems. He claimed, "If you listen carefully enough to what the client has to say, a solution will emerge". A physiotherapist said she had learned a lot about the philosophy of life and death through talking to terminally ill patients. A dentist said that she often involved her patients in the process of problem solving, believing that this was part of applying the principle of 'informed consent'.

Other interviewees said that they looked to clients to provide them with essential feed-back on their performance. One doctor said he tried to maintain a constant sensitivity to the effect his own words and actions were having on patients, making adjustments as necessary.

Reading body language was cited by several as a useful way of gauging client reactions and getting beyond their often superficial oral communication. Several interviewees described how they tried, themselves, to make deliberate use of body language in order to send appropriate signals to their clients.

These findings support Casement (1985) who advocates the benefits of learning from patients (Chapt. 4, p. 120). The deliberate use of non-verbal signals seems to be a tacit application of the process described by Goffman (1969) (Chapt. 7, p. 235) and also supports Gross (1987) in his stress on the importance of non-verbal expression (Chapt. 4, pp. 99-100).

Learning from para-professionals

A number of interviewees stressed the importance of being prepared to learn from those in related disciplines who may have less status, but be more experienced. Such colleagues may also be able to offer a useful, alternative perspective. Along these lines, a dentist described how she had learned a great deal in her early practice from a very experienced dental nurse. She said she still believed in consulting closely with her nurse, especially when problems arose. She believed that the nurse's different range of experiences, different standpoint and perhaps the fact that she was under less pressure to come up with a solution was often able to trigger helpful suggestions.

Feed-back

A number of interviewees emphasised the importance of feed-back. Examples offered included feed-back from superiors, mentors, colleagues, clients and patients. Several stressed the importance of deliberately seeking feed-back, or of listening carefully to what people might be telling you indirectly about your performance.

A small number highlighted the value of formal appraisals for providing feed-back on 'how they were doing' and helping to identify further development. Some in this group, however, felt that a once a year appraisal, though useful, was not enough. What many seemed to seek was continuous feed-back on 'how they were doing'.

The results could be seen as lending some support to cybernetic theories which afford a critical role of feed-back (Chapt. 4, p. 103) and more generally to behaviourism (Chapt. 4,

pp. 96-98). However, the value of feed-back is also widely accepted in other schools of psychology.

Learning from criticism

Several interviewees spoke of the importance of being able to take criticism without being over-defensive or feeling bruised by it, turning it into a source of learning. A similar point was made about client complaints. A number made the point that constructive criticism could provide an important source of feed-back and self-knowledge. However, one respondent made a distinction between accepting criticism and accepting abuse, stressing that whilst he was happy to accept the former, he would not accept the latter without offering a robust response.

Several described how they had found their confidence undermined and consequently their competence damaged by negative and destructive criticism, particularly from their superiors. Some said they actively sought criticism, recognising its value as an aid to continuous improvement.

Self-knowledge and self-image

A number highlighted the importance of self-knowledge. This included recognising one's own strengths and weaknesses and being realistic about one's aims. As one respondent pointed out, it was important to recognise that you could not be good at everything. The key, he suggested, was to play to your strengths and, where possible, circumvent your weaknesses. Another suggested there was a similar advantage in being aware of your own body rhythms (natural highs and lows), optimising these to enhance performance.

A significant number stressed the importance of professionals recognising, and being prepared to openly admit, the limits of their own competence, never undertaking tasks which put their clients at risk. Several of the most experienced professionals interviewed showed a surprising degree of humility, freely admitting that there were areas in which they did not feel fully competent or indeed were poor performers. For example, one senior research professor admitted he was 'positively chaotic' at administration. Others stressed the importance of not straying beyond their own specialism.

Several spoke of the importance of having an appropriate self-image. A positive self-image was considered by most to be important, but several felt this must also be realistic. Some suggested that professionals should make efforts to try to see themselves as clients, customers, or colleagues saw them, then try to adjust their self-image and/or behaviour accordingly.

Several spoke of the potential value of appraisals in helping them form a realistic self-image. One highlighted his use of 360 degree feed-back in establishing how he was viewed by a range of professional associates, colleagues and staff.

These findings lend support to Boyatzis (1982) (Chapt. 3, p. 84) in his identification of the contribution to competent performance of self-image and social role. They also accord with the importance attached to the role of the 'self' in learning by the symbolic interactionist school, and in particular by Brundage and Mackeracher (1980) (Chapt. 4, p. 109). The use of 360 feed-back (or appraisal) was discussed in Chapter 3 (pp. 93-94).

Simulation

The variability in respondent ratings of simulation were discussed earlier when the quantitative data were being reported. Nonetheless, a significant number of interviewees offered examples of simulations that had helped their skills development - e.g. dentists who had learned how to handle instruments by working on 'phantom heads'; a physiotherapist who had practised manipulation techniques on colleagues; a barrister who had taken part in mock trials. But several spoke of the limitations of simulation; a typical comment was, "It often falls short of the real thing in some important respects".

A small number highlighted the possible negative effects of simulation. One respondent, whilst being enthusiastic about high fidelity simulation, asserted that poor simulation could disadvantage trainees by developing bad habits and inappropriate behaviours, leading to a loss of confidence when the real situation was met.

These findings suggest that simulation can be valuable if it is of reasonably high fidelity, supporting the findings of Strickler (1976) and Short (1989) (Chapt. 4, p. 116), but they also warn of the potential negative effects of low fidelity simulation, as highlighted by Osgood (1949) and Reason (1979) (Chapt. 4, p. 116).

Learning through Articulation

A number of respondents reported that being forced to articulate their work either orally or in writing was a great source of learning. An example offered by one of the architects interviewed was being taught in a university School of Architecture which had an underlying philosophy of 'Design and Criticism'. This involved students having to explain, and justify, their designs to tutors and fellow students, and respond to their criticisms. He believed that being forced to articulate his design decisions in this way had been an excellent learning experience, encouraging him to think logically about everything he did and requiring him to

defend his ideas in a critical forum. He also felt the experience had encouraged him to operate in a more reflective way.

One research scientist regretted the fact that scientists were not encouraged to 'articulate' sufficiently during their initial education. This had led to problems for him when he first started speaking at conferences and attempting to write articles. It had forced him to work hard to develop his communication skills, and he now found the process of articulation an effective way of clarifying his thoughts. Similar views were expressed by other research scientists both from Mathematics and Engineering backgrounds. All had found articulation (both oral and written) to be an important element in their learning process.

These findings seem to support the view that learning, language and thought are all closely linked (e.g. Piaget, 1926; Vigotsky, 1962) (Chapt. 4, pp. 99-100). The importance of articulation to learning is also explicitly acknowledged in the 'cognitive apprenticeship model' of Collins et al. (1989) (Chapt. 4, p. 112).

Learning through teaching others

Teaching may be regarded as a particular form of articulation. A significant proportion of interviewees reported some responsibility for teaching, training or mentoring new entrants to their profession. In a number of professions, e.g. the Bar and Nursing, this appears to be a recognised professional obligation. Many referred to the positive benefits of this work to their own competence development. Typical comments were, "It forces you to think about your own practice"; "it makes you justify, or change, how you do things"; "it forces you to keep up to date", "it sharpens you up as a practitioner".

Several interviewees suggested that professionals had a duty to pass on what they had learned to others. One suggested that professionals should even be prepared to admit embarrassing mistakes to trainees.

Cultural transfer/cross cultural stimulation

A number referred to the formative benefits of working in a different culture, typically abroad. This had forced them to adapt their own approaches to suit the different culture, had enabled them to import good practices and, in some cases, made them more self-reliant due to having to work with less support than in their native environment. Some had found overseas professional working practices more compatible with their own style and had either tried to introduce some of the practices on return to the UK, or had continued to spend some of their time working abroad.

Extra-occupational learning and transfer

A number of respondents referred to 'out of work' activities which had helped them develop skills which were relevant to their profession. Some examples are: a barrister who felt he had improved his voice skills and timing through amateur dramatics, and his oratory through participating in political debates as a councillor; a primary school head teacher who had developed her verbal communication skills by joining a public speaking society; a dentist who felt that playing the piano and viola had helped her develop and maintain her manual dexterity and tactile sensitivity.

Learning from 'life outside work' was one of the types of 'learning episode' identified by Eraut et al. (1997) following their study of work based learning (Chapt. 4, p. 130).

Learning by linking

One interviewee, a hospital doctor, described how he routinely tried to enhance his learning by deliberately making links between new learning and a range of concepts already firmly embedded in his mind, or by making deliberate links between different elements of new information. Another respondent, a training officer, described using a similar technique to improve his memory. He tried to associate new information with more easily remembered ideas. Others talked of using 'whole brain learning' or so called 'left brain/right brain' techniques. These appear to make use of the brain's natural ability to build different pathways and to access information via different routes in response to particular cues.

These techniques appear to be consistent with Gestalt theory with its stress on the conscious application of mental patterns (Chapt. 4, p. 99). 'Whole brain learning' appears to draw on Buzan (1988). Other processes reported may be seen as similar to the techniques of 'lateral thinking' (de Bono, 1967). The idea of deliberately making links to other knowledge closely mirrors the procedure recommended by Feurstein et al. (1980) as an aid to learning transfer (Chapt. 4, p. 117) and is also consistent with 'Mode 6 - Connecting' of the 'Modes of Being' offered by Boydell (1990) (Chapt. 4, p. 110).

Mind-set changes and Damascus Road experiences

Many of the learning experiences reported by respondents suggest that the development of professional competence is largely a gradual and iterative process. This is perhaps to be expected. It is a process that typically contains a series of surges, triggered by certain particularly formative experiences, but which appears to be basically incremental in nature. However, some respondents were able to point a single event which had utterly transformed them in some important way. This may have been something that had changed their professional philosophy, given them a new way of seeing the world, improved their self-

knowledge, boosted their inner confidence, or provided a new level of professional motivation. A number of such 'watershed' experiences were related.

One such was a librarian who while observing a woman asking a question in a very articulate way at a conference, suddenly realised that if she herself threw off her natural reticence, she could do the same. From then on she did, and the experience has, she claims, boosted her confidence in many aspects of her work and, she believes, has even changed her personality. Several of the reported watershed experiences had occurred during courses, highlighting the fact that formal training can sometimes have life-changing effects. Perhaps the opportunity to stand back from the job in a more reflective or challenging atmosphere may provide the stimulus needed.

One research scientist pointed to the importance of sudden flashes of inspiration within the research process. Something may suddenly become clear on an intuitive level before it has been demonstrated scientifically. Sometimes the scientific proof may take years following the initial intuition.

The reported liberating effects of changes in mind-set could be seen as supporting Clarke and Fraser (1982 and 1984) in their use of Gestalt principles to deal with learning blocks and other unhelpful mental patterns (Chapt. 4, p. 99).

Mental models, imagery and other psychological devices

A number of interviewees described the mental processes they used to help themselves understand difficult concepts or to prepare for challenging tasks. A number advocated the advantage of breaking down complex ideas into simpler stages. Others spoke of their deliberate use of conceptual models or mind maps. Some described how they spoke to themselves inwardly to induce a more positive frame of mind, especially before difficult or daunting events.

A number said they tried to visualise themselves performing a particular task effectively. Several emphasised the importance of remaining positive and optimistic. One personnel manager said, "Whenever I am called unexpectedly to see the Managing Director, I always imagine this is going to be good news. I say to my colleagues, 'It looks as though I've got another pay increase'". He claimed that this mental trick made him more confident and relaxed when confronting this senior executive, who was known to be quite difficult. Another said that when facing an apparently intractable problem, it was important to believe you would solve it.

A number specifically mentioned using techniques associated with 'lateral thinking', especially to help solve problems. One respondent reported using neuro-linguistic programming (NLP) to help improve his confidence, particularly before presentations or similar events.

The use of mental tricks or imagery to help others learn was also reported. One teacher described how, when teaching singing, he tried to get pupils to make a less raucous sound by saying, "Imagine you are singing through the top of your head". Other teachers described using similar imagery when coaching in a sport.

Several respondents spoke of the importance they attached to getting themselves into an appropriate mind-set, for example, to enable them to deal with a crisis calmly and without panic, or handle criticisms without becoming 'rattled'.

Some of the reported experiences support Vygotsky (1962) in his emphasis on the importance of 'inner speech' or self-communication (Chapt. 4, p. 100). A number of the examples also have strong echoes of neuro-linguistic programming (Bandler and Grinder, 1979) (Chapt. 4, p. 102), though only one interviewee specifically mentioned deliberately using NLP. The use of mental models supports Gagné (1967) in his emphasis on the importance of appropriate cognitive strategies to effective performance, even where motor skills are being applied (Chapt. 4, p. 98), and Boak and Thompson (1998) who advocate the use of mental models by managers. 'Mind mapping' is a technique suggested by Buzan (1988), and de Bono (1967) offers a range of lateral thinking techniques. More generally, the experiences reported under this heading seem to accord with Gestalt theory which stresses the importance of mental patterns and imagery (Chapt. 4, p. 99).

Coping with professional stress

It is perhaps a sign of the times that stress and its management came up quite regularly in the interviews. Various coping strategies were reported by respondents. These are included here because they may be seen as among the repertoire of techniques that professionals use to help themselves perform effectively.

A number reported using techniques such as yoga and similar formal relaxation exercises. One spoke of consciously attempting to adopt a desired mind-set - e.g. detachment. He said that when necessary, he did this by viewing work as 'only a game'. Another spoke of thinking of the calmest person she knew, then trying to behave as she did. One said he took a long deep breath before responding to anything unexpected or likely to throw him off balance.

The use of humour, including black humour and in-house jokes (sometimes behind the backs of clients) to help relieve difficult situations was described by several respondents. The ability to laugh at yourself was particularly emphasised as an important attribute. Meditation and prayer were also mentioned as helpful stress relievers.

The value of being able to talk through a stressful or traumatic event with an understanding colleague or spouse was highlighted by a significant number. One hospital doctor described an event in which she had been called to certify the death of a decapitated road accident victim. She emphasised the benefit of talking through such events with colleagues who had been through similar or, as she said, “preferably worse” experiences.

Several stated that they dealt with occupational stress simply by working harder, or by working longer hours, in order to clear the sheer volume of work which was often the cause of the stress. Whether such approaches might eventually lead to an even worse level of stress must be open to speculation.

The examples offered above are representative only of a wide variety of learning experiences and events reported by respondents. A detailed content analysis of the full range of reported experiences led to the production of a simple taxonomy of informal professional learning methods.

A Taxonomy of Informal Professional Learning Methods

The content analysis suggested 12 general types of learning process. These were given the name ‘learning mechanisms’. Each of these encompassed a series of ‘learning experiences’ or ‘learning events’. The *learning mechanisms* identified were:

- Practice and Repetition
- Reflection
- Observation and Copying
- Feed-back
- Extra-occupational Transfer
- Stretching Activities
- Perspective Changing/Switching
- Mentor/coach Interaction
- Unconscious Absorption or Osmosis
- Use of Psychological Devices/Mental tricks
- Articulation
- Collaboration

With a little literary licence, these mechanisms can be arranged to form the mnemonic - 'PROFESSIONAL'. Because of its size, the taxonomy is shown in three parts in Tables 16, 17 and 18:

General Learning Mechanism	Mnemonic Letter	Typical Learning Experience or Event
Practice and Repetition	P	<ul style="list-style-type: none"> • iteration/reiteration (doing something many times over and gradually improving); • simulation; • drill and practice; • rehearsal (mental or physical before an activity or event); • preparation and planning (before an event or activity); • over-learning/over-training (i.e. well beyond minimum for competent performance).
Reflection	R	<ul style="list-style-type: none"> • self-analysis/self-appraisal; • reflection about action (after an activity or event); • reflection in action (in the middle of an activity); • reflection before action (prior to doing something); • group/collective reflection; • practice audit (e.g. medical audit); • reflective journal writing; • reflection on how others do things; • mental re-running (of an event or experience); • debriefing; • learning from failure (analysing what went wrong and why);
Observation and Copying	O	<ul style="list-style-type: none"> • structured/critical observation of others; • informal/casual observation of others; • using a positive role model (trying to do something like someone else); • using a negative role model (striving not to do something like someone else); • shadowing; • synthesising/emulating/actualising (various levels of role modelling - see Table 15); • modification of observed approach (to develop own style).
Feed-back	F	<ul style="list-style-type: none"> • appraisal/performance reviews; • learning from criticism/complaints; • 360 degree feed-back/appraisal; • peer review; • peer appraisal; • evaluation exercises; • effective listening (to what others are telling you about your performance); • learning from clients/patients/paraprofessionals; • reading body language (how are people reacting to you?).

Table 16: Taxonomy of Informal Professional Learning Methods - Part 1

General Learning Mechanism	Mnemonic Letter	Typical Learning Experience or Event
Extra-occupational transfer	E	<ul style="list-style-type: none"> • pre-entry experiences; learning transferred from formal education (turning theory into practice); • experience transferred from previous occupation(s); • taster experiences (ahead of entry to profession); • out of work learning (e.g. leisure/hobby activities/voluntary work).
Stretching activities	S	<ul style="list-style-type: none"> • working above grade; • deep end experiences; • demanding or complex tasks or problems; • broad-based/holistic experiences (requiring multiple skills and an overall understanding); • multi-faceted experiences; • innovating (developing new ideas or approaches); • traumatic experiences; • challenging experiences; • pioneering activities.
Perspective Switching	S	<ul style="list-style-type: none"> • role transfer; • secondments/job exchanges; • cross profession working; • cross cultural working (e.g. working abroad); • mental perspective switching; • sudden inspiration or insight; • Damascus Road experiences.
Mentor/Coach Interaction	I	<ul style="list-style-type: none"> • coaching; • advice/counselling; • tutoring; • occupational/career/life mentoring; • sounding board activities (bouncing ideas against someone else); • instruction/demonstration; • interrogation (questioning a more experienced person).
Unconscious Absorption or Osmosis	O	<ul style="list-style-type: none"> • working alongside more experienced colleagues; • networking with others (e.g. fellow professionals); • working alongside experienced colleague(s); • working alongside a role model; • rubbing shoulders with experts; • apprenticeship/pupilage activities (e.g. working closely with a principle or pupil master).

Table 17: Taxonomy of Informal Professional Learning Methods - Part 2

General Learning Mechanism	Mnemonic Letter	Typical Learning Experience or Event
Psychological/Neurological Devices	N	<ul style="list-style-type: none"> • use of mental/cognitive models (to help understand something); • graphical representation (use of models/maps/charts, etc.); • hypothesising/conceptualising/theorising; • positive thinking; • forced/deliberate optimism (looking on the bright side/expecting the best outcomes); • visualisation, • self communication, • NLP techniques; • mental preparation (getting into right frame of mind); • learning by linking/association (e.g. ideas with other ideas or things); • lateral thinking techniques; • mind-set changing/shifting; • choosing appropriate learning approaches (for what you are trying to learn); • 'whole brain' learning techniques (exploiting both creative/artistic and logical parts of the brain); • simplification (of complex ideas into component parts).
Articulation	A	<ul style="list-style-type: none"> • teaching/tutoring/instructing/mentoring others; • writing articles/papers/reports etc.; • presenting lectures; • speaking at conferences; • justifying/defending/explaining actions; • giving simultaneous commentary on actions (i.e. as you are actually doing/learning something); • developing learning materials (including open and distance learning materials).
Collaboration and Liaison	L	<ul style="list-style-type: none"> • team working; • collaborative projects; • learning from para-professionals (e.g. doctors learning from nurses); • learning from clients/patients; • collaborating with clients/patients (e.g. in solving their problems); • collaborating with people from other disciplines; • working in multi-disciplinary teams; • international collaboration; • team building exercises.

Table 18: Taxonomy of Informal Professional Learning Methods - Part 3

Due to space limitations, the taxonomy as illustrated offers only a single stage of disaggregation. However, it is possible to see how it could be extended to provide further sub-divisions of the 'learning experience or event' column. For example, 'role modelling'

could be split between 'positive role models' and 'negative role models' and positive role models could be further broken down into 'synthesising', 'emulating' and 'actualising'.

This tool may have a particular utility as an aid to self-development, helping practitioners to become more aware of the learning opportunities open to them, encouraging them to seek out particular types of experience and perhaps helping them to make better use of experiences that arise naturally.

Learning Environments

A number of interviewees offered insights into the types of environment they had found conducive to their professional development. These are summarised below.

First appointment

The importance of the first professional appointment became apparent from the comments of a significant number of interviewees. These suggested that the first 'real' job may be more formative than any in-course placements. Several interviewees in fact made this very point.

A significant number reported being well served by their first appointment. This included: having a willing source of help available (when required) in the form of colleagues or superiors; being given time to find their feet; and being allowed the space to find their own way of doing things and develop their own professional style.

A number reported bad experiences in their first appointment. Some were left entirely to their own devices; some faced continuous and destructive criticism from their supervisor; and some were thrown in at the deep-end without guidance or briefing. In a number of such cases, individuals cut short their appointments and moved elsewhere. Others changed their planned career paths as a result. Some said they had felt their confidence undermined by the experience and as a consequence their competence had been affected. The linkage between confidence and competence was in fact a recurring theme throughout the interviews. In a few cases, interviewees described how a negative experience early in their career had left them with an on-going bitterness and/or a nagging doubt about their own competence in a particular area.

Although it is impossible to prove objectively, the group who spoke positively of their first appointment seemed to be more confident and optimistic than those who had suffered negative experiences early in their careers.

The reported effects of various negative experiences supports the view that there are links between self-esteem, confidence and learning. This linkage is stressed by a number of authors - e.g. Mannheim (1936); Freire (1978); Brundage and Mackeracher (1980) (Chapt. 4, p. 109); Blagg et al. (1993) (Chapt. 4, p. 110).

Structure and Support

Interviewees whose post-formal training had been structured, and/or were offered support, generally found this helpful. However, several made the point that there needed to be a balance between being offered support when required, and being allowed to try things on your own without 'someone breathing down you neck'. One offered the analogy of parental support for children which she said needed to strike a balance between being supportive, and allowing freedom to develop and perhaps make mistakes.

These comments are consistent with the analogy of removable 'scaffolding' offered by Bruner (1978) (Chapt. 4, p. 111) and included within the 'cognitive apprenticeship model' (Collins et al., 1989) (Chapt. 4, p. 112).

Question-friendly and blame free environments

A number of interviewees stressed that working in situations where it had been easy to ask questions, without feeling embarrassed, had been of considerable benefit. Several (particularly from Health Care) reported working in an environment where this was not the case. As a result, they had sometimes been inhibited from admitting they did not know something, and from volunteering mistakes. One physiotherapist said that when she returned to work after having children, she found that many treatments had changed. Yet she was afraid to say she had not done something before, or ask how it should be done.

A number stressed the importance of having worked, in their early careers, in an atmosphere where they were not afraid to admit their mistakes. Several spoke of a 'blame free' environment, but a number pointed out that this did not mean that mistakes were dismissed as of no importance. Rather, they did not lead to rancour or recrimination. Instead, they were turned into positive learning experiences and dealt with as any other professional problem. One university teacher felt there was a distinction between a 'blame-free' environment and one that was 'consequence-free'. He believed that, although the former was helpful, the latter was not conducive to learning.

Several interviewees reported that the egotistical and dominating nature of some superiors (surgeons were particularly singled out) made it difficult to admit mistakes, and even more

difficult to point out theirs. Similarly, a number felt that egalitarian environments were more conducive to learning than hierarchical ones.

Challenging yet collegial environments

A number spoke of the learning benefits of working in an environment that offered a combination of challenge and camaraderie. Two examples given were the Armed Forces and theological colleges. Such environments may be particularly conducive to learning because they bring together a range of potentially formative mechanisms. For example, collaborative learning is enabled, networking opportunities are readily to hand and potential role models are all around. The close proximity to others may also lead to a greater degree of learning through osmosis.

Deep-end experiences

The effects of being 'dropped in at the deep-end' to do something difficult, unfamiliar or at short notice were mentioned by a significant number of interviewees. One such was a trainee solicitor who, though he had never attended court before, was told at short notice to go and submit a bail application for a client. He found the experience traumatic and counter-productive. It had given him an on-going fear of court work. In very similar circumstances, another solicitor had risen to the challenge of doing something on her own and highlighted the experience as extremely formative. A number of other deep-end experiences were offered which in retrospect had proved formative though, at the time, respondents had found these terrifying and traumatic.

The differences in response reported may be partly to do with personality, and partly to do with the kind of deep-end experience with which a person is confronted. For example, if the activity is one which even an experienced practitioner would find difficult without adequate preparation, it clearly seems unfair to expect an inexperienced colleague to do it 'at the drop of a hat'. In such circumstances the impact on the individual is likely to be negative and potentially damaging. If, on the other hand, it is something for which that individual has been adequately trained and there is time for the necessary preparation, or adequate briefing is given, then it seems more likely that the activity will result in a positive learning experience.

The previous few subsections have confirmed the importance to development of the learning environment as stressed by 'Social Learning Theory' (Bandura, 1977) (Chapt. 4, p. 101) and the symbolic interactionists (Chapt. 4, pp. 109-110).

General factors leading to professional competence

A number of more general comments were made by respondents about other factors they considered important to becoming a competent professional. Synthesising these suggests five general factors:

- the opportunity to experience a wide range of developmental experiences;
- the motivation to acquire the necessary competencies and to improve these continuously;
- adequate practice in carrying out the various key tasks and functions in order to master the requisite competencies;
- persistence in overcoming difficulties and in persevering when things are not going well;
- the influence and support (when needed) of others.

One further point was repeatedly made in relation to more formal training. This was having the opportunity to put something into practice immediately (not some time in the future). This accords with one, at least, of Knowles' 'Principles of Andragogy' (Knowles, 1980) (Chapt. 4, p. 105).

Continuing Learning/Continuing Professional Development

Interviewees, but not survey respondents, were asked a number of questions about their continuing learning and CPD (N = 80). They were not asked about their profession's CPD policy because it was thought many would be unable to provide sufficiently accurate information on this. They were questioned about their perceptions of skill loss, their participation in CPD (or personal learning), the main methods they used, their developmental priorities and their main drivers.

Knowledge and Skill loss

Of the 80 people interviewed, 57 (71.3%) were conscious of losing knowledge and skills to some extent. A number of profession-specific examples were offered. They included a head teacher who felt he had lost some of his classroom skills, a dentist whose orthodontic skills, and those linked to infrequently used procedures such as tooth bleaching, had diminished, and a surgeon who felt his knowledge and experience of primary care medicine was out of date. Most interviewees did not see skill loss as a problem; they felt they were losing these attributes because they did not need them. Some were confident they would be able to recover them if necessary. Some said that the loss of particular skills was not in itself important, providing they were being replaced by other skills. A few, however, were concerned about loss of knowledge or skills, feeling that this had made them less broadly competent, and perhaps less employable, as a result. Most felt that some kind of updating or refresher training was necessary from time to time.

Participation in CPD

Seventy of the 80 interviewees (87.5%) claimed to have participated in some form of CPD (or personal learning) during the previous 12 months. Taking account of all forms of personal learning, interviewees reported a mean participation of 17.5 days in the previous 12 months. This included reading professional journals, home study, attending conferences, team meetings and away days with an updating focus, etc., in addition to more formal training. Participation ranged between one day and 80 days. A number at the upper end of the range were studying for Higher Degrees, etc. in their own time and included this in their aggregation.

The participation rate (87.5%) was higher than might have been expected, given the findings of a recent national survey which found CPD participation rates of 55% for men and 45% for women (DfEE, 1998c, p. 25). The mean number of days reported (17.5 days) was also remarkably high. However, the range was wide and the mean was also affected by some exceptionally high entries, which included home study - e.g. working towards Higher Degrees. The wide range makes this result unreliable as an indicator of general levels of participation in CPD. In retrospect, it would have been better to have separated formal from informal participation and, perhaps, working time from private time. The results could be a further indication of the incidence of informal learning, something which may be just as important to CPD as it appears to be to initial development.

In relation to anticipated participation in the next twelve months:

- 22.5% expected this to be greater than the previous 12 months;
- 18.75% expected it to be less;
- 45% expected it to be about the same.

The remainder were unable to predict what their participation levels would be.

Updating/learning methods used

The most common general methods of learning or updating reported by interviewees (N = 80) were:

	No. of mentions
Reading professional journals	67
Short courses (less than one week's duration)	59
Reading technical/research papers	52
Open and flexible learning	27
Award-bearing courses	24
Longer courses (more than one week's duration)	13
Other (conferences, exhibitions, networking, etc.)	59

Other methods reported (not in ranked order) were:

training videos and audio tapes
 computer based training or multi-media materials
 professional association's training materials and specialist libraries
 lunch time in service training sessions
 evening professional association lectures
 slots within staff or cluster meetings
 undertaking NVQ units
 television 'Learning Zone' programmes
 cascade training (from others following a course undertaken by them)
 supplier-provided training
 participating in active CPD networks - e.g. offering e-mail updates
 medical audits
 networking with others
 undertaking research
 Open University degree course
 Internet searches
 writing reflective articles
 shadowing others
 mentoring others

Developmental priorities

Interviewees were invited to rate several possible CPD aims in relation to their importance to their own developmental needs. The results were:

	Mean scores 1-5 scale	
Updating professional knowledge	4.38	(± 0.17)
Updating professional practice techniques	3.83	(± 0.24)
Learning new skills	3.75	(± 0.22)
Improving managerial competence	3.27	(± 0.24)
Developing new specialisms	3.20	(± 0.26)
Brushing up on rusty skills	3.01	(± 0.26)
Improving commercial competence	2.99	(± 0.29)

The interviewees were also asked to say which of these areas would be the most likely to command their participation in the next 12 months. The number of mentions of each were:

Updating professional knowledge	36
Updating practice techniques	14
Learning new skills	10
Improving commercial competence	10
Improving managerial competence	9
Developing new specialisms	7
Brushing up on rusty skills	3

The most common perceived CPD needs related to the updating of professional knowledge and techniques. Improving commercial and managerial competencies were both seen as considerably less important.

The rankings do not seem to reflect the reported trend of growing commercialisation of professions (Chapt. 1, pp. 4-5). The scores may betray a view that both management

and commercial skills can be 'picked up' naturally without any formal training. They may also suggest a relatively narrow view of the scope of CPD. Perhaps respondents cling to more conventional notions of CPD as relating only to their specialist knowledge and skills. This view may be being reinforced by the way some professional associations promote CPD. Madden and Mitchell (1993) found that 95% of the 20 professional bodies covered in a survey they conducted defined CPD as 'updating knowledge and skills for practice' (ibid., p. 19). In the same survey, none appears to have listed improving management or commercial competencies when asked to suggest additional functions of CPD.

The low score in respect of the development of new specialisms is also interesting. It may indicate a conservatism towards moving into specialised areas or changing professional roles more generally.

CPD drivers and inhibitors

In relation to the factors which would be likely to increase interviewees' participation in CPD, the following were offered (these are not ranked in any order):

- changes in the professional body's CPD regulations;
- if compelled by professional body or employer;
- promotion, change of responsibilities or career move;
- availability of suitable courses;
- having more time to undertake CPD;
- changes in operating environment or technology;
- if better cover arrangements were available;
- changes in relevant legislation;
- greater encouragement by line management.

A lack of time, and inadequate support for CPD by interviewees' employing organisations or line managers seemed to be the two main barriers to participation in formal CPD programmes. Changes in personal responsibilities, new legislation covering their field of work, and more compulsion on the part of professional bodies appeared to be the most powerful influences towards increased participation.

Chapter Summary

The results presented in this chapter have confirmed that individuals acquire their professional competence in a wide variety of ways. Formal development programmes were generally perceived by respondents as making an important contribution, but there were often doubts about the quality of provision and relevance of some of the content.

Formal programmes were generally seen as better at imparting knowledge and basic practice skills than developing other aspects of competence, especially personal competence, interpersonal skills, ethical competence and communication skills.

The practical elements of formal programmes were seen by respondents as important, but many had been disappointed with certain aspects. Common criticisms included a lack of co-ordination of theory and practical work and a lack of structure and organisation in placements. Most would have liked more practical work than they were given. Where practical work was assessed, the methods used were considered to be only moderately suitable.

In relation to more general assessment, a wider range of methods was reported than had been expected. The rigour of assessment was generally perceived to be about right, but there was a moderate enthusiasm for making assessment methods more reflective of real practice. A majority also favoured a greater use of competence based assessment and the assessment of personal competence.

Interviewees in general expressed their commitment to continuing professional development and claimed rates of participation in various forms of personal learning that were higher than anticipated. However, there was a wide variation in reported participation. Despite the changes affecting professions, the updating of professional knowledge and skills was seen as a considerably higher priority for CPD than improving commercial and managerial competence, perhaps reflecting a rather narrow view of the scope of CPD. The main factors having the potential to encourage a greater degree of participation appear to be: more compulsion on the part of professional bodies; legislation changes; and career or responsibility changes on the part of individuals. The main barriers to participation appear to be lack of time and inadequate organisational or line management support.

The results in general confirmed the importance of informal learning in developing and maintaining competence. However, there were considerable differences in relation to the types of learning individuals had found useful, underling the dangers of being too prescriptive in specifying 'best practice' learning methods. The data suggested that reflection may be less valuable to initial development than to on-going effective performance. This may be because trainees lack a base of experience against which to reflect. The wide range of learning experiences reported offers valuable insights and has provided the basis of a taxonomy of informal professional learning methods.

.....

Chapter 9

Professions into the Third Millennium: Practical Implications and Conclusions of the Research

Chapter 9

Professions into the Third Millennium: Practical Implications and Conclusions of the Research

Introduction

In examining the nature of professions, and investigating the ways in which professionals become competent, this research has ranged widely across a number of different areas. The various strands of the research have produced findings which may at times have appeared diverse and unrelated. In this, the final chapter of the thesis, an attempt will be made to draw together the various strands in order to distil some lessons, discern some implications, and offer some practical suggestions. It will draw on earlier chapters in an effort to predict what professions of the future may look like, and what key attributes will be needed by future professionals. In particular, it will look at the implications of the findings for how professionals are developed.

Chapter layout and content

The first section will revisit the empirical results and attempt to identify some commonalities across the occupations sampled, both in terms of characteristics and the key competencies or other attributes required. It will draw on the literature relating to the changes professions are undergoing to suggest additional attributes which future professionals will need. The second section will use the empirical findings relating to how professionals operate and solve problems to develop a modified epistemology of professional practice. The third section will offer a new paradigm of professional development, together with an associated personal development paradigm. The fourth section will outline the practical implications of the new paradigm and some of the other findings of this research for professional development programmes. It will offer a model of professional development which conforms to the new paradigm and also draws on the model of professional competence developed in Chapter 6. The fifth section will evaluate the extent to which the aims and objectives of the research have been met and will consider how the research may have added to knowledge in the area. The sixth section will draw together the broad conclusions of the research. The penultimate section will consider possible areas of further investigation and development arising from the research, and the final section will offer a personal epilogue.

Professions Today and Tomorrow

The research has examined professions from a number of different points of view. It has looked at the origins of professions and the evolution of professional development. It has reviewed professions as they are today and considered the ways in which they appear to be changing. It has examined the nature of professional practice and professional competence as seen through the eyes of professionals themselves. It has attempted to throw light on how professionals

acquire and maintain the range of attributes they need in order to be effective. What can be learned from all of this, and how might it be put to use?

Characteristics of today's professions

The results presented in Chapter 7 (pp. 218-223) suggested that many professions today do not conform closely to the general characteristics, previously associated with such occupations. They also revealed a heterogeneity across professions, with the applicability of different characteristics differing significantly between professions. Such differences seem likely to increase as professional-type occupations evolve within new spheres of activity. Is it therefore sensible any longer to speak generically of an occupational group called professions? On the other hand might there still be some common thread that would justify this kind of collective description?

One way to approach these questions is to look at what characteristics, if any, all the occupations in this study strongly possess. A return to the empirical results throws up the following common characteristics:

- All the sampled occupations tended to recruit from the better educated members of society (although not all of them had fixed entry requirements). Over 86% of the people interviewed had been qualified to 'A' level or above when they entered the profession, and the remainder to 'O' level/GCSE or equivalent. Within the 20-30 age group, 100% of interviewees had been qualified to 'A' level or above on entry.
- All respondents clearly felt their occupation required a body of knowledge of some kind, rating this highly in respect of its contribution to effective performance. However, this was not always knowledge of the codified kind and not always acquired through a professional development programme.
- All claimed reliance on the exercise of what might be termed 'higher order skills'. This became clear from the high ratings given, for example, to mental/cerebral skills as well as to personal competence, analysis and interpersonal skills.
- All sampled professions attached particular importance to being client-focused, though the nature of 'the client' of course varied. Sometimes the client was an individual, sometimes an organisation, sometimes an internal customer of some kind.

Therefore, the four characteristics which appear to apply strongly to all the sampled professions are:

1. Recruitment is from the better educated members of society.
2. Practice is based upon a body of specialist knowledge and/or experience.
3. Practice requires the application of higher order skills.
4. Practice is client/customer focused.

These are consistent with the working definition of a 'profession' offered in Chapter 1 (p. 20), namely:

... an occupation based upon specialised study, training or experience, the purpose of which is to apply skilled service or advice to others, or to provide technical, managerial or administrative services to, or within, organisations in return for a fee or salary.

It is acknowledged that there is a degree of circularity in this result since the working definition was used in identifying occupations for inclusion in the study. In spite of this, it is possible that other unexpected characteristics could have surfaced, or some of the characteristics identified by previous researchers (autonomy, self-regulation, status, etc.) might have been strongly endorsed. Either of these situations could have required the working definition (which may be seen as a kind of hypothesis) to be amended.

The results suggest that there does appear to be a genre of occupation which is qualitatively different from other jobs; one which requires a higher level of education, specialist knowledge or experience, and a high degree of cerebral activity. It should be added that some at least of the occupations within the genre would also be likely to possess some of the more traditional attributes (such as altruism and self-regulation), though possibly not strongly. The boundary around the genre is, however, blurred and using terms such as 'profession' or 'professional occupation' may be problematic due to the baggage these terms carry, some of which is now out of date. It might be better to use a term such as 'higher level occupations', as favoured by the UK vocational qualifications system, though the author prefers the term 'professional-type occupations'. This provides a link with the older, more traditional professions, whilst embracing the expanding cadre of new and less conventional ones. For comparison, the traditional characteristics are shown alongside the modern ones in Table 19:

Traditional Characteristics (Chapt. 1, p. 14)	Modern Characteristics
<ul style="list-style-type: none"> • <i>Altruistic</i> (service, rather than profit, orientation); • <i>Non-commercial</i>; • <i>Autonomous</i> (within job role); • <i>Self-regulating</i> (i.e. by membership, rather than by law); • <i>Learned</i> (requiring prolonged and specialist training); • <i>Influential</i> (within society); • <i>Conferring status</i> (within society upon members); • <i>Collegial</i> (as opposed to competitive relationship with peers); • <i>Client-focused</i>; • <i>Organised</i> into some form of professional body 	<ul style="list-style-type: none"> • Recruitment is from better educated members of society; • Practice is based upon a body of specialist knowledge and/or experience; • Practice requires the application of higher order skills; • Practice is client/customer focused.

Table 19: Professions - Comparison of traditional and modern generic characteristics

Attributes generic to professions

Closely linked to the above common characteristics, and to some extent overlapping them, are the attributes that appear from the research to be common to all professional-type occupations. The empirical work identified a number of skills or competencies to which respondents across all the sampled occupations attached particular importance, rating these at 4 or more on the 1-5 scale (Chapt. 7, pp. 237-239). These were:

- communication - both oral communication (4.73) and written communication (4.36);
- problem solving (4.29);
- analytical skills (4.28);
- team working skills (4.03);
- personal competence (4.48);
- mental/cerebral skills (4.21);
- interpersonal skills (4.39); and
- reflection (4.32) (Chapt. 7, p. 230).

These may all be regarded as generic across professions, though their application is likely to be context-specific. They should not therefore be regarded as necessarily transferable between one professional role and another. For example, problem solving in a medical environment is clearly quite different from problem solving in a legal setting, though there may be some similarities in approach. Organisation and management skills which attracted a mean rating of 3.94 (Chapt. 7, p. 239) could justifiably be added to the list.

A number of the attributes listed were previously identified as possible *meta-competencies* - i.e. 'communication', 'problem solving' and 'analysis'. 'Communication', both written and oral, obtained particularly high scores. These two attributes also feature among the five UK 'key skills' (DfEE, 1998b), as well as being singled out by the Dearing Report on Higher Education (Dearing, 1997) as among the skills considered crucial to the employability of graduates. Yet a recent report commissioned jointly by the Committee of Vice Chancellors and Principals and the Department for Education and Employment stated, "... the grasp of communication skills given to undergraduates, central though this may appear to most HE programmes, may be less than appropriate" (CVCP, 1998, p. 6). It continues, "... the training for writing has been contexted in the culture of academic essays, articles and journals, not in employment (for example commercial reports)".

Some of the attributes listed above are admittedly quite broad. For example, 'personal competence' could include a whole range of disparate competencies, as could both management and mental/cerebral skills. The list may nonetheless be useful in identifying some of the broad areas which all professional development programmes should address, over and

above profession-specific knowledge and skills. The latter of course remain of vital importance for, as Gonczi et al. (1990) remind us, the identification of broad attributes, though useful for flagging up the importance of the kinds of higher level skill that are often overlooked, are no substitute for profession-specific analysis at a more detailed level.

It is acknowledged that the empirical element of this research only provided a snapshot of professions as they are today and, in some respects, may be seen as backward-looking - e.g. in the case of the questions relating to the development programmes which interviewees had undertaken some distance in the past. Today's development programmes must of course cater for the future needs of professionals, as well as their more immediate needs. Therefore, the next two subsections will attempt to look forward, extrapolating from both the empirical data and the literature, to what future professional-type occupations may look like and the demands this will place on individual practitioners.

Future professions and professionals

It seems likely that in the future, professional-type occupations will have their boundaries less clearly defined than in the past. In some professions, this could lead to demands for multi-skilling. In others, the growing incidence of multi-disciplinary working will require greater flexibility and adaptability on the part of practitioners who will need skills which are transferable between different environments supported, where possible, by context-flexible knowledge. It is possible there will be greater opportunities for movement between professional areas as more roles span different professional domains and the boundaries between professions become more blurred. Entry routes to professional-type occupations also seem likely to become more flexible as alternative qualifications (such as NVQs and qualifications obtained elsewhere in Europe) become more established, and increasing numbers of non-traditionally educated adult learners, i.e. those who have not gone through the 'A' level/university route but are nonetheless well qualified, seek higher level occupations. This of course will require the co-operation of professional associations and regulatory authorities where these exist.

Hierarchies within professional-type occupations, as in many other organisational structures, will tend to reduce (Martin, 1995). This is likely to lead to more egalitarianism within professional environments and offer greater responsibility at an earlier stage in a professional's career. But it is also likely to reduce the prospects of continuous, upward mobility through successive levels of professional role (Caulkin, 1995). Many professionals may have to adjust to the idea of reaching a plateau sometime in mid-career.

Knowledge bases, particularly within more technical professions, will continue to expand and upgrade (McGuire, 1993). Knowledge will become more and more internationalised (DTI, 1998). New technology will continue to infiltrate and enrich most professions. The result will be

a need for professionals constantly to refresh both their knowledge and operating methods. Not only will continuing professional development be vitally important, but many professionals will need the ability to access and utilise stores of dynamic (changing) knowledge and information on a continuous basis. This suggests the need for enhanced skills in the areas of information handling, and both knowledge acquisition and knowledge synthesis/transfer.

And just as important as the ability constantly to re-learn may be the ability to 'unlearn'; to discard superseded knowledge, out-dated practices and, crucially, the mind sets that go with them.

The sheer volume of knowledge within any one profession, coupled with the need to include a range of other learning priorities within development programmes, will raise serious questions about how much and what kind of knowledge to teach and, equally importantly, what elements of knowledge can safely be dropped from the syllabus. These critical issues will be addressed later.

Self-development skills, which received relatively modest ratings in the empirical work (3.83 on average) (Chapt.7, p. 237, Table 11), seem likely nonetheless to become increasingly important. Indeed, learning skills of all kinds are likely to be critical for any future professional. How else will professionals be able to keep pace with the accelerating changes they are facing? 'Improving one's own learning and performance' is another of the UK 'key skills' (DfEE, 1998b) and 'learning to learn' was identified in the Dearing Report as vital for graduates entering employment (Dearing, 1997). Not only will professionals need to be equipped with a range of learning skills (in addition to reflection), but they will need to become autonomous and self-directed learners, wholly committed to the concept of lifelong learning and continuous improvement. Such traits will need to be promoted throughout the educational system, but it is recognised that securing the necessary level of individual commitment will not be easy. The UK Government's Green Paper, 'The Learning Age' (DfEE, 1998a) suggests this may require nothing less than a culture change across the whole of society.

Academic institutions will need to do more to encourage and facilitate continuing learning amongst graduate professionals. A few are already starting to transform alumni groups into active CPD networks. A few are developing courses which will offer on-going or periodic updating, following initial qualification. Such innovations probably need to become the norm. At an organisational level too, continuous learning and adaptation will be necessary. Professional organisations, and indeed other organisations including academic institutions themselves, will need collectively to become 'learning organisations' (Jones and Hendry, 1992).

A further response to expanding knowledge bases and increasing complexities of skills seems likely to be a continuation of the trend noted by Child and Schriesheim (1979) (Chapt. 1, p. 8) towards increasing sub-division and specialisation within professions. This trend too has important implications for what should be included within initial development programmes. On an individual level, it requires practitioners to be open and frank about the boundaries of their own expertise and the limits of their competence.

Computer based and other digital technologies seem certain to become increasingly embedded within professional practice of all kinds, and despite the fairly modest rating given to the importance of IT skills by respondents to this investigation, it seems impossible to escape the conclusion that competence within this area will become increasingly important. Information Technology skills are another of the UK 'key skills' (DfEE, 1998b) and were also identified by the Dearing Report as vital to all graduates (Dearing, 1997). It would seem important to include the development of ICT skills (not simply IT skills) in any future professional development programme.

Competition and commercialism appear likely to increase further in many professional areas. As e-commerce¹ expands, the competition could become increasingly global. Business and commercial skills will therefore need to be acquired alongside profession-specific skills. Even in voluntary sector professions, such as the Church, business skills are likely to be needed for financial management and fund raising. In some professional areas, the competition encountered will doubtless include expert systems for use by the public; the 'virtual professional' may be just around the corner. Professionals will need to come to terms with such developments, embracing and harnessing them to provide added value to clients, rather than opposing or ignoring them. Expert systems have the capacity to support and enhance the service provided by 'real' (as opposed to 'virtual') professionals, for example, as an aid to diagnosis or problem solving. This potential will need to be fully exploited if professionals are to maximise their effectiveness.

Even for practitioners in less technical or less commercial areas, continuing pressures towards improving efficiency will mean that effective management will be of increasing importance. Large numbers of professionals carry some management responsibility (Grover, 1998) and, as noted in an earlier subsection (p. 291), management skills were rated by respondents, along with organisational skills, as of considerable importance (3.94). But, in the future, simply 'picking up' management skills 'on the job' will become less tenable. As management itself becomes a more professional activity (Cannon and Taylor, 1993), professionals will need more formal development of management skills. This will be important, not just for those professionals who

¹ commerce which involves use of the Internet or other forms of information and communications technologies

move into more general management roles, but also for those who remain in the mainstream of their profession (Grover, 1998).

The emphasis on client needs, already shown to be of considerable importance through the high mean rating given by respondents to 'customer focus' (4.19) (Chapt. 7, p. 218, Table 7), is likely to become even more vital as customers become increasingly knowledgeable and discerning. Skills linked to customer service and customer care will therefore be of paramount importance in practically all professional areas.

Closely associated with customer service, and the meeting of client needs, is the question of professional conduct and ethics. As professional-type roles become increasingly open to public scrutiny, as environmental concerns intensify further and as ethical judgements in particular areas, such as medicine, become increasingly complex, it seems likely that the ability to make sound ethical judgements will be of growing importance.

Additional attributes for the future professional

The above extrapolations, which are all based on the research findings, suggest a need for all (or most) professionals to acquire a number of attributes, in addition to the generic attributes listed in an earlier subsection (p. 291), and additional also to the skills and competencies specific to their own profession. These additional attributes are:

- learning/self-development skills;
- self-directedness;
- continuous improvement orientation;
- adaptability;
- context flexibility;
- knowledge synthesis and transfer skills;
- knowledge acquisition and knowledge management;
- information handling skills;
- ICT literacy and exploitation;
- multi-disciplinary orientation;
- professional management;
- business/commercial skills (many professions);
- recognition of competence limitations;
- ethical orientation and competence in making ethical judgements.

This list has obvious implications for professional development. When added to the generic attributes identified earlier, it suggests a substantial development need over and above the knowledge and skills specific to a particular profession. This does not necessarily mean they all

need to be included within formal development programmes, but it does mean that any planned professional development should recognise their importance and have a strategy for facilitating their acquisition. More will be said of this later. But before professional development programmes are themselves discussed, it is necessary to return to the question of how professionals operate, because this too has implications for how professionals are developed.

A Modified Epistemology of Professional Practice

The results reported in Chapter 7 (pp. 228-230) suggest that neither Schön's epistemology of practice, 'reflection-in-action' (Schön, 1983), with its heavy reliance on tacit knowledge and artistry, nor 'technical-rationality', with its view of professional practice as applied theory, offers a wholly satisfactory explanation of the way professionals actually operate. There appears to be a greater reliance on the application of specialist or technical knowledge than Schön's work suggests (though it is acknowledged that Schön does not deny that technical knowledge plays a part) and more extemporisation than *technical rationality* assumes.

The empirical results also suggest that professionals adopt a more varied approach to problem solving than Schön implies. Sometimes this involves drawing on repertoires of previously-successful solutions, as suggested by Schön but, as Chapter 7 (p. 229) shows, only a tiny minority (1.3%) said this was their primary approach. Problem solving involves a range of approaches, often in combination - repertoires, seeking expert assistance, creativity, lateral thinking and common sense. Sometimes, it involves technical-rational approaches, including returning to first principles or basic theory to work out a solution. Sometimes professionals are able to reframe problems, as Schön suggests, but in other cases this may not be possible. The problem itself is fixed and arguably only the possible solutions are open to creative thinking.

Indispensability of specialist knowledge

The findings suggest that specialist knowledge, whether taught or gained through experience, is regarded by most professionals as crucially important. Practice which is not well grounded in specialist knowledge is liable to be flawed and may, in some circumstances, be downright dangerous. Relying too much on previous solutions may limit lateral or creative thinking and lead to an inability to cope when unusual problems arise. In unique situations, a return to well understood first principles can be essential. Where improvisation is required, or when a technically-difficult problem arises, theory can often come to the rescue.

Looking beyond this research, the recovery of NASA's crippled Apollo 13 mission could not have been achieved without a sound knowledge of all the underlying scientific principles. This enabled engineers to overcome severe damage to the spacecraft and devise

procedures for a safe return to Earth (Cooper, 1995). A return to basic theory was also necessary when surgeon, Angus Wallace performed an improvised operation on a woman during a flight from Hong Kong to London. Wallace used scissors, a coat hanger and plastic tubing to execute a chest drain to counter a collapsed lung condition. He used brandy to sterilise the equipment and a half-filled mineral water bottle, coupled with a knowledge of physics, to create the all important non-return valve (Dyson, 1995).

In such situations, there are no repertoires available and re-framing the problem is simply not an option; returning to basic scientific theory is likely to be more fruitful than 'artistry', though it can be argued that both examples displayed elements of this characteristic in addition to scientific application. It also seems likely that both situations involved reflection; Apollo 13 perhaps more in the form of reflection before action and the Wallace example, no doubt reflection during action.

These examples support the research findings that, in certain situations, professionals return directly to first principles, adopting a directly technical-rational approach. In certain types of profession, this may occur quite frequently. This is not to deny that professionals also apply more tacit forms of knowledge and draw heavily on past experience, and sometimes on previously-successful solutions. Indeed for much of their activity, the conscious return to specialist knowledge or theory may be unnecessary. However, even the tacit knowledge which professionals display is likely to contain elements of synthesised theory and other forms of specialist knowledge. Therefore, sound technical grounding must be seen as a critical component of professional performance, though this may not always be acquired through formal courses.

But as acknowledged earlier, professionals are not simply applicators of specialist knowledge. Their work also involves extemporisation, as indicated by the 56.3% of interviewees who recognised that their practice involved elements of 'artistry' (Chapt. 7, p. 229). The Apollo 13 and Wallace examples both illustrate the importance of improvisation alongside specialist knowledge and whilst these may be seen as extreme cases, they are not untypical of the 'uncharted territories' in which professionals often have to operate.

The combination of technical grounding and the need for extemporisation points to an epistemology of practice which will be called 'technically-grounded extemporisation'.

Technically-grounded extemporisation

Technically-grounded extemporisation differs from *technical-rationality* in that it recognises that professionals bring to bear a range of other factors, apart from specialist knowledge, in their day to day operations and in problem solving. It differs from *reflection-in-action* in that it more

strongly acknowledges the role of specialist knowledge, and theory, though this may sometimes be synthesised in tacit forms. It acknowledges the extent of extemporisation (understood here as reacting spontaneously and flexibly to events), 'thinking on one's feet' and improvising solutions to problems. However, it also explicitly acknowledges that professionals at times plan, prepare, analyse, rehearse, and apply more conscious thought and reflection. It suggests that although much professional activity operates at a semi-automatic level, it is mediated and informed by specialist knowledge and interspersed with elements of rational and systematic thought.

Technically-grounded extemporisation implies that professional practice involves a combination of applied specialist knowledge, rationality and more intuitive forms of thought. The position it adopts is similar to the hypothesis offered by Hammond (1980) of how experts operate. Hammond believes they use a combination of analytical and intuitive thinking, and views these as opposite ends of a continuum (Chapt. 4, pp. 120-121).

Technically-grounded extemporisation may also be seen as consistent with the Dreyfus and Dreyfus (1986) model of expertise (Chapt. 4, p. 122, Table 2). This also implies a combination of rational and intuitive activity, but suggests that as people become more expert, they rely less on rules, guidelines or maxims and more on an intuitive grasp of situations, based on tacit understanding. However, they still use analytical and more rational approaches in novel situations. The Dreyfus's model therefore implies the need for sound and appropriate technical grounding.

Technically-grounded extemporisation offers a more pragmatic, and arguably a more balanced, perspective on how professionals operate in practice. It draws both on *technical-rationality* and *reflection-in-action* and owes much to the latter and to the insights offered by Schön. It may be more accurate therefore to describe it as a modification of *reflection-in-action*, rather than a brand new epistemology. It is a modification which attempts to redress the balance between specialist knowledge and tacit knowledge, and between rational analysis and intuitive artistry.

A New Paradigm of Professional Development

Chapter 1 (p. 21) suggested that, since the late nineteenth century, the *technocratic paradigm*, based largely around the epistemology of technical-rationality, had been more or less the orthodoxy. However, this had recently found itself challenged by two alternative sets of principles - those linked to the concept of reflective practice and those linked to competence. It was suggested that new approaches were now evolving which to some

extent drew on each of the other traditions and that, as observed by Caskie and Walker (1997), a new paradigm may be emerging, though this had not yet been fully articulated.

The epistemology of *technically-grounded extemporisation*, proposed in the previous section, implies the need for a linked paradigm of professional development aimed at fitting practitioners to operate in the way described. Such a paradigm would need to focus on developing a combination of:

- professional knowledge (of various kinds);
- workplace competence;
- reflection
- both convergent and 'lateral thinking' approaches to problem solving; and
- flexible, innovative practice.

In addition, given the overriding need for professionals in the future to learn and improve continuously, the development of learning skills and a commitment to lifelong learning also needs to be a key feature of the paradigm. Drawing these requirements together, the proposed new paradigm will be given the descriptive, if somewhat unwieldy title - 'the knowledge-grounded reflective competence and lifelong learning paradigm'.

The paradigm would draw on technocratic, academic, reflective practice and competence based traditions, seeking to exploit the strengths of each. It would also add the important dimension of lifelong learning. The new paradigm would be underpinned by the *revised model of professional competence* described in Chapter 6.

The *knowledge-grounded reflective competence and lifelong learning paradigm* would offer a combination of 'relevant' professional knowledge, closely integrated with the development of practice based competencies of various kinds, i.e. functional, personal and ethical (see Chapter 6). These would be underpinned by both rational thinking and reflective skills. The paradigm would be practice focused, but provide adequate specialist knowledge. Use would be made of appropriate competence standards, or similar frameworks, in order to help structure and assess (formally if required) competence and skills development, and perhaps also to accredit these elements.

Alongside these, the paradigm would seek to develop a variety of learning skills (study skills, observation, self-development, experiential learning, awareness of learning styles, etc.) and aim to inculcate an orientation of reflectiveness, lifelong learning and continuous improvement. A crucial trait which the paradigm would seek to encourage would be self-directedness - the ability

and motivation to take charge of one's own learning. It would also aim to develop flexibility and spontaneity as well as more analytical and reflective forms of thought.

The paradigm would value equally, specialist knowledge and practical forms of competence. Where formal assessment was required, this would use a variety of assessment techniques and assess both inputs (knowledge and theory learned) and outcomes (workplace competence). Assessors would look for evidence of both analytical, reflective and other learning skills, and for a variety of forms of work based competence - i.e. functional, personal and ethical (as articulated in the model of professional competence in Chapter 6).

It is acknowledged that in some professional development programmes, formal examination or assessment may not be required. It is also accepted that it will not always be possible, or desirable, for all of the aspects outlined above to be developed within formal programmes. Indeed, a paradigm of development does not necessarily imply the existence of a formal programme. It is possible for the principles within this paradigm to be applied to less formal developmental regimes and even to self-development. However, pursuit of the paradigm implies a degree of structure or deliberation in terms of what is covered and to what end.

How much, and what kind of knowledge should be included?

As the reader may point out, it is all very well to suggest a list of attributes which ought to be developed, but any development programme is finite in terms of its duration and what it can provide. If new elements are added, then other elements may have to be pushed out. If there is a greater emphasis on the development of skills, then this may mean less time spent on the inculcation or pursuit of knowledge.

Implementation of the *knowledge-grounded reflective competence and lifelong learning paradigm*, particularly in formal situations, would require some difficult decisions to be taken about what to leave out of the curriculum. Therefore, in advocating the approach, it is only fair to address this problem. The question of how much and what sort of knowledge to include is also linked to the problem of expanding knowledge bases and the reducing 'shelf life' of certain kinds of knowledge.

The importance attached to technical grounding within the paradigm should be seen as ruling out any suggestion that only practical forms of knowledge, i.e. knowledge linked to particular practical skills, should be included. It should be clear from earlier arguments that the author believes that other forms of knowledge, including basic principles and theory are important to professionals. But all professions need, at regular intervals, to carry out rigorous analyses of the knowledge content of their development curriculum. This should involve 'weeding out' all unnecessary or out-dated knowledge and a careful identification of the really essential elements

which cannot be jettisoned. The latter would consist of knowledge that was either essential to all practice, or fundamental to the acquisition of further knowledge within the domain - i.e. knowledge which provides the necessary 'hooks' on which new knowledge can be hung. This might be termed 'core and framework knowledge'.

Separating the two concepts, 'core knowledge' will be defined as: *knowledge which is essential to all practice within the domain*; and 'framework knowledge' will be defined as: *knowledge which is fundamental to the acquisition of further knowledge within the domain*.

In the future, certain kinds of knowledge (especially technical knowledge) will be readily available at the time it is required through various forms of technology (the Internet, CD ROM, etc.). Therefore, what will be important for future professionals will not be the ability to hold vast quantities of knowledge in their human memory, but to have the necessary skills to acquire specific elements of knowledge when needed. Equally important will be the possession of the necessary *core and framework knowledge* to enable new knowledge to be synthesised and applied in a safe and competent manner. Enabling such processes will be one of the greatest challenges facing professional development programmes in the future.

It will of course also be necessary for all professions collectively to take steps to ensure that the necessary 'bolt-on' knowledge is readily available in suitable 'bite sized chunks' to all practitioners through appropriate media, not simply for CPD purposes, but as a working resource. Academic institutions along with professional bodies would seem to have a crucial role here, though there are important questions as to how this would be funded. The process itself might involve the use of the Internet, or profession-specific intranets, containing virtual knowledge bases and on-line expert systems. Such systems are already demonstrating their potential for facilitating electronic networking and professional debates amongst practitioners. This may be leading to an upsurge in collegiality and peer support, what might be called, 'a new collegiality'.

In the past, many professional programmes, particularly within HE, have tended to see their main role as providing 'up front' knowledge, with skills development taking a secondary role, or being left largely to chance within placements. In the future, much more emphasis may need to be placed on skills development, particularly knowledge-related skills, e.g. those linked to the acquisition and synthesis of new knowledge, together with more general learning skills. This would seem to be the only way to equip new professionals for survival in a world of dynamic knowledge and constantly changing practice methods.

Informal learning

This research has confirmed the importance of informal professional learning and has demonstrated the range of learning mechanisms through which this can be achieved. The *knowledge-grounded reflective competence and lifelong learning paradigm* could be usefully supported by the taxonomy offered in Chapter 8 (pp. 276-279). This could be used to help structure placements and post-formal development plans, and to increase trainee awareness of the types of experience they should be actively seeking. Ideally, trainees should be exposed to as wide a variety of mechanisms as possible, recognising that individuals will vary in the types of learning mechanism they find especially formative.

A personal learning paradigm

The *knowledge-grounded reflective competence and lifelong learning paradigm* could usefully be augmented by a personal learning paradigm which all trainees would be encouraged to adopt. This will be given the name - 'the learning acquirer paradigm'. It may be seen as a subset of the main paradigm, but could also be used in a 'stand-alone' manner to underpin self-development.

The *learning acquirer paradigm* would require professional trainees to become active seekers of learning opportunities, regarding every experience and every event, whether positive or negative, as a learning experience.

To encourage trainees to become effective *learning acquirers*, they would be helped by their tutors to recognise all potential learning opportunities. This would include both formal and informal learning experiences but would especially focus on less formal ones. To assist in the recognition of opportunities, trainees would be made aware of the sorts of experience that have proved particularly formative to others. Here the *taxonomy of informal professional learning methods* could again be useful. Trainees would be taught how to exploit learning opportunities to the full; how to 'milk' every experience in order to extract from it the maximum amount of learning. This might include how to seek feed-back, how to receive and make use of criticism and how to use a variety of techniques and tools - e.g. reflection (of various kinds), de-briefing, learning cycles, linking, mind maps, perspective switching, adopting different learning styles, etc.

Trainees would be encouraged to:

- develop a range of study skills which would help them make the best use of formal learning;
- find out from peers and/or more experienced colleagues the sorts of thing that are particularly important for them to learn;
- quiz more experienced colleagues about the hidden secrets of mastery and their personal tips for effective performance;

- make mental links between their informal learning experiences and any relevant theory or principles they had been taught through their formal training;
- formulate their own theories of action, discussing these with peers and more experienced colleagues and testing them against future experience;
- regularly and systematically take stock of what they have learned.

Adopting such a personal learning paradigm would, of course, require trainees to be well-motivated, self-directed and self-evaluative. These traits may not be universal or naturally occurring, as indicated by the work of Pun (1990) and Kohn and Slomczynski (1990) (Chapt. 4, pp. 105-106), but seem indispensable for professionals of the future who will need to become skilled, autonomous learners. Therefore, encouraging the adoption of the *learning acquirer paradigm* during initial professional development could be seen as laying the essential foundations of lifelong professional learning.

Practical Implications for Professional Development Programmes

Epistemologies of practice and paradigms of development can appear rather hypothetical and distant from reality unless they are turned into practical applications. Similarly, the results of this research around the area of professional development programmes are of little use unless they are turned into practical recommendations. This section will attempt to make the link between theory and practice by spelling out in some detail what a modern professional development programme might look like and offering suggestions, drawn from the research, on how the effectiveness of programmes might be maximised.

A professional development model

The *knowledge-grounded reflective competence and lifelong learning paradigm* could of course be implemented through a range of different developmental models, the details of which would vary between professions and delivery organisations. But in order to illustrate how the paradigm might be put into practice, a possible model is offered here. This is of course tentative and would need to be tested in practice before it was commended for general use. The model is aimed at satisfying the conditions of the *knowledge-grounded reflective competence and lifelong learning paradigm* and also draws further on the revised model of professional competence, developed in Chapter 6. It is presented in the form of a six point star (Figure 23):

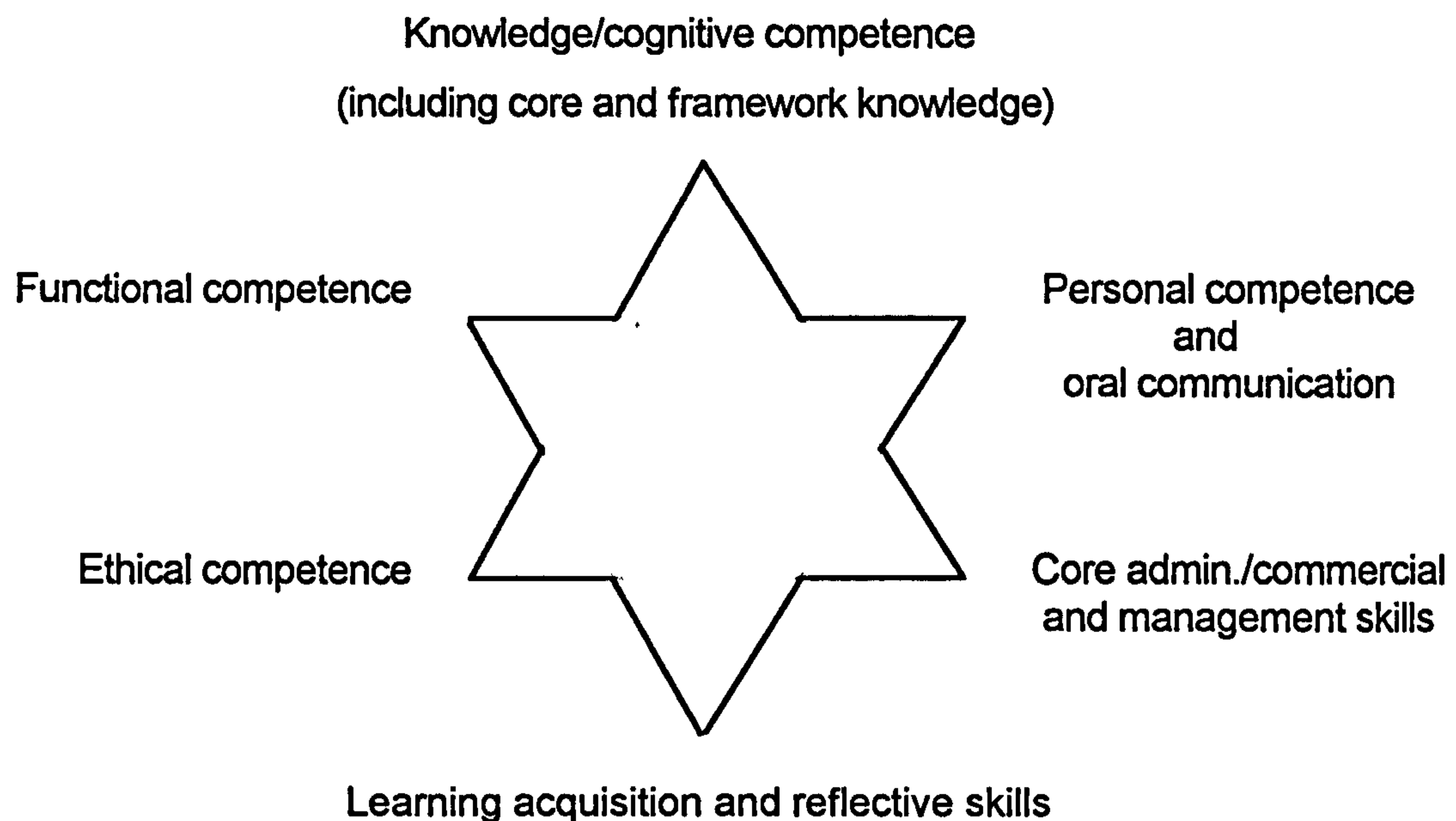


Figure 23: A Model of Professional Development - 'The Star Professional Model'

Each of the points of the star would be covered within the development programme, though not all within formal elements. The emphasis afforded to different components of competence (knowledge/cognitive, functional, personal and ethical) would be informed by an *occupational competence mix diagram* (Chapt. 6, p. 190, Fig. 11), derived through a suitable survey of experienced practitioners from the profession concerned. Similarly, the *model of professional competence* (Chapt. 6, p. 204, Fig. 15) would be used as a framework to help identify specific competencies and skills in each of the constituent areas (as illustrated in Appendix 5). Again, suitable field research, e.g. focus groups involving experienced practitioners, would be needed.

Formal elements

The initial, formal element would concentrate on developing:

- *core and framework knowledge* (which would need to be carefully elicited);
- information/knowledge acquisition and information handling skills;
- cognitive competence;
- reflective and other learning skills; and both
- written and oral communication.

It would also provide administrative, commercial and managerial grounding relevant to the profession, and would offer principles, and perhaps frameworks or tools, to assist in making ethical judgements. The latter would also be developed through a series of 'what if' scenarios.

On completion of the initial training, on-going up-dating (in the form of distance learning, short courses and a graduate/alumni CPD network) would be offered and this would be available throughout a professional's career.

Informal elements

The less formal elements, which ideally would include a variety of different kinds of placement, would concentrate on developing both functional and personal competence. The latter would include behavioural skills (including those which are important for signalling professional competence to others), self-confidence (which is often closely linked to competence) and professional socialisation. Use would be made of occupational standards, if available, and/or frameworks of required attributes.

Ideally, the development of managerial and commercial skills would be sought through placements, alongside profession-specific skills, though it is accepted that this would be dependent on the nature of the placement. Again, appropriate competence standards would be used to identify the desired development and, if required, to assess and/or accredit achievement. Both placements and early career experience would be supported by suitably selected and trained mentors. Placement elements would be structured so as to ensure coverage of all the necessary elements of skill, the learning sought being clearly specified and covered by a 'learning contract' (see for example Boak, 1991).

Examination/assessment

The acquisition of *core and framework knowledge* and written communication skills would be assessed through written and oral examinations and through practical tests and assignments. The acquisition of functional competence would be assessed against occupational standards, if available, or against similarly-designed competence frameworks, using a combination of methods - e.g. observation, portfolio evidence, witness testimony, etc. The acquisition of relevant personal competencies, ethical competence and oral communication would be assessed through mentor or placement supervisor reports (against appropriate frameworks) and/or through simulation - e.g. role plays, presentations, etc., and possibly through 360 degree feed-back (Chapt. 3, p. 93). Learning and reflective skills would be assessed indirectly through, for example, the degree of development achieved during placements and the quality of reflection displayed within placement reports.

Maximising the effectiveness of initial professional development programmes

Drawing directly on the interviewee comments reported in Chapter 8 (pp. 249-256), a number of practical suggestions for improving initial professional development programmes emerge.

- Programmes should maximise the amount of practical training offered and this should preferably be through real work situations, e.g. placements, rather than simulation or other college-based activity. As wide a range of placements as possible should be provided. Within these, the learning sought should be clear, and a strong emphasis should be placed on the development of workplace competence.
- Exposure to real workplace situations should be offered as early as possible during training to provide a taster of practice.
- Practice elements should be structured at least to the extent of identifying the skills or competencies which they are aimed at developing. They should be planned so as to ensure adequate coverage of the required skills and competencies, and some means of assessing the extent to which these have been acquired should be used. They should be properly supervised to ensure time is not wasted through trainees not being offered suitable development opportunities. During placements, regular feed-back should be given to trainees on 'how they are doing'. Practice-orientated development should also be sought through the use of project based learning methods. If simulation is used, this should be of as high a fidelity as possible.
- In assessing practical competence, a variety of assessment methods should be used. These should be as relevant and as close as possible to real practice.
- Formal courses should seek to achieve a smooth integration between theory and practice, both in terms of co-ordinating the timing of each and in making suitable links before and after placements.
- Trainees should be encouraged to give presentations and to articulate and defend their work. Collaboration between trainees and peer-based learning should be encouraged.
- Wherever possible, lecturers/tutors should be experienced practitioners, preferably with recent practice experience. This may mean making more use of part-time tutors who are still operating within the profession, and/or providing full-time tutors with opportunities to undertake part-time practice or periodic professional placements in order to keep their practical experience up to date.
- Where mentors are used within programmes, they should be carefully selected to ensure they have the necessary qualities. They should also be adequately trained and, where practicable, matched to trainees or, better still, selected by trainees themselves to ensure

compatibility.

It is recognised that some providers will already be doing many of these things, but it is doubtful whether many are doing all of them.

Research Achievements against Aims

Evaluating one's own work is never easy. However, it would seem important now to return to the original purposes of the research to examine the extent to which these have been addressed, and to assess whether the desired outputs have been achieved.

In order to avoid too much repetition, particular research aims, their related objectives and directly linked research questions will be combined to produce a number of key themes which will be used for evaluation purposes.

The first of the formal *aims* of the research was: "To inform understanding of professions, professional practice and professional competence, and the ways in which the latter is acquired". This *aim* had three directly related *objectives*:

- to examine the nature of professions and professional practice;
- to investigate the nature of professional competence and, if appropriate, to represent this through a suitable model;
- to investigate the ways in which practitioners acquire the various aspects of their professional competence.

These three *objectives* had in turn three directly-linked *research questions*:

Question No. 1: What is the nature of a) professions; and b) professional practice?

Question No. 2: What is the nature of professional competence and how might this be modelled ?

Question No. 3: How do professionals acquire and maintain their professional competence?

To what extent have the key themes contained within these questions been addressed by the research?

Nature of professions

The nature of professions was addressed both from a historical point of view (Chapter 2) and in relation to the way they appear today (Chapter 1) through the eyes of a range of authors and researchers. In the latter case, this included an examination of the supposed, generic characteristics of professions. This all took the form of secondary research - i.e. a desk-based study of primary sources. It is acknowledged that the reliability of the primary

sources could be variable. They were certainly limited in number, a degree of selectivity was necessary, and the author's assessments of the validity of various arguments offered by the primary sources were inevitably subjective.

The nature of professions was further investigated through the parts of the empirical work which examined the current validity of the characteristics traditionally associated with professions (autonomy, status, self-regulation, etc.) and the parts which collected information about such things as pre-entry requirements, standardised training, licensing, chartered status, etc. An earlier section of this Chapter (pp. 288-296) attempted to identify general characteristics of modern professions and make some predictions about the nature of professions in the future. But as already acknowledged, these results were to some extent influenced by the inclusion within the sample of a number of newer professional-type occupations. The predictions relating to future professions, although grounded in the research, were speculative extrapolations which went beyond the actual research results. A further limitation was that the empirical work relied purely on a single perspective - i.e. the practitioners' viewpoint.

Although there were some important limitations in the methodology, it is argued that the research did inform the nature of professions, as originally intended.

Nature of professional practice

Both Chapters 1 and 2 included elements which touched on the nature of professional practice as it was in the past and as it is currently. Chapter 3 looked at the issue more theoretically in considering Schön's new epistemology of practice, *reflection-in-action* (Schön, 1983) and at its main competitor, *technical-rationality*. A proportion of the empirical work was also devoted to examining the validity of each of these. This chapter has drawn on the results to produce a modified epistemology of professional practice. It is acknowledged that the questioning used to test the validity of the two epistemologies, and from which an alternative was derived, was relatively limited. The results again relied on practitioners' own perceptions of the ways in which they operate.

Nonetheless, it can be claimed that the research has added to the understanding of professional practice, challenging the Schönian position and offering an alternative hypothesis based on a modest amount of empirical data.

Nature of professional competence

The nature of professional practice was a recurring theme throughout the research. The nature of competence in general was explored in some detail in Chapter 3 which examined various perspectives on competence and the ways in which competence might be identified

or assessed. Chapter 6 took up the theme in greater detail, homing in specifically on professional competence and developing a provisional model which went on to be tested in a number of ways. The empirical work was used in part to test the model. It also examined how professionals themselves identify competence in others, and attempted to identify critical competencies within individual professions and key generic competencies across professions, the latter being developed further in this chapter.

It is argued therefore that this theme has been reasonably well addressed. The research has put considerable effort into examining the nature of professional competence and has suggested a way in which it might be modelled, which has been relatively well tested.

The acquisition and maintenance of professional competence

This is arguably the most central of the research themes and a considerable proportion of the research effort has been directed towards it. Chapter 2 looked at professional development from a historical point of view, Chapter 4 examined the literature linked to learning and development, and the empirical work (both interviews and surveys) sought further illumination around this area. In the last of these, both informal and formal developmental experiences were probed.

The results were articulated through the taxonomy of informal professional learning methods, presented in Chapter 8 (pp. 276-280), which aimed to add further illumination and erudition to this area.

The limitations of this part of the methodology were acknowledged in Chapter 5. As with other aspects of the empirical work, one of the main weaknesses was the sole reliance on practitioner self-analysis, which could lead to distortions in the findings. Nonetheless, it seems reasonable to claim that the research has addressed the question of how professional competence is acquired, though it has not come up with any slick or simple answers, but rather a matrix of mechanisms, many of which have been previously observed, though often in relative isolation. The research has also provided some data on how professional competence is maintained, particularly in respect of CPD. But this information is limited and there were weaknesses in the methodology in relation to how CPD participation levels were gauged, as acknowledged in Chapter 8 (p. 284).

The second of the two research *aims* was: "To inform the design of approaches to professional development, including practitioner self-development". This *aim* had three directly related *objectives*:

- to examine formal methods of initial professional development (including examination/assessment), and assess their effectiveness in developing and sustaining professional competence;
- to develop (if appropriate) a new paradigm (or paradigms) of professional development and practitioner self-development;
- to suggest improvements that could be made to professional development programmes, and ways in which professionals might better help themselves to develop.

These *objectives* had in turn two directly linked *research questions*:

Question No. 4: How effective are current professional development arrangements?

Question No. 5: How might professional development be improved?

To what extent have the key themes resulting from the second of the research aims been addressed?

Effectiveness of current methods of professional development

The empirical element contained a limited number of evaluative questions about the professional development programmes interviewees had undertaken. However, there is a problem in relation to the currency of the information obtained. Respondents were reporting on professional development programmes as they were when they had undertaken them. In the case of the older respondents this could have been many years ago. It is therefore not possible to provide an overall assessment on the effectiveness of current professional development programmes. Nevertheless, the data relating to strengths and weaknesses of programmes, as seen through the eyes of trainees, should have some validity in a generalised sense. So too should the suggestions for improvements in both professional development programmes and assessment.

How can professional development programmes be improved?

The empirical work yielded some suggestions for improving professional development programmes from a trainee perspective. Drawing more widely on the research, this chapter has offered further suggestions for bringing professional development more into line with the needs of future professional practice. This has been addressed, not least in the form of the new paradigm of professional development and the more detailed model showing how the paradigm could be applied in practice.

It is accepted that both the paradigm and the related model are hypothetical and would need to be tested extensively in practice before being widely commended.

The issue of professional self-development has been touched on through the development of a subsidiary paradigm but, like the main paradigm of professional development, this is in need of validation. In its present form, it offers a broad approach to practitioner self-development but falls short of providing detailed advice on how professionals can develop themselves. It is arguable that the paradigm should be tested and if necessary modified before such detailed guidance is developed.

Outputs

Table 20 lists the planned research outputs, together with the achievements against each:

Planned Outputs	Actual Outputs and Comments
A comprehensive literature review	Arguably achieved
A new or modified <i>model of professional competence</i> which can be used to inform professional development programmes and provide a framework for eliciting the key attributes of professions	a) An empirically tested new model b) Framework form used to elicit key attributes for 3 professions (Appendix 5)
A new or modified paradigm of professional development	a) A modified epistemology of practice b) A new paradigm of development c) A related self-development paradigm d) An exemplar model of development
Recommendations on how professional development might be improved	Achieved - see earlier section (pp. 303-307)
Recommendations on how individuals might maximise their professional learning and development	Paradigm of self-development produced, together with taxonomy which can be used by individuals, but detailed recommendations require validation and further development
A replicable research methodology	Arguably achieved

Table 20: Planned versus actual research outputs

Contribution to knowledge?

Another question which must be confronted at this point is the extent to which the research has added to knowledge in the area. This is a difficult question because it is an area in which it is difficult to say what is actually known. There is also the added difficulty that in the field of social science in general, it is rare that researchers make completely new or unique discoveries about matters relating to human nature, though they may find new ways of analysing or articulating these. It is within this context, and with considerable caution, that this important issue is now addressed.

The research has arguably offered some new illumination around the area of how professionals operate. By challenging the Schönarian view, which in some areas was beginning to take on the mantle of orthodoxy, and offering an alternative analysis, it has contributed to the debate about professional practice. It has also thrown new light on the nature of professional practice, and yielded an alternative epistemology.

The research has also helped to articulate a new paradigm of professional development which attempts to combine the strengths of what were previously often seen as conflicting paradigms, e.g. academic versus competence based versus reflective practitioner, and also incorporates a lifelong learning dimension.

The research has provided a new way of modelling professional competence, though this draws on several previous approaches. The resulting model is arguably more comprehensive and holistic than any of its forerunners and seems, from the feed-back received from experts in the field, to have offered new illumination. It is perhaps relevant to report here that the publication based on the revised version of the model (Cheetham and Chivers, 1998) was selected from across 400 academic journals for a special award (Anbar Electronic Intelligence Citation of Excellence) for its "... outstanding contribution to the literature and body of knowledge".

One fascinating and perhaps unique finding of the research was the importance of personal competencies, coupled with certain subjective factors, such as appearance and speech, in signalling professional competence to others, even within the same profession (Chapt. 7, pp. 234-236). The extent of the use of psychological techniques such as visualisation, forms of positive thinking and mental rehearsal to help prepare for difficult tasks (Chapter 8) was a further interesting finding, though it might be argued that this ought not to be too surprising. Both sets of phenomena would benefit from more focused investigations.

The central focus of the research was of course the acquisition of professional competence. In this area, although the research has produced a range of interesting insights, it cannot be argued that the resulting, identified learning mechanisms were totally unique. As previously acknowledged, many of them were already well known and described in the literature. But often they had been described in isolation, sometimes with a degree of reductionism which suggested that one or other mechanism was the single most important method of learning. In some instances the results of the research reinforced earlier hypotheses, in others these were challenged. It seems to be the case that none of the previous researchers have picked up such a wide range of learning mechanisms, experiences and events or located these in relation to each other.

The resulting taxonomy, though in need of further refinement, offers what is believed to be the first attempt to bring such a wide range of learning experiences together in a single framework, in a way which offers a structure and hierarchy. The taxonomy also provides a new tool which can be used in the planning of professional development programmes and in guiding practitioner self-development. Though the taxonomy itself could benefit from

further elaboration, it appears to be broader-based and more comprehensive than any known forerunner. In a few areas, such as role modelling, the research findings led to a new typology of levels. Similarly, in relation to reflection new, or previously undescribed, categories emerged.

The main potential contributions to the knowledge in respect of the acquisition of professional competence may therefore be summarised as: the demonstration of the multifaceted nature of professional learning; the reinforcement of the individuality of learning experiences; the indication offered of the sheer volume and variety of learning that takes place long after formal training has ended; and the attempt to identify and order the various mechanisms involved.

Conclusions

Professions, however defined, are currently in a period of considerable change. It seems likely that such changes will continue and will probably accelerate due to continuing social, economic and technological pressures. Therefore, professional development must focus strongly on equipping professionals to cope with future changes. This may be more important than fitting them for every eventuality they may meet in their early practice. Most crucially, it must include the skills required to acquire and synthesise new knowledge, along with more general learning skills (including reflection) linked to a commitment to lifelong learning.

A number of the classic characteristics traditionally associated with professions no longer apply to many professions, or do so rather weakly. Therefore, using the possession of such characteristics as a way of identifying or defining professions is unsatisfactory. It is likely to lead to a narrow group of qualifying occupations. Professions today cannot easily be 'pigeon-holed'. They are a heterogeneous group of occupations and their characteristics vary according to their functions, operating environments and perhaps their history.

Other features, often seen as characteristic of professions, such as a professional body membership, the provision of standardised training for new entrants and even formal pre-entry requirements are by no means universal. Where the latter do exist, there are doubts amongst practitioners about their relevance, and there is a tendency for such requirements to be progressively tightened, though this may not be as restrictive as it may seem since the general level of education of the population is also progressively increasing. But given the increasing diversity of qualification routes, professions ought perhaps to be opening up entry to those with less traditional qualifications. They should certainly ensure that any pre-entry requirements that they do impose have been validated against the

attributes needed for successful completion of the development programme and, ideally, successful practice within the profession.

Where professions offer formal development programmes, these are often seen by participants as better at imparting knowledge than developing professional practice skills. Programmes do, however, often include significant elements of practical work but the quality and relevance of these to real practice is variable and there appears to be a widespread demand among trainees for a greater concentration on practical skills development, even where the proportion of practical work is already high. Professional developers should look for ways of satisfying this demand in ways that are as close as possible to the professional workplace and which offer structure, predictability and consistency in terms of what is learned. Trainees should be encouraged towards as wide a range of potentially formative experiences as possible, for example within placements, and taught how they can best exploit these.

Appropriate specialist knowledge is also crucial to effective performance and it is important that in addressing the criticality of practical skills, the importance of knowledge should not be devalued. However, the knowledge content of programmes needs to be regularly reviewed with a particular emphasis on the identification of 'core and framework knowledge'.

There appear to be certain attributes that could reasonably be regarded as generic to professions and which ought therefore to be addressed within all professional development programmes. These include problem solving, analysis, team working, inter-personal and management skills. The single most important generic attribute appears to be oral communication. Personal and behavioural skills also appear to be critical, not only for enabling effective performance in various aspects of the professional role, but also for transmitting an aura of competence to others. The ethical dimension was also recognised as important to professional performance. Yet many of these attributes were considered not to have been well addressed in past programmes. Professional development programmes should facilitate the development of each of these attributes and also explicitly address the issue of professional socialisation, though it is recognised that in each case further development will need to take place beyond the formal environment and after the initial programme has been completed. None of this should be at the expense of the development of the profession-specific skills and competencies on which a practitioner's specialist expertise may rest.

Professional learning is a complex process and post-formal learning appears to be a major contributory factor to professional competence. Although this is a natural process, it ought to be possible to enhance it by helping trainees to develop more effective learning skills. Individuals learn in many different ways and it is clear that different individuals find different

kinds of experience formative. Therefore, in facilitating post-formal learning it is dangerous to give primacy to any single approach or process, assuming this will work for all trainees. Instead, it may be better to encourage trainees to recognise, seek out and fully exploit as wide a range of potential learning opportunities as possible. Indeed trainees should be encouraged to view all experiences as potential learning experiences, becoming autonomous, self-directed 'learning acquirers'.

There is a clear recognition amongst professionals of the value of reflection and a strong tendency for them to reflect about their work. However, this often involves unstructured, casual or even almost subconscious forms of reflection. Reflection also appears to contribute less to initial development than it does to the on-going performance of more experienced professionals. There would seem to be value in training professionals to reflect more systematically as a way of making their reflection more productive. This should be included within the development of learning skills.

Within the study, written examinations were the most widely reported method of assessment, though less formal assessment methods and even competence based assessment were not uncommon. The rigour of assessment was generally considered to be about right, but there appears to be a moderate enthusiasm for making assessment methods more reflective of real practice and for the greater use of competence based methods. Both of these issues should be addressed by providers and where possible a range of assessment methods should be used in order to increase the reliability of assessment.

There appears to be a strong recognition on the part of professionals of the importance of CPD, though the extent to which this is translated into participation is less certain and the CPD horizons of practitioners seem relatively narrow. These are often focused on updating, as opposed to broadening knowledge and skills, undertaking new specialisms or developing extra-professional competencies - e.g. in managerial and commercial areas. In the case of managerial and commercial areas, there appear to be courses and/or learning materials available specifically for professionals, some of them endorsed by professional associations (see, for example, the reference to competence based management CPD for professionals, Chapt. 1, p. 32). However, the relatively low priority given to these areas by practitioners may reflect a view that such skills can be picked up on the job. As in initial professional development, there would seem to be a considerable amount of continuing learning and updating done through informal methods.

Competence is potentially a problematic concept but it is capable of illumination by considering it from a number of different perspectives. Equally, the modelling of professional competence may best be done by incorporating a range of perspectives into a

single model. This seems to be the only way of avoiding the partiality that appears to exist in previous models.

Professionals operate in complex ways in doing what they do. Previous attempts to categorise their modus operandi, though insightful, have tended to be overly reductionist. Professionals appear to be pragmatic, changing their mode of operation and approach to problem solving, perhaps unconsciously, to suit different situations. Any epistemology of practice must recognise this tendency, as must any professional development paradigm.

Areas for Further Investigation and Development

In a number of areas, this research has only scratched the surface of some very complex issues. It leaves some questions only partly answered and sets the agenda for a range of further investigations and developments. This section identifies possible future work.

Formal learning

This research has highlighted the importance of personal competence, communication skills and ethical competence, but it was beyond the scope of the work to identify the best ways of developing these, or indeed the best ways of assessing them. Investigations around these areas would be extremely valuable. Similarly, given the importance of both reflection and other learning skills, an investigation of ways of facilitating the development of these skills would seem to be important. This work might be linked to studies of what makes for an effective, autonomous learner.

If the suggestions made in this thesis regarding the identification of *core and framework knowledge* are to be adopted, more work will be needed to devise procedures for eliciting such knowledge.

Informal learning

One useful line of further inquiry in this area would be an investigation of possible correlations between particular learning mechanisms, or particular kinds of experience, and the development of particular kinds of competence. For example, are some mechanisms better than others at developing personal competencies in general, or for developing particular kinds of behavioural skill? The answer to this question would assist in planning development opportunities to cover the full range of desired skills and competencies.

Another useful piece of work would be around the taxonomy of learning mechanisms. This might include research aimed at validating the taxonomy, a search for additional

mechanisms and/or types of learning experience, and possibly developing the taxonomy further by introducing a third order of disaggregation.

A third area of potential work linked to informal learning would be to investigate why a particular learning experience (such as role modelling) seems to work well for one individual but not for another. Is this linked, for example, to preferred learning style and/or to particular personality traits? Might it be possible to predict which type of learning mechanism or experience will be the most suitable for a particular individual? Such a prediction would be useful in steering trainees towards the kinds of opportunity and experience that would be most suitable for them.

Professional competence model

The model of competence developed through this research, though tested to some extent, would benefit from further validation. Such work could lead to modification or further refinement of the model.

A useful additional piece of work connected to the model would be the development of a questionnaire which could be used to elicit data for the construction of occupational competence mix diagrams. This could be similar to those used for conducting learning styles inventories (Smith and Kolb, 1985; Honey and Mumford, 1986) (Chapt. 4, pp. 118-119). It would ask a series of disguised questions, the combined answers to which would enable the segment angles for the four *core components* to be determined. Such a development would require a considerable amount of piloting but the resulting instrument could prove useful to those planning professional development programmes.

A similar instrument might also be developed for enabling the construction of individual competence mix diagrams (Chapt. 6, p. 192, Fig. 13). These could be used as an aid to self-development.

Other factors affecting professional competence

There was some indication from the research that professional competence was affected by context, environment and personality but there was insufficient time to explore these dimensions in any depth. They are therefore shown within the model as external, relatively static elements. But clearly, there are few professions today where the context and environment are truly static, and the ability to respond and adapt to rapid change is increasingly seen as a key requirement for successful professionals. A better understanding how competence is mediated by each of these factors would not only inform possible refinements to the model but might, for example, help the matching of particular personality types to suitable kinds of conversion or remedial training.

The importance of the affective domain to professional competence may be underestimated currently. Further investigations around this area might include the use of psychological techniques to improve competence, and the role of personal competence and/or other factors in signalling competence to others.

Epistemology and paradigm validation

It was acknowledged earlier that the questioning around the area of how professionals operate was relatively limited. It also relied entirely on the perceptions of practitioners, themselves. A more intensive investigation of the modus operandi of professionals and of how they solve problems would be desirable. This could benefit from the use of alternative research methods, perhaps including direct observation of professionals and/or interviews with other parties, such as clients and employing organisations. Similarly, it would be sensible to test the validity and practicability of the proposed new paradigm of professional development. Such investigations might of course lead to a modification of the epistemology of practice and/or paradigm of professional development offered in this thesis.

Professional development guides

The practical implications of this research need further exposition and might usefully be turned into at least two practical guides. One of these could be a guide to the design of professional development programmes. This would be aimed at professional associations, HE institutions and others involved in organising professional development. The other could be a practitioner self-development guide. This would be geared towards individual professionals and would aim to help them to recognise potential learning opportunities and to exploit these to the full. Development of the latter would require further work to 'flesh out' the *learning acquirer paradigm* and turn this into practical suggestions, along with suitable supporting exercises or tools.

Finally, in relation to areas for further investigation and development, mention should be made of continuing professional development. This is already attracting a growing amount of research but given the importance of CPD, clearly more is needed. Key questions that need to be addressed should include:

- what are the most effective ways of encouraging participation?
- what is the relative effectiveness of different types of CPD policies, implementation methods and support mechanisms?
- how can the learning resulting from CPD (outputs or outcomes) be effectively measured?

Epilogue

In this, the final section of the thesis, I shall adopt the 'first person' to offer a few personal reflections on the research.

This research has been multifaceted and wide ranging. Yet, I hope it has not been too diffuse to yield some useful results. I believe that by taking a broad view of professional development, the investigation ought to have delivered findings and insights that are more holistic than would have been forthcoming from a narrower study.

With hindsight it is of course possible to see ways in which the research could have been improved. For example, it would probably have been better if I had collected less factual data about the sample professions and, instead, investigated in greater depth the ways in which professionals operate. This would have provided a firmer foundation on which to base the modified epistemology of practice and construct the new paradigm of professional development. I consider both of these to be key research outputs, which are reasonably well supported by the data from the research, yet I have to accept that both are more tentative than they might have been had I put more resource into these two areas.

Similarly, if I had focused more on psychological, as opposed to sociological issues from the start, I might have been able to investigate more fully the impact on competence of the affective and cognitive domains - e.g. feelings, emotions, relationships, thought processes, mental models, etc. As it was, I was given some tantalising glimpses of these fascinating areas but was unable to explore them in depth.

Looking back, it is possible to see a number of ways in which the research methods could have been improved, yet I believe that despite some limitations, they were on the whole robust and the results obtained reliable (except where otherwise acknowledged).

From a personal point of view, the research has been a profound, if at times taxing, journey of discovery. Not only have I learned much about professionals and how they operate and develop, but I have also learned more about myself. It has been reassuring to find that even the most competent of professionals also have doubts from time to time about their own effectiveness, often have areas where they feel less than adequate, and sometimes face blocks to their competence.

I have been deeply impressed by the calibre of respondents, the willingness with which they gave of their time, the candour with which they answered questions, the humility they often displayed in admitting problems and shortcoming, the graphic and at times moving anecdotes they related, and the profound insights they offered. The experience has encouraged me to reflect more about my own professional practice and hopefully effect

some improvements. I have also found myself making use of some of the approaches various respondents had themselves found helpful, particularly in overcoming difficulties.

I have found the challenge of conducting part-time research alongside a demanding full-time job both taxing and energising. It has informed and invigorated my role as a Government policy adviser and has enabled me to take on new areas of responsibility.

Though the findings and products of this research are modest, it is my sincere hope that they may in some small way help those professionals who come after me to acquire competence more surely and more quickly and, despite the changes and challenges they will undoubtedly face, to become ever more effective throughout their professional lives.

.....

References

References

- Allnutt, M. (1976) 'Human Factors: Basic Principles', in R. Hurst and L. Hurst (Eds), *Pilot Error: The Human Factors* (2nd Edition, 1982), St Albans, Granada Publishing, pp. 1-22.
- Argyris, C. and Schön, D. A. (1974) *Theory in Practice: Increasing Professional Effectiveness*, San Francisco, Jossey-Bass Inc.
- Argyris, C. and Schön, D. A. (1978) *Organisational Learning: A Theory of Action Perspective*, San Francisco, Jossey-Bass Inc.
- Ashworth, P. and Saxton, J. (1990) 'On Competence', *Journal of Further and Higher Education*, Vol. 14, No. 2, pp. 3-25.
- Astley, J. (1992) 'Knowledge and Practice Education', in H. Bines and D. Watson (Eds) *Developing Professional Education*, Buckingham, Society for Research into Higher Education and Open University Press, pp. 67-73.
- Bandler, R. and Grinder, J. (1979) *Frogs into Princes: neuro-linguistic programming*, Moab, Utah, Real People Press.
- Bandura, A. (1977) *Social Learning Theory*, Englewood Cliffs, New Jersey, Prentice Hall.
- Bandura, A. (1986) *Social Foundations of Thought and Action: A Social Cognitive Theory*, Englewood Cliffs, New Jersey, Prentice-Hall.
- Barker, P. (1989) *Multi-media Computer Assisted Learning*, London, Kogan Page.
- Barnett, R. (1994) *The Limits of Competence: Knowledge, Higher Education and Society*, Buckingham, The Society for Research into Higher Education and Open University Press.
- Beaumont, G. (1995) *Review of 100 NVQs and SVQs*. Report submitted to the DfEE, Sheffield, Department for Education and Employment.
- Belbin, R. M. (1981) *Management Teams: Why they succeed or fail*, London, Heinemann. Cited in Ashworth and Saxton (1990).
- Bell, J. (1987) *Doing Your Research Project*, Buckingham, Open University Press.
- Bennetts, C. M. (1998) *Traditional Mentor Relationships in the Lives of Creative People: Toward and Aesthetic Understanding*. Unpublished PhD thesis, Sheffield, University of Sheffield.
- Betty, J. H. (1979) *Church and Community: The Parish Church in English Life*, Bradford-on-Avon, Wiltshire, Moonraker Press.
- Bines, H. (1992) 'Issues in Course Design', in H. Bines and D. Watson (Eds), *Developing Professional Education*, Buckingham, Society for Research into Higher Education and Open University Press, pp. 11-27.
- Blagg, N., Ballinger, M. and Lewis, R. (1993) *Development of Transferable Skills in Learners*, Research and Development Report No. 18 (August), Sheffield, Employment Department.

- Bloom, B. S. (1956) *Taxonomy of Educational Objectives, Book 1, Cognitive Domain* (18th printing, 1974), London, Longman Group Ltd.
- Boak, G. (1991) *Developing Managerial Competences: The Management Learning Contract Approach*, London, Pitman.
- Boak, G. (1998) 'Benchmarks for Competency Models', *Competency*, Vol. 5, No. 2. pp. 24-28.
- Boak, G. and Thompson, D. (1998) *Mental Models for Managers*, London, Century Business Books.
- Bolles, R. C. (1972) 'Reinforcement, Expectancy and Learning', *Psychological Review*, Issue 77, pp. 32-48. Cited in Hill (1990).
- Bolton, M. (1995) *Assessment and Development in Europe*, New York, McGraw-Hill.
- Boreham, N. C. (1987) 'Learning from Experience in Diagnostic Problem Solving', in J. Richardson et al. (Eds) *Student Learning: Research into Education and Cognitive Psychology*, Guildford, Society for Research into Higher Education, pp. 89-97.
- Boud, D., Keogh, R. and Walker, D. (1985) *Reflection: Turning Experience into Learning* London/ New York, Kogan Page/Nichols Publishing Co.
- Boyatzis, R. E. (1982) *The Competent Manager: A Model for Effective Performance*, New York, Wiley.
- Boydell, T. (1990) *Modes of Being and Learning: Working Paper No. 8*, Sheffield, Transform.
- Brennan, J. and Little, B. (1996) *A Review of Work Based Learning in Higher Education*, Sheffield, Department for Education and Employment.
- Brookfield, S. D. (1986) *Understanding and Facilitating Adult Learning*, Milton Keynes, Open University Press.
- Brotherton, C. (1991) *New Developments in Research into Adult Cognition*, Nottingham, University of Nottingham, Department of Adult Education.
- Brundage, D. H. and Mackeracher, D. (1980) *Adult Learning Principles and their Application to Programme Planning*, Ontario, Ministry of Education.
- Bruner, J. S. (1967) *Toward a Theory of Instruction*, Cambridge, Massachusetts, The Belknap Press of Harvard University Press.
- Bruner, J. S. (1978) 'The Role of Dialogue in Language Acquisition', in A. Sinclair, R. J. Jarvella and J. M. Levalts (Eds), *The Child's Conception of Language*, Berlin, Springer-Verlag, pp. 241-256.
- Bucher, R. and Stelling, J. G. (1977) *Becoming Professional*, Beverly Hills/London, Sage Publications.
- Burley, P. (1997) 'CPD and Lifelong Learning in the NHS', *CPD Forum*, Issue No. 3 (November), p. 3.
- Buzan, T. (1988) *Hamessing the Para Brain* (revised edition), Cambridge, Colt Books Ltd.

- Candy, P., Augstein, S. and Thomas, L. (1985) 'Reflection and the Self-organised Learner: a Model of Learning Conversations', in D. Boud, R. Keogh and D. Walker (Edit), *Reflection: Turning Experience into Learning*, London/ New York, Kogan Page/ Nichols Publishing Co.
- Cannon, T. and Taylor, F. W. J. (Eds) (1993) *Management Development to the Millennium*, London, Institute of Management.
- Caplow, T. (1954) *The Sociology of Work*, Minneapolis, University of Minnesota Press. Reprinted in Vollmer and Mills (1966), pp. 20-21.
- Carr, W. and Kemmis, S. (1983) *Becoming Critical: Knowing through Action Research*, Victoria, Australia, Deakin University Press.
- Carr-Saunders, A. M. (1928) *The Professions: Their Organisation and Place in Society*, Oxford, Clarendon Press.
- Carr-Saunders, A. M. and Wilson, P. A. (1933) *The Professions* (2nd impression, 1964), London, Frank Cass and Co. Ltd.
- Carsrud, A. and Olm, E. (1984) 'The Success of Male and Female Entrepreneurs: a comparative analysis of the effects of multidimensional achievement, motivation and personality traits'. Paper presented at the Academy of Management Conference, Boston, USA. Cited in Fagenson (1989).
- Casement, P. (1985) *On Learning from the Patient*, London, Tavistock Routledge.
- Caskie, H. and Walker, L. (1997) *Incorporation of Best Practice into a Dual Certification Programme, Companion Document: A Critical Review of the Literature*, Blagdon, Further Education Development Agency.
- Caulkin, S. (1995) 'Take your Partners', *Management Today* (February), pp. 26-30.
- Champion, R. (1992) 'The Philosophy of an Honours Degree Programme in Nursing and Midwifery' in H. Bines and D. Watson (Edit), *Developing Professional Education*, Buckingham, Society for Research into Higher Education and Open University Press, pp. 28-31.
- Charlton, K. (1973) 'The Education of the Professions in the Sixteenth Century', in T. G. Cook (Ed), *Education and the Professions*, pp. 19-27.
- Cheetham, G. (1994) *The Developmental Effectiveness of the Management Standards and Associated NVQs: An Examination of the MCI Approach to Management Development*, Research and Development Series - Report No. 19, Sheffield, Employment Department, Learning Methods Branch.
- Cheetham, G. and Chivers, G. (1996a) 'Professional Competence: Harmonising reflective practitioner and competence-based approaches'. Paper presented at 'Professional Capability' Conference, London (January, 1996).
- Cheetham, G. and Chivers, G. (1996b) 'Towards a Holistic Model of Professional Competence', *Journal of European Industrial Training*, Vol. 20., No. 5, pp. 20-30.
- Cheetham, G. and Chivers, G. (1997) 'Formação Profissional - Um Modelo Provisório de Competência Profissional', *Formação e Inovação*, Vol. 2. No. 3, Lisbon, NOVA ETAPA, pp. 47-58.

- Cheetham, G. and Chivers, G. (1998) 'The Reflective (and competent) Practitioner', *Journal of European Industrial Training*, Vol. 22, No. 7, pp. 267-276.
- Cheetham, G. and Chivers, G. (1999) 'Professional Competence: Harmonising Reflective Practitioner and Competence-based Approaches', in L. Cunningham, S. Lester and D. O' Riley (Eds), *Developing the Capable Practitioner*, London, Kogan Page, pp. 215-228.
- Child, J. and Schriesheim, J. F. (1979) *Changes in the Social Positions of Professional Occupations*, Birmingham, University of Aston Management Centre.
- Clarke, N. F. and Fraser, T. (1982) *The Gestalt Approach: An Introduction for Managers and Trainers*, Horsham, Roffey Park Management Centre.
- Clarke, N. F. and Fraser, T. (1984) *Unfinished Business*, London, Gower Press.
- Clutterbuck, D. (1985) *Everyone Needs a Mentor: how to foster talent within organisations*, London, Institute of Personal Management.
- Cockerill, T. (1989) 'The Kind of Competencies needed for Rapid Change', *Personnel Management* (September), pp. 52-56.
- Coe, T. (1995) 'Positioning for the Unknown: Career Development for Professionals in the 1990s', *Professional Manager*, Vol. 4, No. 1, p. 26.
- Collins, A., Brown, J. S. and Newman, S. E. (1989) 'Cognitive Apprenticeship: Teaching the Crafts of Reading, Writing and Mathematics', in L. B. Resnick (Ed), *Knowing, Learning and Instruction, Essays in Honour of Robert Glazer*, New Jersey, Lawrence Erlbaum Associates.
- Cooper, H. S. F. (1995) *Thirteen: The Apollo Flight that Failed*, Baltimore, The Johns Hopkins University Press.
- Comford, I. and Athanasou, J. (1995) 'Developing Expertise through Training', *Industrial and Commercial Training*, Vol. 27, No. 2, pp. 10-18.
- Crawley, R. C. and Reay, P. H. (1992) *Senior Management Standards: An Investigatory Study into the Proposed M3 Model*. Research project report, Sheffield, Employment Department.
- CVCP (1998) *Skills Development in Higher Education*, London, The Committee of Vice Chancellors and Principals of the UK.
- Dahrendorf, R. (1969) 'The Service Class', in T. Burns (Ed) *Industrial Man*, Harmondsworth, Penguin, pp. 140-150.
- Dale, M. Iles, P. (1992) *Assessing Management Skills: a guide to competencies and evaluation techniques*, London, Kogan Page Ltd.
- Day, C. and Baskett, H. K. (1982) 'Discrepancies between Intentions and Practice: Re-examining Some Basic Assumptions about Adult and Continuing Professional Education', *International Journal of Lifelong Education*, Vol. 1, No. 2, pp. 143-55.
- Dean, C. and Whitlock, Q. (1988) *A Handbook of Computer Based Training* (2nd edition), London, Kogan Page.

- Dearing, R. (1997) *'Higher Education for the 21st Century: Report of the National Committee of Inquiry into Higher Education'*, London, The Stationery Office.
- Debling, G. D. (1991) 'When the Assessing has to Stop', *Competence and Assessment*, Issue 15, p. 3.
- De Bono, E. (1967) *The Use of Lateral Thinking*, Harmondsworth, Penguin.
- De Jong, J. A. (1997) 'Research into on-the-job training: a state of the art', *International Journal of Educational Research*, Vol. 25, No. 5, pp. 449-471.
- de Vaus, D. A. (1985) *Surveys in Social Research*, (3rd edition, 1991), London, UCL Press.
- De Ville, H. G. (1986) *'Review of Vocational Qualifications in England and Wales'*. Report by Government-appointed working group, London, HMSO.
- Dewey, J. (1938) *Experience and Education*, Kappa Delta Pi. Cited in Kolb (1984) and Boud et al. (1985).
- DfEE (1997a) *Occupations in the Future*. Paper produced for DfEE by Business Strategies Ltd., Sheffield, Department for Education and Employment.
- DfEE (1997b) *Responses to The Department for Education and Employment Position Paper on Higher Level Vocational Qualifications*, Sheffield, DfEE.
- DfEE (1998a) *'The Learning Age: a renaissance for a new Britain'*. Government Green Paper, London, The Stationery Office Ltd.
- DfEE (1998b) *Key Skills: Guide for Employers*, Sudbury, Suffolk, DfEE Publications.
- DfEE (1998c) *National Adult Learning Survey 1997: Summary*, Sudbury, DfEE Publications.
- Dinham, S. M. and Stritter, F. T. (1986) 'Research on Professional Education', in M. C. Wittrock (Ed), *Handbook of Research on Teaching* (3rd edition), New York, Macmillan Publishing Co.
- Dobson, J. L. (1973) 'The Training Colleges and their Successors 1920-1970' in T. G. Cook (Ed) *Education and the Professions*, London Methuen and Co. Ltd., pp. 49-68.
- Downie, R. S. (1990) 'Professions and Professionalism', *Journal of Philosophy of Education*, Vol. 24, No. 2, pp. 147-155.
- Downs, S. and Perry, P. (1984) 'Developing Learning Skills', *Journal of European Industrial Training*, Vol. 8, No. 1, pp. 21-26.
- Drever, J. (1964) *A Dictionary of Psychology*, Harmondsworth, Penguin Reference Books.
- Dreyfus, H. L. and Dreyfus, S. E. (1986) *Mind over Machine: The Power of Human Intuition and Expertise in the Era of the Computer*, Oxford, Basil Blackwell. Cited in Eraut (1994).
- Driver, R., Asoko, H., Leach, J., Mortimer, E. and Scott, P. (1994) 'Constructing Scientific Knowledge in the Classroom', *Educational Researcher*, Issue 23, pp. 5-12.
- DTI (1998) *'Our Competitive Future: Building the Knowledge Driven Economy'*, London, Department of Trade and Industry.

- Dyson, J. (1995) 'Surgery at 28,000 Feet', *Reader's Digest*, Vol. 147, No. 884 (December), pp. 49-55.
- ED (1996) *NVQs and SVQs at Higher Levels: Strategy Paper*, Sheffield, Employment Department.
- Edmonds, T. and Tey, M. (1990) 'Personal Competence: Where does it fit in?', *Competence and Assessment*, Issue 13, pp. 6-8.
- Edmunds, M. Carter, P. Lindsay, J. (1997) *The Accreditation of Competence for Sandwich Year Students*. Report of a DfEE-funded project. London, University of Greenwich.
- Edwards, M. R. and Ewen, A. J. (1996) *360 Degree Feedback: The Powerful New Model for Employee Assessment and Performance Improvement*, New York, AMACON.
- EITB (1980) *The Trainee-centred Approach to Instruction*, Watford, Engineering Industry Training Board.
- Ellis, R. (1998) 'Poor Conditions Drive Doctors out of NHS'. News report based on a research report entitled 'Don't Waste Doctors' (10 June), London, Press Association.
- Elstein, A. S. and Bordage, G. (1979) 'Psychology of Clinical Reasoning' in G. Stone et al., *Health Psychology - A Handbook*, San Francisco, Jossey-Bass.
- Engineering Council (1993) *Review of Engineering Formation: a discussion document*, London, The Engineering Council.
- Eraut, M. (1990) 'Identifying the Knowledge which Underpins Performance', in H. Black and A. Wolf (Eds), *Knowledge and Competence: Current Issues in Training and Education*, Sheffield, Careers and Occupational Informational Centre pp. 22- 28.
- Eraut, M. (1993) 'Implications for Standards Development', *Competence and Assessment*, Issue 21, pp. 14-17.
- Eraut, M. (1994) *Developing Professional Knowledge and Competence*, London, The Falmer Press.
- Eraut, M., Alderton, J., Cole, G. and Senker, P. (1997) *Development of Knowledge and Skills in Employment*. Unpublished research paper, Swindon, Economic and Social Research Council.
- Eraut, M. and Cole, G. (1993) *Assessing Competence in the Professions*. Research project report, Sheffield, Employment Department.
- Evans, L. and Kerrison, S. (1994) *MCI Personal Competence Model: Uses and Implementation*, Learning Methods Branch - Research and Development Series - No. 24, Sheffield, Learning Methods Branch, Employment Department.
- Fagenson, E. A. (1989) 'The Mentor Advantage: perceived career/job experiences of protégés', *Journal of Organisational Behaviour*, Vol. 10, No. 1, pp. 309-320.
- Farmer, M. (1994) 'Once a Chartered Engineer ... but always a Chartered Engineer?', *Professional Engineering*, Vol. 7. No. 15 (September), pp. 19-20.
- Fay, B. (1975) *Social Theory and Political Practice*, London, Allen and Unwin.

- Feurstein, R., Rand, Y., Hoffman, M. and Miller, R. (1980) *Instrumental Enrichment*, Baltimore, MD, University Park Press. Cited in Blagg et al. (1993).
- Finn, W. (1993) 'Is The Top Talent Measurable?', *The Times* (1 April), p. 26.
- Fiol, C. M. and Lyles, M. (1985) 'Organisational Learning', *Academy of Management Review*, Vol. 10, No. 4, pp. 803-813.
- Fitts, P. M. (1986) 'Factors in complex training' in G. Kuhlen (Ed), *Studies in Educational Psychology*, Waltham, MA, Blaisdell Publishing Co. Cited in Cornford and Athanasou (1995).
- Fleming, D. (1991) 'The Concept of Meta-competence', *Competence and Assessment*, Issue 16, pp. 7-10.
- Fletcher, C. (1996) 'Mix and match fails to work on competencies', in *People Management* (12 September), pp. 53-54.
- Fletcher, C. (1998) 'Circular Argument', *People Management* (October), pp. 46-49.
- Fletcher, S. (1991) *NVQs Standards and Competence: A Practical Guide for Managers and Trainers*, London, Kogan Page.
- Frank, W. F. (1966) *The Legal Aspects of Industry and Commerce* (4th edition) London, Harrop and Co.
- Freidson, E. (1970) *The Profession of Medicine; A Study of the Sociology of Applied Knowledge*, New York, Harper and Row.
- Freidson, E. (1983) 'The Theory of Professions: The State of the Art', in R. Dingwell and P. Lewis (Eds), *The Sociology of the Professions: Lawyers, Doctors and Others*, New York, St Martins.
- Freidson, E. (1985) 'The Reorganisation of the Medical Profession', *Medical Care Review*, Vol. 44, No. 1, pp. 11-35.
- Freidson, E. (1986) *Professional Powers: A Study of the Institutionalisation of Formal Knowledge*, Chicago, University of Chicago Press.
- Freire, P. (1978) *Pedagogy in Process: The Letters to Guinea Bissau*, London, Writers and Readers.
- Gagné, R. M. (1962) 'The Acquisition of Knowledge', *Psychological Review*, Issue 69, pp. 355-365.
- Gagné, R. M. (1967) 'Military Training and Principles of Learning', *American Psychologist*, Issue 17, pp. 83- 91.
- Gagné, R. M. (1984) *The Conditions of Learning and Theory of Instruction* (4th Edition), New York, Holt Rinehart and Winston.
- Gagné, R. M. and Briggs, L. J. (1979) *Principles of Instructional Design*, New York, Holt Rinehart and Winston.
- Gealy, N. (1993) 'Development of NVQs and SVQs at Higher Levels', *Competence and Assessment*, Issue 21, pp. 4-9.

- Gear, J., McIntosh, A. and Squires, G. (1994) *Informal Learning in the Professions*. Report of a research project funded by the Higher Education Funding Council for England, Hull, University of Hull.
- Gibbons, T. (1986) *Revisiting the Question of Born vs. Made: towards a theory of development of transformational leaders*. Unpublished Doctoral dissertation, The Fielding Institute, Boston. Cited in Fagenson (1989).
- Gibbs, G. (1992) *Improving the Quality of Student Learning*, Bristol, Technical and Educational Services Ltd.
- Gillies, C. and Reading, P. (1992) 'Professional Diaries and Assessment', in H. Bines and D. Watson (Eds), *Developing Professional Education*, Buckingham, Society for Research into Higher Education and Open University Press, pp. 89-92.
- Glaser, B. and Strauss, A. L. (1967) *The Discovery of Grounded Theory*, Chicago, Aldine.
- Glenny, G. and Hickling, E. (1992) 'Designing the Practicum for Teacher Education', in H. Bines and D. Watson (Eds), *Developing Professional Education*, Buckingham, Society for Research into Higher Education and Open University Press, pp. 40-47.
- Goffman, E. (1969) *The Presentation of Self in Everyday Life*, London, Allen Lane.
- Gonczi, A., Hager, P. and Oliver, L. (1990) *Establishing Competency-based Standards in the Professions*, Research Paper, Canberra, Australian Government Publishing Service.
- Goodlad, J. I. (1984) *Education for the Professions: Quis custodiet ...?*, Guildford, Society for Research into Higher Education and NFER-Nelson.
- Gordon, J. (1997) 'Dentists' Plan to Re-accredit Practitioners', *CPD Forum*, Issue No. 3 (November), p. 3.
- Grant, G. and Associates (1979) *On Competence*, San Francisco, Jossey-Bass Inc.
- Greek, D. (1994) 'Tuning Broadcasters to the Engineer's Wavelength', *Professional Engineering*, Vol. 7, No. 14 (August), pp. 7-8.
- Green, A. (1995) 'The European Challenge to British Vocational Education and Training' in P. Hodgkinson and M. Issitt (Eds), *The Challenge of Competence: Professionalism through Vocational Education and Training*, London, Cassell, pp. 13-27.
- Greene, J. (1975) *Thinking and Language*, London, Methuen. Cited in Lafrancois (1980).
- Greenwood, E. (1957) 'Attributes of Professions', *Social Work*, Vol. 2, No. 3 (July), pp. 44-55. Reprinted in Vollmer and Mills (1966), pp. 10-21.
- Greer, A. (1979) *Statistics for Engineers*, Cheltenham, Stanley Thomes (Publishers) Ltd.
- Gross, R. (1987) *Language and Thought in Psychology: the science of mind and behaviour*, London, Hodder and Stoughton.
- Grover, D. (1998) 'CPD: A Government Perspective'. Paper presented at Inter-professional CPD Forum Conference - 'Does CPD Matter?' (May 1998).

- Hackett, G., Betz, N. and Doty, M. (1985) 'The Development of a Taxonomy of Career Competencies for Professional Women', *Sex Roles*, Vol. 12, Nos. 3/4, pp. 393-408. Cited in Hearn et al. (1996).
- Hall, D. T. (1986) *Career Development in Organisations*, San Francisco, Jossey-Bass Inc.
- Hammond, K. R. (1980) *Human Judgement and Decision Making*, New York, Hemisphere.
- Harris, C. (1992) 'NPL, pathway to personal effectiveness', *Personnel Management*, Vol. 24, No. 7 (July), pp. 44-47.
- Hearn, G., Close, A., Smith, B. and Southey, G. (1996) 'Defining Generic Professional Competencies in Australia: Towards a Framework for Professional Development', *Asia Pacific Journal of Human Resources*, Vol. 34, No. 1., pp. 42-62.
- Haug, M. R. (1975) 'The Deprofessionalisation of Everyone', *Sociological Focus*, Issue 3, pp. 187-213.
- Haug, M. R. (1977) 'Computer Technology and the Obsolescence of the Concept of Profession', in M. R. Haug and J. Dofny (Eds), *Work and Technology*, London, Sage Publications Ltd., pp. 215-226.
- Hawkins, P. and Shohet, R. (1989) *Supervising in the Helping Professions*, Milton Keynes, Open University Press.
- Herzberg, F. (1976) *The Managerial Choice: to be efficient and to be human*, Homewood, Illinois, Dow Jones-Irwin.
- Hill, W. F. (1990) *Learning: A Survey of Psychological Interpretations* (5th Edition), New York, Harper and Row.
- HMSO (1990) *Standard Occupational Classifications*, Vol. 1, London, HMSO.
- Hoare, H. W. (1911) *Our English Bible*, London, John Murray.
- Hodkinson, P. (1995) 'Professionalism and Competence', in P. Hodkinson and M. Issitt (Eds), *The Challenge of Competence: Professionalism through Vocational Education and Training*, London, Cassell, pp. 58-69.
- Hodson, D., and Hodson, J. (1998) 'From Constructivism to Social Constructivism: a Vigotskian perspective on teaching and learning science', *School Science Review*, Vol. 79, No. 289 (June), pp. 33- 41.
- Holmes, L. and Joyce, P. (1993) 'Rescuing the Useful Concept of Managerial Competence: From Outcomes Back to Process', *Personnel Review*, Vol. 22, No. 6, pp. 37-52.
- Holmes, L. (1995) 'The Competence Confidence Trick', *Training Education and Employment* (November), pp. 11-13.
- Honey, P. and Mumford, A. (1986) *The Manual of Learning Styles*, Maidenhead, P. Honey.
- Hovland, C. I. (1960) 'Computer Simulation of Thinking', *American Psychologist*, Issue 15, pp. 687-693.
- Hughes, A. K. (1994) *Developing European Professions: Delivering Continuing Professional Development in Europe*, Bristol, University of Bristol.

- Hughes, E. (1952) 'The Professions in the Eighteenth Century', *Durham University Journal*, Vol. 44 (March), pp. 46-55.
- Hughes, E. C. (1960) 'The Professions in Society', *The Canadian Journal of Economics and Political Science*, Vol. 26, No. 1 (February), pp. 54-61. Reprinted in Vollmer and Mills (1966), pp. 64-70.
- Hyland, T. (1992) 'Meta-Competence, Metaphysics and Vocational Expertise', *Competence and Assessment*, Issue 20, pp. 22-24.
- Hyland, T. (1995) 'Behaviourism and the Meaning of Competence', in P. Hodkinson and M. Issitt (Eds), *The Challenge of Competence: Professionalism through Vocational Education and Training*, London, Cassell, pp. 44-57.
- Ilich, I. (1977) *Disabling Professions*, London, Marion et al. Boyars.
- ILO (1990) *International Standard Classification of Occupations (ISCO-88)*, Geneva, International Labour Office.
- Jarvinen, A. (1991) *Development of Reflection during Teacher Training*, Oxford, Pergomon Press.
- Jarvis, P. (1983) 'Professional Education', in P. J. Hills (Edit) *New Patterns of Learning Series*, London, Croom Helm.
- Jarvis, P. (1984) 'Andragogy: A Sign of the Times', *Studies in the Education of Adults*, Issue 16, pp. 32-38.
- Jarvis, P. (1987) *Adult Learning in the Social Context*, London, Croom Helm.
- Jessup, G. (1991) *Outcomes: NVQs and the Emerging Model of Education and Training*, London, The Falmer Press.
- Johns, T. (1995) 'Don't be afraid of the Moral Maze', *People Management* (October), pp. 32-34.
- Johnson, R. (1991) 'Neuro-linguistic programming: from vision to action', *Training Tomorrow* (June), pp. 23-25.
- Johnson, T. L. (1972) *Professions and Power*, London, Macmillan.
- Johnson, T. L. (1984) 'Professionalism: Occupation or Ideology?', in S. Goodlad (Ed), *Education for the Professions, Quis custodiet ...?*, Guildford, Society for Research into Higher Education and NFER-Nelson, pp. 17-25.
- Johnson, C. and Blinkhorn, S. (1992) 'Validating NVQ Assessment', *Competence and Assessment*, Issue 20, pp. 10-14.
- Jones, A. M. and Hendry, C. (1992) *The Learning Organisation: A Review of Literature and Current Practice*, London, Human Resource Development Partnership.
- Kamp, D. (1991) 'Neuro-linguistic programming', *Training and Development*, Vol. 9, No. 10 (October), pp. 36-38.
- Kennie, T. and Price, I. (1997) *Practice Management Guidelines: key questions for the leaders and managers of modern professional practices*, London, Royal Institute of Chartered Surveyors.

- Klemp, G. O. (1980) *The Assessment of Occupational Competence*, Washington D. C. Report to the National Institute of Education.
- Klemp, G. O. and McClelland, D. C. (1986) 'Executive Competence: What characterises intelligent functioning amongst senior managers?', in J. Sternberg and R. K. Wagner (Eds), *Practical Intelligence: Nature and origins of competence in the everyday world*, London, Cambridge University Press. Reprint published by Charles River Consulting.
- Knight, S. (1995) *NLP at Work: the difference that makes a difference in business*, London, Nicholas Brealey Publishing Ltd.
- Knowles, M. S. (1980) *The Modern Practice of Adult Education: From Pedagogy to Andragogy* (2nd edition), New York, Cambridge Books.
- Knowles, M. S. (1984a) *Andragogy in Action: Applying Modern Principles of Adult Learning*, San Francisco, Jossey-Bass Inc.
- Knowles, M. S. (1984b) *The Adult Learner. a Neglected Species* (3rd edition), Houston, Gulf Press.
- Kofka, K. (1935) *Principles of Gestalt Psychology*, New York, Harcourt Brace Jovanovich.
- Kohn, M. L. (1969) *Class and Conformity*, Homewood, Illinois, Dorsey Press.
- Kohn, M. L. and Slomczynski, K. M. (1990) *Social Structure and Self Direction: A Comparative Analysis of the United States and Poland*, Oxford, Basil Blackwell Ltd.
- Kolb, D. A. (1984) *Experiential Learning*, Englewood Cliffs, New Jersey, Prentice Hall.
- Kram, K. (1983) 'Phases of the Mentor Relationship', *Academy of Management Journal*, Vol. 26, No. 4, pp. 608-625.
- Kram, K. (1985) *Mentoring at Work: developmental relationships of organisational life*, Maryland, University Press of America.
- Kyriacou, C. (1993) 'Research on the Development of Expertise in Classroom Teaching During Initial Training and the First Year of Teaching', *Educational Review*, Vol. 45., No. 1, pp. 79-87.
- Lafrancois, G. (1980) *Thought and Language in Psychology*, California, Wadsworth Publishing.
- Larkin, J. H. (1989) 'What Kind of Knowledge Transfers?', in L. B. Resnick (Ed), *Knowing, Learning and Instruction: Essays in Honour of Robert Glazer*, New Jersey, Lawrence Erlbaum Associates.
- Larson, M. S. (1980) 'Proletarianisation and Educated Labour', *Theory and Society*, Issue 9, pp. 131-177.
- Latham, G. P. and Frayne, C. A. (1989) 'Increasing Job Attendance through Training in Self-management: A review of two studies', *Journal of Applied Psychology*, Vol. 74, pp. 411-416.
- Lawrence, D. (1985) 'Improving Self Esteem and Reading', *Educational Research*, Vol. 27, No. 3 (November), pp. 194-200.

- Leadbeater, C. (1989) 'In the Land of the Dispossessed', in L. McDowell, P. Sarre and C. Hamnett (Eds), *Divided Nation: Social and Cultural Change in Britain*, London, Hodder and Stoughton, pp. 43-51.
- Legge, D. and Barber, P. L. (1976) *Information and Skill*, London, Methuen.
- Leveson, R. (1996) 'Can Professionals be Multi-skilled?', *People Management* (29 August), pp. 36-38.
- Levinson, D. J. (1978) *The Seasons of a Man's Life*, New York, Alfred A. Knopf.
- Lewin, K. (1935) *Dynamic Theory of Personality* (translated by D. K. Adams and K. E. Zener), New York, McGraw-Hill.
- Lincoln, Y. S. and Guba, E. G. (1985) *Naturalistic Inquiry*, Beverley Hills, California, Sage Publications.
- Linstead, S. (1991) 'Developing Management Meta-competence: can learning help?', in *Journal of European Industrial Training*, Vol. 6, No. 14, pp. 17-27.
- Lovell, R. B. (1980) 'Learning Skills', in P. J. Hills (Ed) *Adult Learning*, New York, Halsted Press, pp. 74-81.
- Maatsch, J. L. (1990) 'Linking Theories of Competence to Construct Validity of Performance Assessment Tests', in S. L. Willis and S. S. Dubin (Eds), *Maintaining Professional Competence*, San Francisco, Jossey-Bass, pp. 95-124.
- Madden, C. A. and Mitchell, V. A. (1993) *Professions, Standards and Competence: A Survey of Continuing Education for the Professions*, Bristol, University of Bristol.
- Mager, R. F. and Beach, K. M. (1967) *Developing Vocational Instruction*, Palo Alto, Fearon.
- Mangham, I. L. and Pye, A. (1991) *The Doing of Management*, London, Blackwell.
- Mannheim, K. (1936) *Ideology and Utopia*, London, Routledge and Kegan Paul.
- Mansfield, R. and Mathews, D. (1985) *Job Competence: A description for use in vocational education and training*, Blagdon, Further Education College.
- Mansfield, R. (1990) 'Knowledge, Evidence and Assessment', in H. Black and A. Wolf (Eds) *Knowledge and Competence: Current Issues in Training and Education*, Sheffield, Careers and Occupational Information Centre, pp. 15-21.
- Marsh, S. and Holmes, L. (1990) 'Dysfunctional Analysis? A Critical Analysis of the Standards in Training and Development'. Paper prepared for conference 'A Qualified Success? Critical Perspectives on Competence-based Education and Training' (September 1990).
- Marshall, K. (1991) 'NVQs: An Assessment of the Outcomes Approach to Education and Training', *Journal of Further and Higher Education*, Vol. 15, No. 3, pp. 56-64.
- Marshall, T. H. (1939) 'The Recent History of Professionalism in Relation to Social Structure and Social Policy', *The Canadian Journal of Economics and Political Science*, Vol. 5, No. 3 (August), pp. 325-340. Cited in Hughes (1960), p. 54.
- Marsick, V. J. (1987) 'New Paradigms for Learning in the Workplace' in V. J. Marsick (Ed), *Learning in the Workplace*, New York, Croom Helm, pp. 11-30.

- Marsick, V. J. and Watkins, K. E. (1990) *Informal and Incidental Learning in the Workplace*, London, Routledge.
- Martin, S. (1995) 'A Futures Market for Competencies' *People Management* (25 March), pp. 20-24.
- Marton, F. and Säljö, R. (1976) 'On Qualitative Differences in Learning: outcome and process', *British Journal of Educational Psychology*, Issue 46, pp. 4-11.
- Maslow, A. (1954) *Motivation and Personality*, New York, Harper and Row.
- Mayo, A. (1995) 'An Uncritical Overview of the European Assessment Style', *People Management* (November), p. 45.
- McClelland, D. C. (1951) *Personality*, New York, Holt, Rinehart and Winston Press. Cited in Boyatzis (1982).
- McClelland, D. C. (1971) *Assessing Human Motivation*, New York, General Learning Press. Cited in Boyatzis (1982).
- McGaghie, W. C. (1993) 'Evaluating Competence for Professional Practice', in L. Curry and J. F. Wergin (Eds), *Educating Professionals*, San Francisco, Jossey-Bass, pp. 229-261.
- McGregor, D. C. (1960) *The Human side of Enterprise*, New York, McGraw-Hill.
- McGuire, C. H. (1993) 'Sociocultural Changes Affecting Professionals', in L. Curry and J. F. Wergin (Eds), *Educating Professionals*, San Francisco, Jossey-Bass Inc., pp. 3-16.
- MCI (1990) *Personal Competence Project: Summary Report*, London, The National Forum for Management Education and Development.
- MCI (1997a) *Business School Survey*. Unpublished report for the Department for Education and Employment, London, Management Charter Initiative.
- MCI (1997b) 'Minister to Launch CPD Scheme', *Management Leader: The newsletter of the Management Charter Initiative* (Autumn), London, Management Charter Initiative, p. 3.
- MCI (1997c) *MCI Integrated Model of Personal Competency (Revised)*. Unpublished paper, London, The Management Charter Initiative.
- McKinlay, J. B. (1982) 'Towards the Proletarianisation of Physicians', in C. Derber (Ed), *Professionals as Workers: Mental Labour in Advanced Capitalism*, Boston, G. K. Hall and Co., pp. 37-62.
- Mezirow, J. (1985) 'A Critical Theory of Self-directed Learning', in S. Brookfield (Ed), *Self-directed Learning: From Theory to Practice*, San Francisco, Jossey-Bass. Inc., pp. 18-22.
- Mill, J. S. (1867) *Inaugural Address Delivered to the University of St Andrews* (1 February 1867), London, Longmans, Green, Reader and Dyer. Cited in Silver and Brennan (1988), p. 8.
- Millerson, G. (1973) 'Education in the Professions', in T. G. Cook (Ed), *Education and the Professions*, London, Methuen and Co. Ltd., pp. 1-18.

- Mitchell, L. (1991) 'Competence Standards', in Boak, G., *Developing Managerial Competences: The Management Learning Contract Approach*, London, Pitman, pp. 23-37.
- Mitchell, L. (1995) 'Do NVQs Develop Occupational Competence?', *Competence Bulletin*, Vol. 1, No. 1 (May), Leicester, University of Leicester Centre for Labour Market Studies, p. 6.
- Mitchell, L. and Bartram, D. (1994) *The Place of Knowledge and Understanding in the Development of National Vocational Qualifications and Scottish Vocational Qualifications*. An unpublished technical paper produced for the Employment Department, NCVQ and SCOTVEC.
- Mitchell, L. and Cuthbert, T. (1989) *Insufficient Evidence?, The Final Report of the Competency Testing Project*, Edinburgh, Scottish Vocational Education Council.
- Molander, B. (1992) 'Tacit Knowledge and Silenced Knowledge: fundamental problems and controversies', in B. Göranson and M. Florin (Eds), *Skill and Education: Reflection and Experience*, Berlin, Springer-Verlag, pp. 9-31.
- Moonie, N. (1992) 'Knowledge Bases and Frameworks', *Education and Training Technology International*, Vol. 29, No. 3, pp. 216-225.
- Moran, D. (1991) 'The Role of Knowledge in Competence-based Measurement', *Educa*, No. 115 (September), pp. 8-9.
- Moses, J. I. and Ritchie, R. J. (1976) 'Supervisory Relationship Training: a behavioural evaluation of a behaviour modelling programme', *Personnel Psychology*, Issue 29, pp. 351-359.
- MSC (1981) *A New Training Initiative: Agenda for Action*, Sheffield, The Manpower Services Commission.
- Mullin, R. (1993) 'The Competence Debate', *Training and Development*, Vol. 11, No. 5, pp. 25-26.
- Mumford, A. (1984) *Insights into Action Learning*, Buckingham, Management Centre.
- Mumford, A. (1995) 'Four Approaches to Learning from Experience', *Industrial and Commercial Training*, Vol. 27, No. 8, pp. 12-19.
- Munby, H. and Russell, T. (1989) 'Educating the Reflective Teacher: an essay review of two books by Donald Schön', *Journal of Curriculum Studies*, Vol. 21, No. 7, pp. 71-80. Cited in Eraut (1994).
- Murphy, K. and Reading, P. (1992) 'Assessing Professional Competence', in H. Bines and D. Watson (Eds) *Developing Professional Education*, Buckingham, Society for Research into Higher Education and Open University Press, pp. 84-89.
- Myers, D. G. (1988) *Psychology*, London, Worth.
- Naughtie, J. (1996) 'What is Tony Blair Made of?', in *Reader's Digest*, Vol. 149, No. 894 (October), pp. 111-117.
- Nixon, K. and Vimpany, M. (1994) *The Educational Value of Medical Audit*, Sheffield, University of Sheffield.

- Noe, R. (1987) 'An Exploratory Investigation into the Antecedents and consequences of Mentoring'. Paper presented at the second annual conference of the Society of Industrial and Organisational Psychology, Atlanta. Cited in Fagenson (1989).
- Norcini, J. J. and Shea, J. A. (1993) 'Increasing Pressure for Recertification and Relicensure', in L. Curry and J. F. Wergin (Ed), *Educating Professionals*, San Francisco, Jossey-Bass Inc., pp. 78-103.
- Nordhaug, O. (1993) *Human Capital in Organisations*, Stockholm, Scandinavian University Press.
- Norris, R. and Kelly, A. (1994) 'Police Training - A Cautionary Tale', *Training and Development* (November), pp. 21- 22.
- Oakeshott, M. (1962) *Rationalism in Politics: And Other Essays*, London, Methuen.
- Oni, O. (1996) *Who should run the Health Service?: Realignment and Reconstruction*, Oxford, Radcliffe Medical Press.
- Oppenheimer, M. (1973) 'The Proletarianisation of the Professional', *Sociological Review Monographs*, Issue 20, pp. 213-227.
- Osgood, J. (1949) 'The Similarity Paradox in Human Learning: a resolution', *Psychological Review*, Issue 47, pp. 419-427.
- Otter, S. (1994) *Higher Level NVQs/SVQs - Their Possible Implications for Higher Education*. Background Paper to the Higher Levels Seminars in May and June 1994, Sheffield, Employment Department.
- Oxtoby, R. (1979) 'Problems facing Heads of Departments', *Journal of Further and Higher Education*, Vol. 3, No. 1, pp. 46-59.
- Ozar, D. T. (1993) 'Building Awareness of Ethical Standards', in L. Curry and J. F. Wergin (Eds), *Educating Professionals*, San Francisco, Jossey-Bass Inc., pp. 148-177.
- Parsons, T. (1968) 'Professions', in D. Sills (Ed), *The International Encyclopaedia of Social Science*, No. 11, New York, Macmillan, and Free Press, pp. 536-547. Cited in Watson (1992).
- Pavlov, I. P. (1927) *Conditioned Reflexes* (translated by S. V. Anrep), London, Oxford University Press.
- Pearce, M. (1987) 'The Mentor Connection', *Direct Marketing* (June), p. 70. Cited in Wright, R. G. and Werther, W. B. Jar. (1991), 'Mentors at Work', *Journal of Management Development*, Vol. 10, No. 3, pp. 25-32.
- Pearson, H. T. (1984) 'Competence: A normative analysis,' in E. C. Short (Ed) *Competence: Inquiries into its meaning and acquisition in Education Settings*, Lanham, Md., University Press of America, pp. 31-38. Cited in Eraut (1994).
- Pearson, M. and Smith, D. (1985) 'Debriefing in Experience-based Learning', in D. Boud, R. Keogh and D. Walker (Eds), *Reflection: Turning Experience into Learning*, London/New York, Kogan Page/Nichols Publishing Co. pp. 69-84.
- Perkins, D. N. and Salomon, S. (1988) 'Teaching for Transfer', *Educational Leadership*, Vol. 46, No. 1, pp. 22-32. Cited in Blagg et al. (1993).

- Piaget, J. (1926) *The Language and Thought of the Child* (translated by M. Worden), New York, Harcourt Brace Jovanovich.
- Plowman, L. (1989) 'Learning from Learning Theories: an overview for designers of interactive video', *Interactive Learning International*, Vol. 5, No. 4, pp. 165-174.
- Poell, R. F. (1998) *Organising Work-related Learning Projects: A Network Approach*. Published PhD Thesis, Eindhoven University.
- Politt, C. (1990) *Managerialism and The Public Services: Cuts or Cultural Change in the 1990s?*, Oxford, Blackwell Publishers.
- Pope, S. (1995) 'How do we do what we do? Trainers and Neuro-linguistic Programming', *Practical Training*, Vol. 1, No. 1 (March), pp. 29-31.
- Popper, K. R. (1961) *The Poverty of Historicism*, London, Routledge and Kegan Paul.
- Powell, J. P. (1985) 'Autobiographical Learning', in D. Boud, R. Keogh and D. Walker (Eds), *Reflection: Turning Experience into Learning*, London/ New York, Kogan Page/ Nichols Publishing Co., pp. 41-51.
- Probate, D. (1995) Letter published in *Professional Engineering*, Vol. 8, No. 17, p. 31.
- Pun, A. S. L. (1990) 'Managing the Cultural Differences in Learning', *Journal of Management Development*, Vol. 9, No. 5, pp. 35-40.
- QCA (1998) *Standards and Vocational Qualifications in Continuing Professional Development (CPD)*, QCA discussion paper No. 1, London, Qualifications and Curriculum Authority.
- Quality Support Centre (1995) *Guidelines for Good Practice in Supporting Students in the Workplace*, London, Quality Support Centre. Cited in Brennan and Little (1996).
- Radford, A. (1995) *Managing People in Professional Practices*, London, Institute of Personnel and Development.
- Ragins, B. R. (1989) 'Barriers to Mentoring: the female managers' dilemma', *Human Relations*, Vol. 42, No. 1, pp. 1-22.
- Rajan, A. (1988) 'Today the City, tomorrow ... managing a knowledge economy', *Personnel Management*, Vol. 20, No. 10 (October), pp. 30-32 and 35-37.
- Ramsden, P. (1992) *Learning to Teach in Higher Education*, London, Routledge. Cited in Watson (1996).
- Randall, G. (1995) *Qualifications Mapping*. Research report, Sheffield, Employment Department.
- Randell, G. (1993). Cited in Finn (1993), 'Is Top Talent Measurable?' *The Times*, (1 April), p. 22.
- Reader, W. J. (1966) *Professional Men: The Rise of the Professional Classes in Nineteenth Century England*, London, Weidenfeld and Nicolson.
- Reason, J. (1979) 'Actions not as planned', in Underwood, G. and Stevens, R., *Aspects of Consciousness*, Vol. 1, Psychological Issues, London, Academic Press, pp. 67-89.

- Reber, A. S. (1993) *Implicit Learning and Tacit Knowledge; an essay on the cognitive unconscious*, London, Oxford University Press.
- Renner, K. (1978) 'The Service Class', in T. Bottomore and P. Goode (Eds), *Austro-Marxism*, London, Oxford University Press, pp. 249-252.
- Revans, R. (1983) *ABC of Action Learning*, Bromley, Chartwell-Bratt.
- Reynolds, M. and Snell, R. (1988) *Contribution to Development of Management Competence*, Sheffield, Manpower Services Commission.
- Rice, R. E. and Richlin, L. (1993) 'Broadening the Concept of Scholarship in the Professions', in L. Curry and J. F. Wergin (Eds), *Educating Professionals*, San Francisco, Jossey-Bass Inc., pp. 279-315.
- Rothman, R. A. (1984) 'Deprofessionalisation: The Case of Law in America', *Work and Occupations*, Vol. 11, No. 2, pp. 183-206.
- Rusel, J. S., Wexley, K. N. and Hunter, J. E. (1984) 'Questioning the effectiveness of behaviour modelling training in an industrial setting', *Personnel Psychology*, Issue 37, pp. 465-482.
- Russell, A. (1980) *The Clerical Profession*, London, SPCK.
- Ryan, A. (1981) 'Is the study of society a science?' in D. Potter (Ed) *Society and the Social Sciences: An Introduction*, London, Routledge and Kegan Paul Ltd, pp. 8-33.
- Ryle, G. (1949) *The Concept of Mind*, London, Hutchinson. Cited in Hyland (1992).
- Sapir, E. (1929). Cited in Gross (1987), p. 179.
- Schein, E. H. (1973). Cited in Schön (1983).
- Schlesinger, E. (1996) 'Why Learning is not a Cycle', *Industrial and Commercial Training*, Vol. 28, No. 2, pp. 30-35 and No. 5, pp. 11-17.
- Schön, D. A. (1983) *The Reflective Practitioner. How Professionals Think in Action*, London, Maurice Temple Smith Ltd.
- Schön, D. A. (1987) *Educating the Reflective Practitioner*, San Francisco, Jossey-Bass Inc.
- Schroder, H. M. (1989) *Managerial Competence: The Key to Excellence*, Iowa, Kendall/Hunt.
- Sharan, Y. and Sharan, S. (1992) *Expanding Co-operative Learning through Group Investigation*, New York, Teachers College, Columbia University.
- Shaw, K. E. (1987) 'Skills, Control and the Mass Professions', *Sociological Review*, Vol. 35, No. 4, pp. 775-794.
- Short, R. F. (1989) 'Simulators: The Training of Deck Officers', in P. Barker (Ed), *Multimedia Computer Assisted Learning*, London, Kogan Page, pp. 108-117.
- Shuttleworth, M. D. (1993) *Articulating the Competence Movement and Professional Formation*. Unpublished MA thesis, Leicester de Montfort University.

- Silver, H. and Brennan, J. (1988) *A Liberal Vocationalism*, London, Methuen.
- Sim, A. (1995) 'Away with Specialisation' *Professional Engineering*, Vol. 8, No. 17, p. 3.
- Simanowitz, A. (1998) 'Hospital Deaths: A Conspiracy of Silence?', in *Reader's Digest*, Vol. 152 (April), pp. 39-44.
- Skinner, B. F. (1938) *The Behaviour of Organisms: An experimental analysis*, New York, Appleton-Century-Crofts.
- Smith, D. and Kolb, D. A. (1985) *User Guide for the Learning Style Inventory*, Boston, McBer and Co.
- Smith, K. U. and Smith, M. F. (1966) *Cybernetic Principles of Learning and Educational Design*, New York, Holt Rinehart and Wilson.
- Smith, P. (1988) 'Second Thoughts on Action Learning', *Journal of European Industrial Training*, Vol. 12, No. 6, pp. 28-31.
- Smith, P. (1995) 'NVQ Peril for the Professionals', *The Times Educational Supplement* (24 February), p. 12.
- Smithers, A. (1995a) 'Able to Dribble, but not to Score', *Times Educational Supplement* (10 February), p. 11.
- Smithers, A. (1995b) 'How many Core Skills can be Balanced on a Pinhead?', *Times Educational Supplement* (6 October), p. 17.
- Spangenberg, H. (1990) *Assessing Managerial Competence*, Kenwyn, South Africa, Juta and Co. Ltd.
- Spender, J. C. (1996) 'Organisational knowledge, learning and memory: Three concepts in search of a theory', *Journal of Organisational Change Management*, Vol. 9, No. 1, pp. 63-78.
- Sprafkin, R. P. and Goldstein, A. P. (1990) 'Using Behavioural Modelling to Enhance Professional Competence', in S. L. Willis and S. S. Dubin (Eds), *Maintaining Professional Competence*, San Francisco, Jossey-Bass, pp. 262-277.
- Starr, P. (1982) *The Social Transformation of American Medicine*, New York, Basic Books Inc.
- Steadman, S., Eraut, M., Cole, G. and Marquand, J. (1994) *Ethics in Occupational Standards, NVQs and SVQs*, Brighton, University of Sussex.
- Stephenson, J. and Laycock, M. (Ed) (1993) *Using Learning Contracts in Higher Education*, London, Kogan Page.
- Stewart, J. and Hamlin, R. (1992) 'Competence-based Qualifications: The Case for Established Methodologies', *Journal of European Industrial Training*, Vol. 16, No. 10, pp. 9-16.
- Strauss, A. L. and Corbin, J. (1990) *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*, London, Sage Publications.
- Strickler, M. K. (1976) 'Accident Prevention: The Role of Education and Training', in R. Hurst and L. Hurst (Eds), *Pilot Error: The Human Factors*, (2nd Edition, 1982), St Albans, Granada Publishing, pp. 23-49.

- Stuart, D. (1989) 'The Concept of Occupational Competence', *Competence and Assessment*, Issue 8 (Spring), p. 11.
- Sugarman, I. (1993) 'HRD Today and Tomorrow'. Unpublished report prepared for The Human Resource Development Partnership and The Employment Department.
- Tate, W. (1995) *Developing Managerial Competence: A critical guide to methods and materials*, Aldershot, Gower.
- Taylor, Lord Chief Justice (1990) '*The Hillsborough Stadium Disaster: Final Report*', London, The Stationery Office Publications.
- Thompson, D. and Stephenson, M. (1991) *Learning Approaches for Competent Manager Development*, Washington, Tyne and Wear, Northern Regional Management Centre.
- Todd, F. (1987) *Planning Continuing Professional Development*, London, Croom Helm.
- Tolman, E. C. (1959) 'Principles of Purposive Behaviour', in S. Koch (Ed), *Psychology: A study of a science*, Vol. 2, New York, McGraw-Hill. Cited in Hill (1990).
- United Kingdom Inter-professional Group on CPD (1994) *Survey on Continuing Professional Development*, London, The Engineering Council.
- Vaughan, P. (1991) *Maintaining Professional Competence: a Survey of Professional Bodies in the Development of Credit-bearing Courses*, Hull, The University of Hull.
- Victor, P. (1995) *Project 360*. Research paper. Warrington, North West Water.
- Vollmer, H. M. and Mills, D. L. (1966) *Professionalisation*, Englewood Cliffs, New Jersey, Prentice-Hall, Inc.
- Vygotsky, L. S. (1962) *Thought and Language*, New York, Wiley.
- Vygotsky, L. S. (1978) 'Interaction Between Learning and Development', in M. Cole, V. John-Steiner, S. Scribner and E. Soubelman (Eds), *Mind in Society*, Cambridge, Harvard University Press, pp. 79-91.
- Waddington (1985). Cited in Watson (1992)
- Wales, C. E., Nardi, A. H. and Stager, R. A. (1993) 'Emphasising Critical Thinking and Problem Solving', in L. Curry and J. F. Wergin (Eds), *Educating Professionals*, San Francisco, Jossey-Bass Inc., pp. 178-211.
- Walker, D. (1985) 'Writing and Reflection', in D. Boud, R. Keogh and D. Walker (Eds), *Reflection: Turning Experience into Learning*, London/New York, Kogan Page/Nichols Publishing Co., pp. 52-68.
- Watkins, J. (1998) 'Educating Professionals: The Changing Role of Professional Associations'. Paper awaiting publication in *Journal of Education and Training*.
- Watkins, J. and Drury, L. (1995) *The Professions in the 1990s*, London, Kogan Page.
- Watkins, J., Drury, L. and Bray, S. (1996) *The Future of the UK Professional Associations*, Cheltenham, Cheltenham Strategic Publications.

- Watkins, J., Drury, L. and Preddy, D. (1992) *From Evolution to Revolution: The pressures on professional life in the 1990s*, Bristol, University of Bristol.
- Watson, D. (1992) 'The Changing Shape of Professional Education', in H. Bines and D. Watson (Eds), *Developing Professional Education*, Buckingham, Society for Research into Higher Education and Open University Press, pp. 1-10.
- Watson, J. B. (1913) 'Psychology as the Behaviourist Views it', *Psychological Review*, Vol. 20, pp. 158-177.
- Watson, J. B. (1930) *Behaviourism* (revised edition, 6th printing, 1966), Chicago, University of Chicago Press.
- Watson, T. J. (1996) 'Motivation: that's Malsow, isn't it?', *Management Learning*, Vol. 27, No. 4 (Autumn), pp. 447-464.
- Welford, A. T. (1968) *Fundamentals of Skill*, London, Methuen.
- Wells, G. and Chang-Wells, G. L. (1992) *Constructing Knowledge Together: classrooms as centres of inquiry and literacy*, Portsmouth, New Hampshire, Heinemann.
- Welsh, L. and Woodward, P. (1989) *Continuing Professional Development: Towards a National Strategy*, London Further Education Unit.
- Wertheimer, M. (1945) *Productive Thinking*, New York, Harper and Row.
- Whittaker, J. (1993). Cited in Finn, W., 'Is Top Talent Measurable?', *The Times* (1 April), p. 26.
- Whorf, B. L. (1941). Cited in Gross (1987), p. 179.
- Wiener, N. (1948) *Cybernetics*, New York, John Wiley. Cited in Lafrancois (1980).
- Wilensky, H. L. (1964) 'The Professionalisation of Everyone', *The American Journal of Sociology*, Vol. 70, No. 2, pp. 137-158.
- Wilkin, M. (1992) *Mentoring in Schools*, London, Kogan Page.
- Wilson R. A. (1991) *Review of the Economy and Employment (Occupational Assessment)*, Warwick, Institute for Employment Research, University of Warwick.
- Wolf, A. (1990) 'Unwrapping Knowledge and Understanding from Standards of Competence', in H. Black (Ed), *Knowledge and Competence*, London, HMSO, pp. 30-38.
- Wood, D. (1988) *How Children Think and Learn*, London, Basil Blackwell Ltd.
- Woodruffe, C. (1990) *Assessment Centres: Identifying and Developing Competence*, London, Institute of Personnel Management.
- Woods, P. and Sykes, P. J. (1987) 'The Use of Teacher Biographies in Professional Self-Development', in F. Todd (Ed), *Planning CPD*, London, Croom Helm, pp. 161-176.
- Wright, R. G. and Werther, W. B. Jar. (1991) 'Mentors at Work', *Journal of Management Development*, Vol. 10, No. 3, pp. 25-32.
- Yule, G. U. and Kendall, M. G. (1973) *An Introduction to the Theory of Statistics* (sixth impression), London, Charles Griffin and Co.

Zeichner, K. (1990) 'Changing Directions in the Practicum: looking ahead to the 1990s',
Journal of Education for Teaching, Vol. 16 , No. 2, pp. 105-132.

Zey, M. (1984) *The Mentor Connection*, Homewood, Illinois, Dow Jones-Irwin.

Zuboff, S. (1988) *In the Age of the Smart Machine*, New York, Basic Books.

Appendix 1

Provisional Model: Expert Critique Questionnaire

Provisional Model of Professional Competence Expert Evaluation Questionnaire

Please use this Questionnaire to offer your views on the model.

1. Please rate the model in relation to the following factors (circle ' 0 ' if unable to make a judgement)

a) Clarity and Coherence

poor 1 2 3 4 5 excellent 0

b) Comprehensiveness

poor 1 2 3 4 5 excellent 0

c) Soundness

poor 1 2 3 4 5 excellent 0

d) Effectiveness

poor 1 2 3 4 5 excellent 0

2. Please state below the main strengths of the model:

.....
.....
.....
.....

3. Please state below the main weaknesses of the model:

.....
.....
.....
.....

4. How would you suggest the model could be improved?

.....
.....
.....

5. Please suggest any concepts, approaches or authors that you think ought to be taken into account in any modification to the model:

.....
.....

6. Please use the space below to add any further comments you may have either about the model or the research in general:

.....
.....
.....
.....

Appendix 2

Practitioner Interviews: Interview Schedule and other Instruments

Letter sent to interviewees prior to interview

102 Henley Avenue,
Sheffield
S8 8JJ

RESEARCH INTO PROFESSIONAL COMPETENCE

Thank you for agreeing to be interviewed in connection with my Doctoral Research. This note will give you a brief idea of what the work is about and what the interview will involve.

Purpose

The purpose of the research is to examine how people in a variety of professional occupations acquire and maintain their professional competence. Information gained through the research could be used to help to improve professional development programmes, including those related to continuing professional development.

There are a number of strands to the work, one of which involves interviewing a sample of people from 20 different professions. These include new and emergent professions as well as the older and more traditional ones.

The Interview

The interview is likely to take around two hours and will cover a range of issues relating to professional practice and professional development.

Some questions will simply require 'Yes' / 'No' / 'Not Sure' type answers, others will require you to rate some factor or other on a 1 to 5 scale, and others will invite you to offer your own insights or opinions on various matters.

You should find most of the questions straight-forward enough to answer, though a few may touch on issues which you haven't really thought about. Please don't feel under any pressure to supply answers to every question. If you don't feel able to answer a particular question 'off the top of your head', please say so.

In case you wish to give a little prior thought to some of the more complex issues we will be discussing, the following preview might be helpful.

1. I will be inviting you to give your views on how you personally recognise professionalism on the part of people from both your own and other professions. In the case of your own profession, I will be asking you to suggest a few of the abilities, skills, behaviours etc. that you consider to be really crucial to professional performance.
2. I will be asking you (very briefly) to describe the professional education and training programme you undertook (if any) and to suggest any strengths and weaknesses it may have had.
3. I will be exploring with you how you developed the various aspects of your professional competence and what sort of learning methods or experiences have worked best for you. This will not of course be confined to the formal education and training you may have undergone but will no doubt also include a considerable amount of 'on the job' learning.
4. I will be asking you about what sort of things you found particularly difficult when you first started to practice as a professional and how you overcame these difficulties.

Thank you again for your assistance. I look forward to meeting you in the near future.

Graham Cheetham

Part 2: Employing Organisation Details (current or when last in practice)

2.1 Sector: ¹ PUBLIC SECTOR ² PRIVATE SECTOR ³ VOLUNTARY ⁴ OTHER

2.2 No. of employees in immediate employing organisation (i.e. practice, hospital, college, etc.)

less than 5	1
6-10	2
11-50	3
51-200	4
201-500	5
501-1,000	6
1,000+	7

2.3 Are you self employed? ¹ YES ² NO

Part 3: Nature of Professions and Professional Practice

3.1 The following characteristics have sometimes been ascribed to professions.
P To what extent do you think they apply to your own profession as it is today?

a) altruistic (i.e. a service, rather than profit, orientation)	not at all	1	2	3	4	5	strongly
b) non-commercial		1	2	3	4	5	
c) offers autonomy within job role		1	2	3	4	5	
d) learned (i.e. requiring prolonged and specialised training)		1	2	3	4	5	
e) has collective influence within society		1	2	3	4	5	
f) confers status (within society) upon members		1	2	3	4	5	
g) self-regulating (i.e. by membership)		1	2	3	4	5	
h) relationship with peers, other practices, etc. is collegial (as opposed to competitive)		1	2	3	4	5	
i) client/customer focused		1	2	3	4	5	

3.2 Which of the following statements best describes the way you operate as a professional?

P

a) it's largely a matter of applying my specialist knowledge	1
b) it's much more of an art than a science	2
c) it's a combination of both art and science	3
d) it's none of the above	4
e) if none, please offer your own description	
.....	5

3.3 Thinking about the way you solve professional problems, which of the following statements is most applicable?

a) I draw on my specialist or technical knowledge in a conscious and systematic way	1
b) I do it more or less automatically without consciously referring back to any particular theory	2
c) I draw on a repertoire of solutions that have worked for me in the past	3
d) I use my common sense	4
e) I use a combination of a,b, c and d (state comb)	5
f) I do it by some other means (describe)	
.....	6
g) I don't really know how I solve professional problems	7

3.4 Are you personally aware of consciously reflecting upon your performance as a professional?

¹ YES	² NO	³ NOT SURE
------------------	-----------------	-----------------------

If NO or NOT SURE, go to Question 3.10

3.5 Is this something you do on a regular basis? ¹ YES ² NO ³ NOT SURE

skills

- e) ability to carry out the full range of tasks or functions specific to your profession 1 2 3 4 5
- f) organisational/management skills (e.g. planning, delegation, people/resource management) 1 2 3 4 5
- g) commercial/entrepreneurial skills 1 2 3 4 5
- h) cerebral or mental skills (e.g. analysis, diagnosis, mental agility, numeracy) 1 2 3 4 5
- i) physical or manual skills (e.g. hand/eye co-ordination, dexterity etc.) 1 2 3 4 5
- j) personal skills (e.g. self-confidence, empathy, presentation skills, thinking on feet, etc.) 1 2 3 4 5
- k) interpersonal skills (e.g. interacting/getting on with others) 1 2 3 4 5
- l) making ethical judgements 1 2 3 4 5

Part 5: Pre-entry Qualifications (i.e. to enter into professional training)

5.1 Does your profession have any mandatory educational or other pre-entry requirements (e.g. specific A Levels, etc.)? 1 YES 2 NO

If NO, go to 6.1

5.2 When you entered your profession as a trainee what were the minimum, mandatory educational or other pre-entry requirements?

.....

5.3 How relevant do you (or did you) consider these to be?

not at all relevant 1 2 3 4 5 highly relevant

5.5 Are you aware of any changes in your profession's pre-entry requirements since you entered? 1 YES 2 NO

If NO go to 6.1

5.6 Compared with when you entered, would you say the pre-entry requirements are now?:

1 2 3 4
HIGHER LOWER ABOUT THE SAME DON'T KNOW

Part 6: Professional Development Programme

6.1 Does your profession have a standardised education/training process which trainee entrants have to go through? 1 YES 2 NO

If NO, go to 7.1 f)

6.2 Briefly, what was the formal education and training process you went through to become professionally qualified? (please indicate presence of elements such as i) linked professional education, ii) practical training and iii) work placements which were part of the training (including approximate duration of each)

.....

6.3 What, in your view, were a) the main strengths and b) the main weaknesses of the programme?

a) strengths

.....

b) weaknesses

.....

6.4 How could the programme be improved in order to get people up to speed more quickly or more comprehensively?

.....

6.5 How would you rate the education and training programme you underwent (overall) against the following factors?:

its relevance to professional practice?	not very	1	2	3	4	5	extremely
its comprehensiveness?	"	1	2	3	4	5	"
its effectiveness in getting you up to speed?"		1	2	3	4	5	"

6.6 How much of the programme related directly to the development of practical skills?

.....

6.7 Did the practical element have any of the following features?:

a) was it structured (with respect to what you were expected to learn from it), or was it left largely for you to learn from experience?

	1	2	3
	STRUCTURED	LEFT TO EXPERIENCE	COMBINATION
b) was it formally assessed or examined?	1 YES	2 NO	
c) was it separately certificated?	1 YES	2 NO	
d) was it taken into account when arriving at your overall grade?	1 YES	2 NO	3 NOT SURE

6.8 How would you rate the practical element of the programme in relation to?:

a) its relevance to subsequent practice	not very	1	2	3	4	5	extremely
b) its effectiveness in developing useful skills		1	2	3	4	5	
c) its adequacy in terms of amount		1	2	3	4	5	

6.9 How would you rate the overall programme with regard to its ability to develop?:

a) professional knowledge	poor	1	2	3	4	5	excellent
b) skills in performing professional functions and procedures		1	2	3	4	5	
c) personal skills (e.g. confidence, control of emotions, empathy)		1	2	3	4	5	
d) professional ethics		1	2	3	4	5	
e) appropriate professional behaviours		1	2	3	4	5	

PART 7: The Acquisition of Professional Competence

7.1 Please rate the importance of the following factors in helping you become a fully competent professional (N/A= Not Applicable):

Formal

a) the professional education course you undertook (if any)	1	2	3	4	5	N/A	0
b) the <u>in-course</u> practical work (if any)	1	2	3	4	5	N/A	0
c) in-course simulations (if any)	1	2	3	4	5	N/A	0
d) in-course work placements (if any)	1	2	3	4	5	N/A	0
e) INTENTIONALLY BLANK							

8.2 Briefly, how were you i) examined/assessed and ii) accredited as a professional?

.....

8.3 How long did it take you to qualify (i.e. to the point at which you were regarded as a full professional and able to practice on your own)?

.....

8.4 Did the assessment system include any of the following?:

P		1	2
a) staged written examinations (e.g. at the end of each year)	YES	NO	
	1	2	
b) staged practical or skill tests	YES	NO	
	1	2	
c) continuous assessment based on written work (e.g. essays)	YES	NO	
	1	2	
d) continuous assessment of skills (e.g. against a list of specific skills or competencies)	YES	NO	
	1	2	
e) marked projects or assignments	YES	NO	
	1	2	
f) <u>formal</u> appraisal(s) by mentor	YES	NO	
	1	2	
g) final written examinations	YES	NO	
	1	2	
h) final or overall competence-based assessment	YES	NO	
	1	2	
i) assessment of personal skills (such as confidence, empathy, etc.)	YES	NO	
	1	2	
j) assessment of ability to deal effectively with ethical issues	YES	NO	

8.5 If YES to i) and/or j) above, what form did this take (i.e. formal/informal etc.)?

.....

8.6 If you underwent some form of assessment of your practical (or practice) skills, how relevant was this to real practice?

not at all 1 2 3 4 5 extremely

8.7 Has the examination/assessment process in your profession changed significantly since you qualified? 1 2 3
 YES NO NOT SURE

If 'NO' go to 8.10

8.8 If YES, briefly how has it changed?

.....

8.9 Would you like to see any of the following (further) changes to your profession's examination/assessment process?

	1	2	3
a) made more rigorous	YES	NO	NOT SURE
	1	2	3
b) made less rigorous	YES	NO	NOT SURE
	1	2	3
c) made more flexible (e.g. using varying methods of assessment, etc.)	YES	NO	NOT SURE

- | | | | |
|--|----------|---------|---------------|
| d) made more relevant to what professionals actually do | 1
YES | 2
NO | 3
NOT SURE |
| e) made more practically-based | 1
YES | 2
NO | 3
NOT SURE |
| f) made (more) competence-based(i.e. assessment against specific competencies or skill | 1
YES | 2
NO | 3
NOT SURE |
| g) made more academic/knowledge-based | 1
YES | 2
NO | 3
NOT SURE |
| h) to include assessment of personal skills or behaviours relevant to the profession | 1
YES | 2
NO | 3
NOT SURE |
| i) to include assessment of ability to make sound ethical judgements | 1
YES | 2
NO | 3
NOT SURE |
| j) changed in some other way (please specify) | | | |

- | | | |
|--|----------|---------|
| 8.10 Does your profession have a licence to practice or similar mandatory arrangement? | 1
YES | 2
NO |
| 8.11 Does your profession offer chartered status to qualified practitioners? | 1
YES | 2
NO |
| 8.12 Are you required to undergo any periodic
i) re-assessment? | 1
YES | 2
NO |
| or ii) re-qualification? | 1
YES | 2
NO |

8.13 If YES, to either please briefly outline process and intervals between re-assessment and/or re-qualification.

.....

.....

Part 9: Continuing Professional Development

9.1 Approximately, how many days have you spent on all types of CPD in the last 12 months? days

9.2 In the next 12 months do you expect the number of days spent on CPD to be:

1 Greater?	2 Less?	3 About the same as last year?	4 Don't know
---------------	------------	-----------------------------------	-----------------

9.3 What factors, if any, would make you likely to increase your participation rate in the future?

.....

9.4 Are you conscious of losing, or becoming rusty in any areas of knowledge or skills? 1 2
YES NO

9.5 If yes, please give examples

.....

.....

9.6 Which, if any, of the following methods do you use to keep yourself up to date?

- | | |
|---|---|
| a) reading professional journals | 1 |
| b) reading technical/research papers etc. | 2 |
| c) short courses (up to a week's duration) | 3 |
| d) longer courses (more than a week's duration) | 4 |
| e) award-bearing courses | 5 |
| f) open learning | 6 |
| g) other (please specify) | 7 |

9.7 How important are each of the following to you in relation to your own CPD needs?:

- | | | | | | | | |
|---|----------|---|---|---|---|---|-----------|
| a) updating your professional knowledge | not very | 1 | 2 | 3 | 4 | 5 | extremely |
| b) updating your professional practice techniques | | 1 | 2 | 3 | 4 | 5 | |
| c) learning new skills | | 1 | 2 | 3 | 4 | 5 | |
| d) brushing up on rusty skills | | 1 | 2 | 3 | 4 | 5 | |
| e) developing new specialisations | | 1 | 2 | 3 | 4 | 5 | |
| f) improving managerial competence | | 1 | 2 | 3 | 4 | 5 | |
| g) improving commercial competence | | 1 | 2 | 3 | 4 | 5 | |

9.8 Which one of the above are you most likely to participate in during the next 12 months?

.....

Part 10: Constructing a Profession-specific occupational competence mix model

At this point, the interviewee will be shown the occupational competence mix model and invited to arrange the segments of a pie chart according to their view of the relative importance of each core component to competent performance within their profession.

Model Closing Statement

Thank you for giving me so much of your time. The insights you have offered will be very valuable to the research.

Prompt Sheet No. 1.6

AGE

Age Range	Category
20-30	1
31-40	2
41-49	3
50+	4

Prompt Sheet No. 1.8

QUALIFICATIONS

Type of Qualification	Category
CSE, O level, City & Guilds, GCSE	1
A level, ONC, OND, BTEC etc.	2
HNC/HND	3
1st Degree (3 years full time or equiv.)	4
1st Degree (4 years or more)	5
Higher Degree (Master's/PhD)	6
Other qual. (including vocational/ professional)	7

Prompt Sheet No. 3.1

CHARACTERISTICS OF PROFESSIONS

- | | | | | | | | |
|--|------------|---|---|---|---|---|----------|
| a) altruistic (i.e. a service, rather than profit, orientation) | not at all | 1 | 2 | 3 | 4 | 5 | strongly |
| b) non-commercial | | 1 | 2 | 3 | 4 | 5 | |
| c) offers autonomy within job role | | 1 | 2 | 3 | 4 | 5 | |
| d) learned (i.e. requiring prolonged and specialised training) | | 1 | 2 | 3 | 4 | 5 | |
| e) has collective influence within society | | 1 | 2 | 3 | 4 | 5 | |
| f) confers status (within society) upon members | | 1 | 2 | 3 | 4 | 5 | |
| g) self-regulating (i.e. members themselves) | | 1 | 2 | 3 | 4 | 5 | |
| h) relationship with peers, other practices, etc. is collegial (as opposed to competitive) | | 1 | 2 | 3 | 4 | 5 | |
| i) client/customer focused | | 1 | 2 | 3 | 4 | 5 | |

Prompt Sheet No. 3.2

HOW I OPERATE IN MY PROFESSIONAL ROLE

- a) It's largely a matter of applying my specialist knowledge**
- b) It's much more of an art than a science**
- c) It's a combination of both art and science**
- d) It's none of the above**

Prompt Sheet No. 3.3

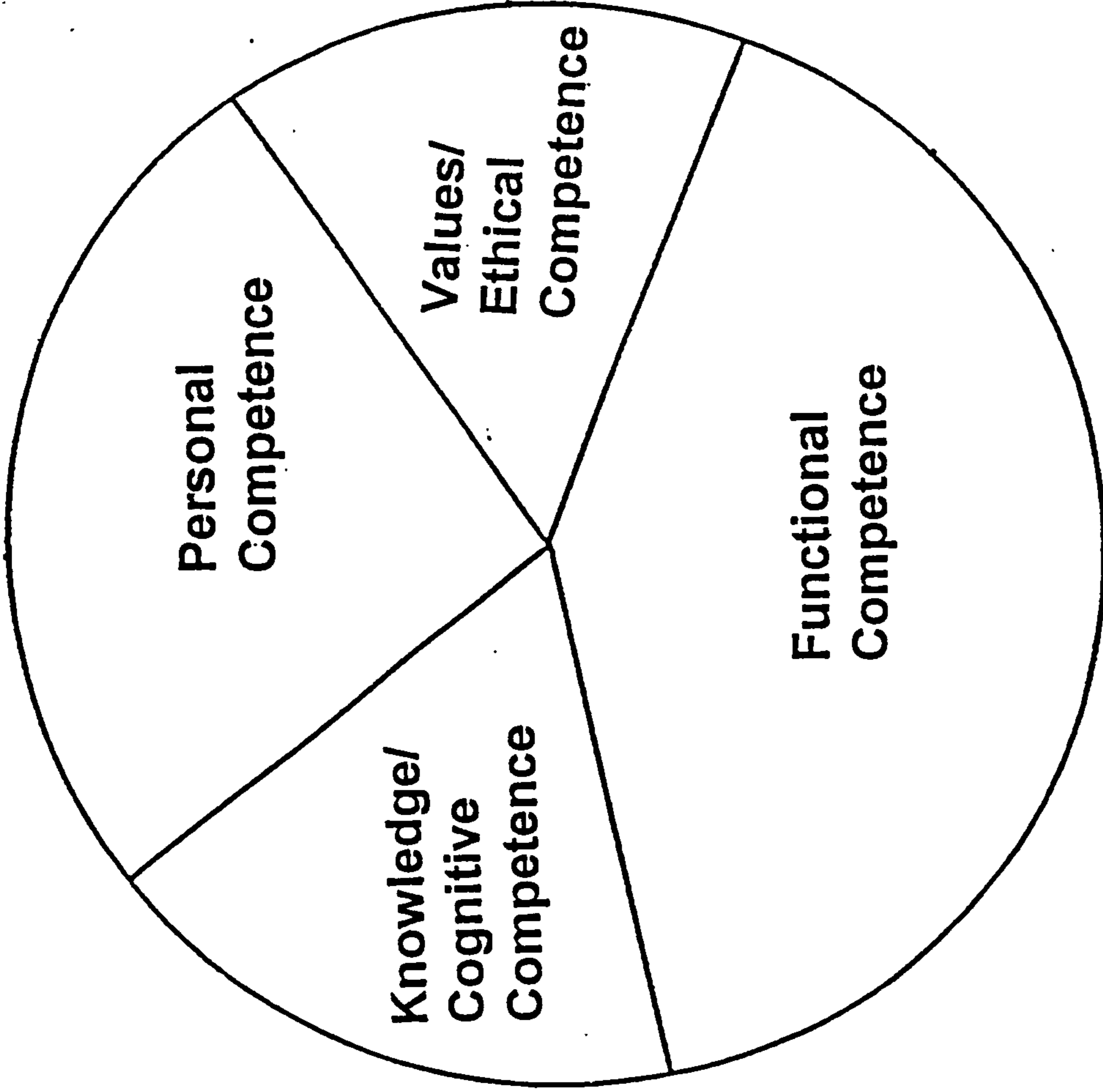
HOW I SOLVE PROFESSIONAL PROBLEMS

- a) I draw on my specialist or technical knowledge in a conscious and systematic way**
- b) I do it more or less automatically without consciously referring back to any particular theory**
- c) I draw on a repertoire of solutions that have worked for me in the past**
- d) I use my common sense**
- e) I use some combination of a) b) c) and d)**
- f) I do it by some other means**
- g) I don't really know how I go about it**

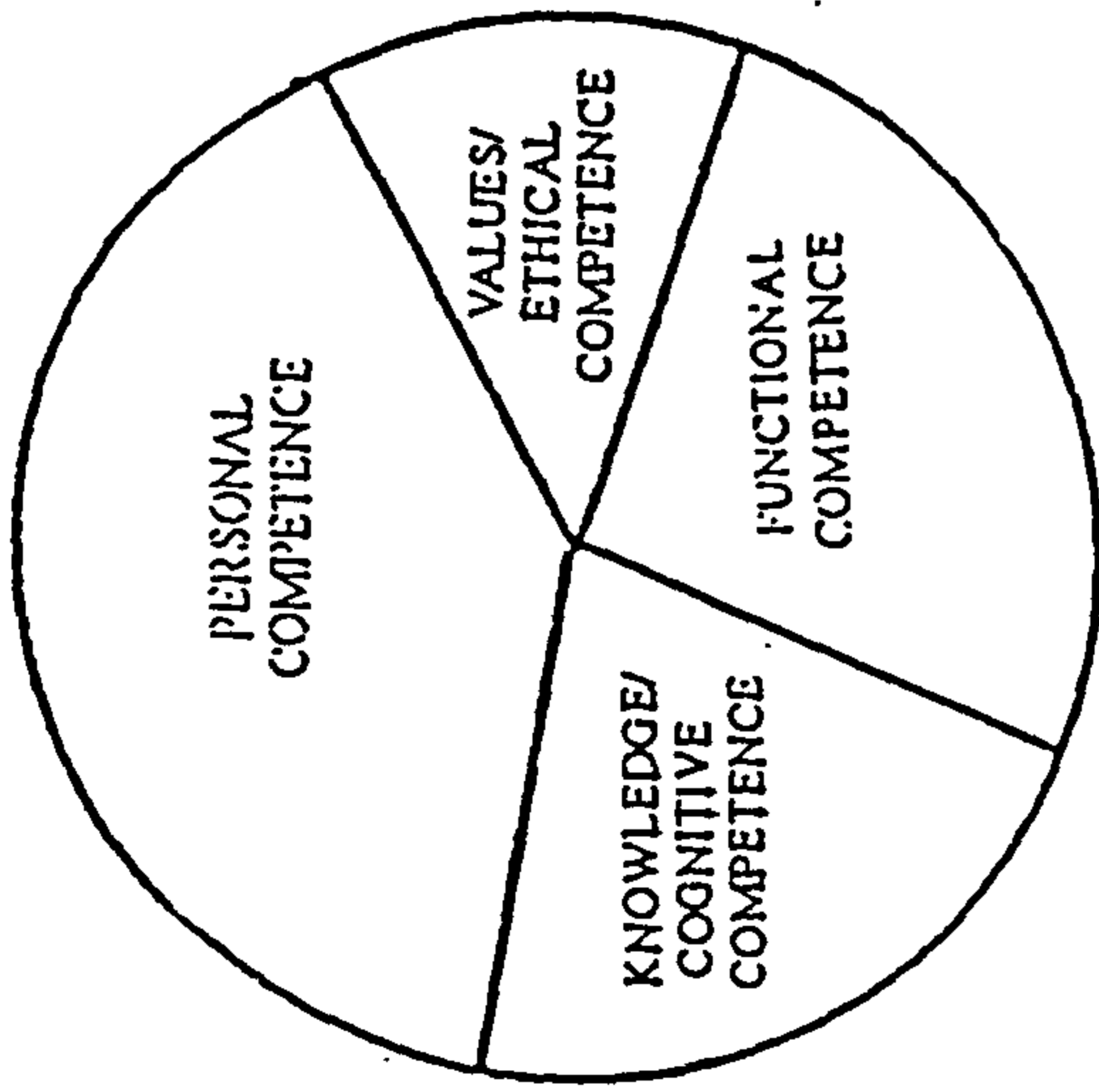
Prompt sheet No. 8.4

HOW I WAS EXAMINED/TESTED

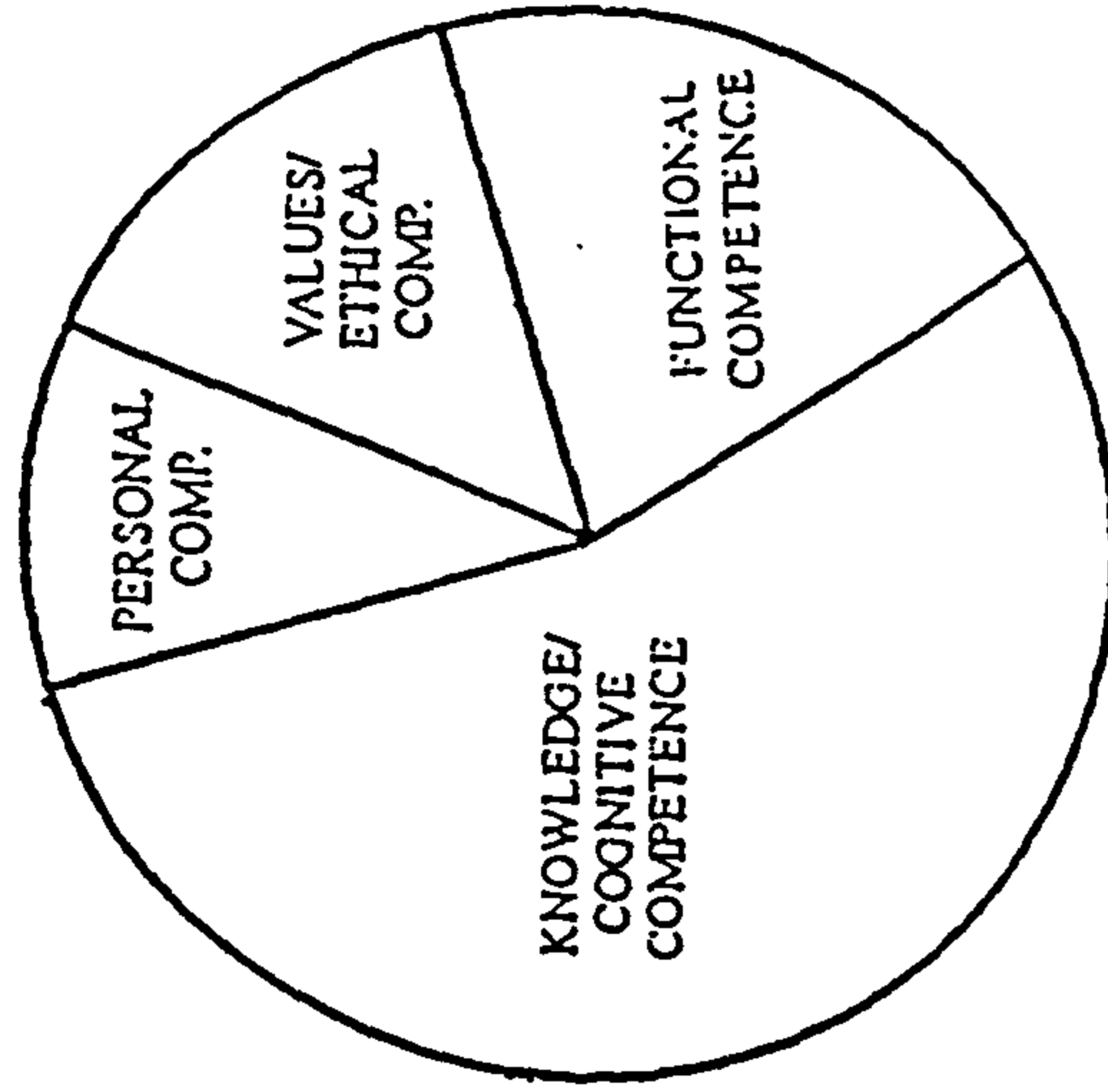
a) staged written examinations (e.g. at the end of each year)	YES	NO
b) staged practical or skill tests	YES	NO
c) continuous assessment based on written work	YES	NO
d) continuous assessment of skills (e.g. against a list of specific skills or competencies)	YES	NO
e) marked projects or assignments	YES	NO
f) formal appraisal(s) by mentor	YES	NO
g) final written examinations	YES	NO
h) final or overall competence-based assessment	YES	NO
i) assessment of personal skills (such as confidence, empathy, etc.)	YES	NO
j) assessment of ability to deal effectively with ethical issues	YES	NO



Occupational Competence Mix



Television Presenter



Research Chemist

Occupational Competence Mix: Comparison of Contrasting Professional Roles

Appendix 3

Postal Surveys: Questionnaire and Sample Covering Letter

Letter sent with survey questionnaires

Graham Cheetham

**102 Henley Avenue
Norton
Sheffield
S8 8JJ**

Telephone: 0114 274 7468

June 1998

RESEARCH INTO PROFESSIONAL COMPETENCE

I am currently undertaking Doctoral research into professional competence and how this is acquired.

One of the professional areas I am taking a close look at is Dentistry and this letter is to ask if you will help by filling in the attached, short questionnaire.

Completing the questionnaire should only take a few minutes. It mainly involves circling a few numbers and filling in a simple chart, but this will help me validate some of the mass of data I have collected via 80 in-depth interviews.

I will treat your answers in strict confidence.

I have attached a FREEPOST envelope, so returning the questionnaire won't cost you anything.

I hope the results of the research will help to improve professional development programmes across a range of professions.

Thanks and best wishes.

Yours sincerely,

PS. It would be wonderful if you could return the questionnaire within about a week.
Thanks again.

QUESTIONNAIRE: LEARNING EXPERIENCES THAT HELPED YOU BECOME A COMPETENT PROFESSIONAL

1. What is your profession? a) current b) secondary/previous if any
2. What is your current job title or appointment?
3. Are you male or female? **MALE** **FEMALE**
4. Which age range box applies to you? (please tick)

20-30	31-40	41-49	50+

Please answer the following questions in respect of your current (main) profession

5. How long have you been in the profession since qualifying or first appointment? years
6. Does the profession have any minimum pre-entry qualifications? **YES** **NO**
7. Does it have a formal education and/or training programme which entrants normally go through (please circle)? **YES** **NO**

If NO, please circle N/A for questions 8 a) to 8 d) then go to 8e).

8. Please rate (by circling a number) the importance of the following in helping you become a fully competent professional (circle N/A if a particular experience did not apply in your case)

Formal training experiences (linked directly to profession):

- | | | | | |
|---|----------|-----------|-----------|-----|
| a) the professional education/training course you went through (if any) | not very | 1 2 3 4 5 | extremely | N/A |
| b) the <u>in-course</u> practical work (if any) | | 1 2 3 4 5 | N/A | |
| c) in-course simulations (if any) | | 1 2 3 4 5 | N/A | |
| d) in-course work placements (if any) | | 1 2 3 4 5 | N/A | |

Less formal experiences:

- | | | | | |
|--|----------|-----------|-----------|-----|
| e) any relevant pre-entry experience you may have had | not very | 1 2 3 4 5 | extremely | N/A |
| f) on the job experience | | 1 2 3 4 5 | N/A | |
| g) support from a mentor of some kind (not necessarily formally appointed as such) | | 1 2 3 4 5 | N/A | |
| h) networking with others doing similar/related work | | 1 2 3 4 5 | N/A | |
| i) self analysis or reflection | | 1 2 3 4 5 | N/A | |
| j) use of a role model(s) | | 1 2 3 4 5 | N/A | |
| k) working alongside more experienced colleagues | | 1 2 3 4 5 | N/A | |
| l) working as part of a team | | 1 2 3 4 5 | N/A | |
| m) learning through teaching/training others | | 1 2 3 4 5 | N/A | |
| o) learning from clients/customers/patients/etc. | | 1 2 3 4 5 | N/A | |

9. If you are able, please mention any specific experiences (or kinds of experiences) which proved particularly formative for you, if possible, saying why these were helpful.

.....

.....

.....

.....

Your use of 'reflection'

10. Do you ever reflect on any aspect of your professional work?
(e.g. self analysis of performance) YES NO NOT SURE
11. Is this something you do on a regular basis? YES NO NOT SURE
12. Do you consciously modify the way you do things as a result of reflection?
NO YES, REGULARLY YES, SOMETIMES NOT SURE

Key abilities needed in your profession

13. How important are the following abilities to effective performance within your profession?:

- | | | | |
|----------------------------------|----------|-----------|-----------|
| a) written communication | not very | 1 2 3 4 5 | extremely |
| b) oral communication | | 1 2 3 4 5 | |
| c) creativity | | 1 2 3 4 5 | |
| d) analytical skills | | 1 2 3 4 5 | |
| e) problem-solving skills | | 1 2 3 4 5 | |
| f) self-development skills | | 1 2 3 4 5 | |
| g) skill with numbers | | 1 2 3 4 5 | |
| h) information technology skills | | 1 2 3 4 5 | |
| i) ability to work within a team | | 1 2 3 4 5 | |

14. Please now rate the following factors in relation to their importance to effective performance within your own profession:

knowledge

- | | | | |
|--|----------|-----------|-----------|
| a) specialist knowledge (e.g. technical, theoretical) | not very | 1 2 3 4 5 | extremely |
| b) tacit knowledge (i.e. linked to the things you do but more intuitive - not easy to explain or pass on to others) | | 1 2 3 4 5 | |
| c) procedural knowledge (routines/common procedures) | | 1 2 3 4 5 | |
| d) contextual knowledge (i.e. of the specific working context/ environment in which you are currently employed (organisation, clients, geographical location, etc.)) | | 1 2 3 4 5 | |

skills/competencies

- | | | | |
|---|--|-----------|--|
| * e) ability to carry out the <u>full range</u> of tasks or functions associated with your profession | | 1 2 3 4 5 | |
| f) management skills | | 1 2 3 4 5 | |
| g) commercial skills | | 1 2 3 4 5 | |
| h) mental skills (e.g. analysis, diagnosis, mental) | | 1 2 3 4 5 | |
| i) physical or manual skills (e.g. hand/eye co-ordination, dexterity) | | 1 2 3 4 5 | |
| j) personal/behavioural competencies (self-confidence, empathy, control of emotions, presentation skills, listening skills, thinking on feet, etc.) | | 1 2 3 4 5 | |
| k) interpersonal skills | | 1 2 3 4 5 | |
| l) making (difficult) ethical judgements | | 1 2 3 4 5 | |

* The emphasis here is on the full range of tasks. In some professions, due to specialisation, etc., it is not necessary to be competent in all areas. In other professions, a broader based competence is required.

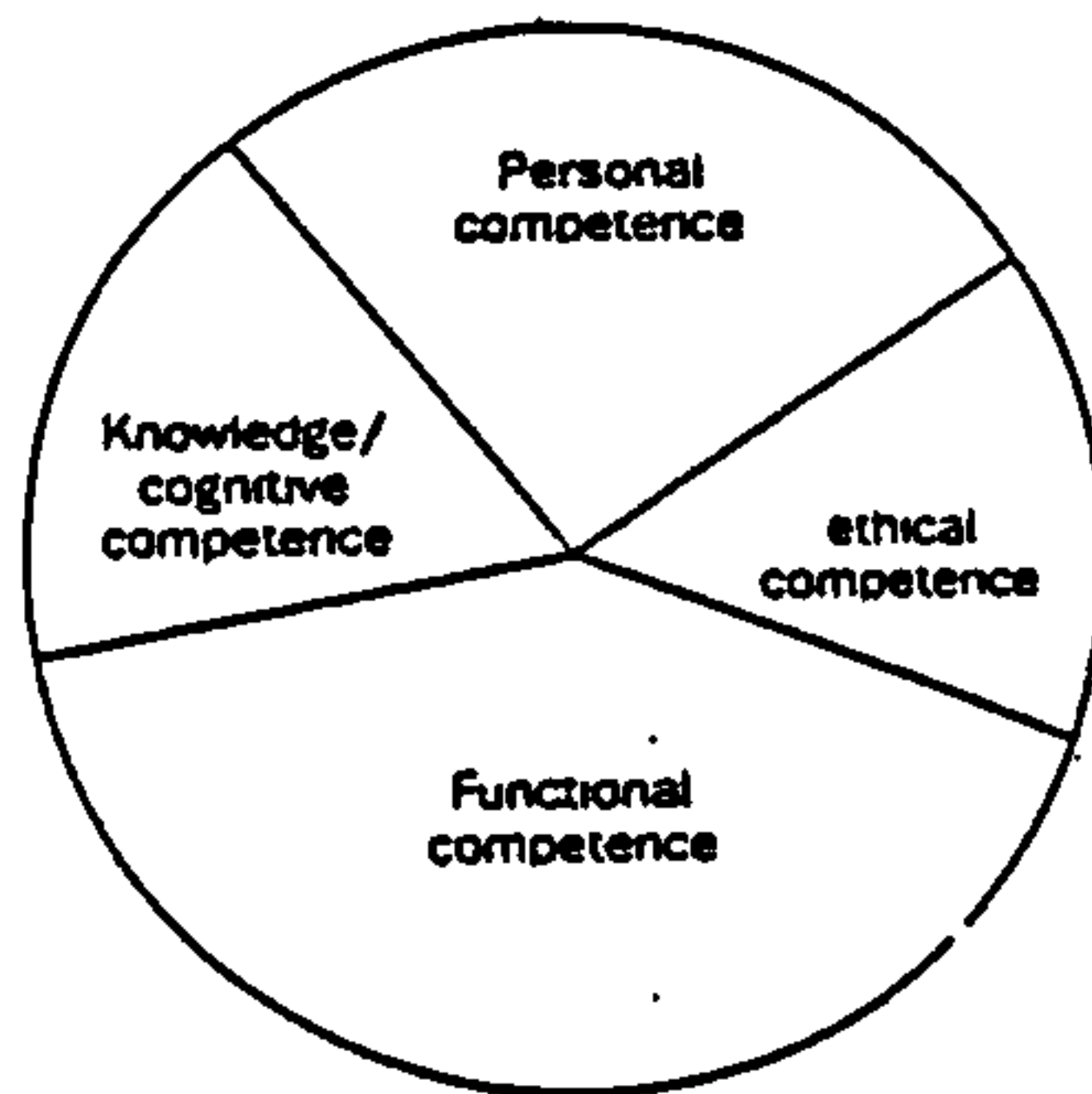
Characteristics of your profession

15. The following characteristics have sometimes been ascribed to professions. To what extent do you think they apply to your own profession as it is today?

a) altruistic (i.e. a service, rather than profit, orientation)	not at all	1	2	3	4	5	strongly
b) <u>non</u> -commercial		1	2	3	4	5	
c) offers autonomy within job role		1	2	3	4	5	
d) learned (i.e. requiring prolonged and specialised training)		1	2	3	4	5	
e) provides a collective influence within society		1	2	3	4	5	
f) confers status (within society) upon member		1	2	3	4	5	
g) self-regulating (i.e. by membership, rather than law)		1	2	3	4	5	
h) relationship with peers, other practices, etc. is collegial (as opposed to competitive)		1	2	3	4	5	
i) client/customer focused		1	2	3	4	5	

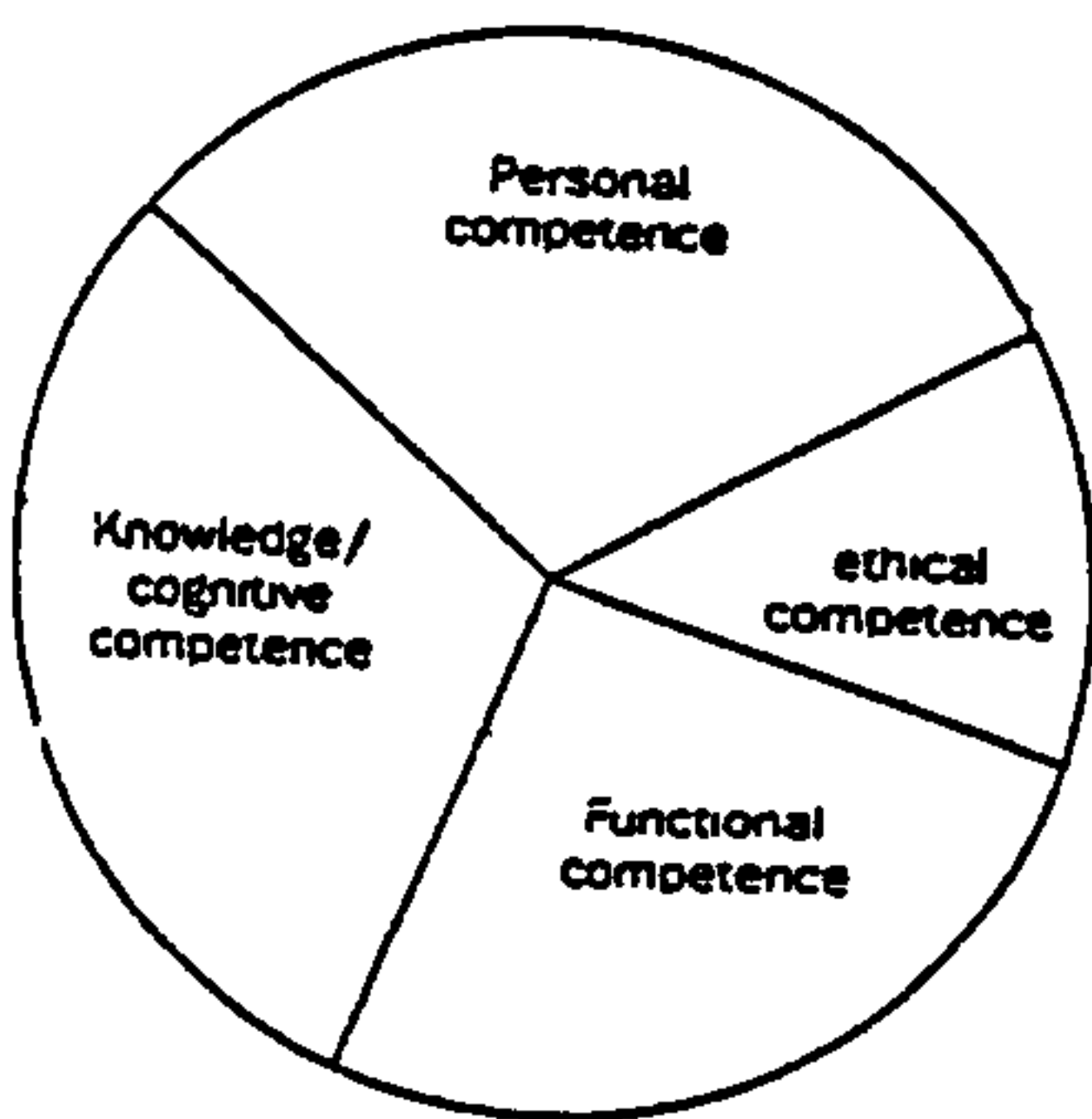
Thank you, that concludes the questions but please take a few moments to read the following then complete the diagram on page 4.

The diagram below is called an 'Occupational Competence Mix' diagram. It shows four different *components* of professional competence. Definitions for each of the components are on the next page.

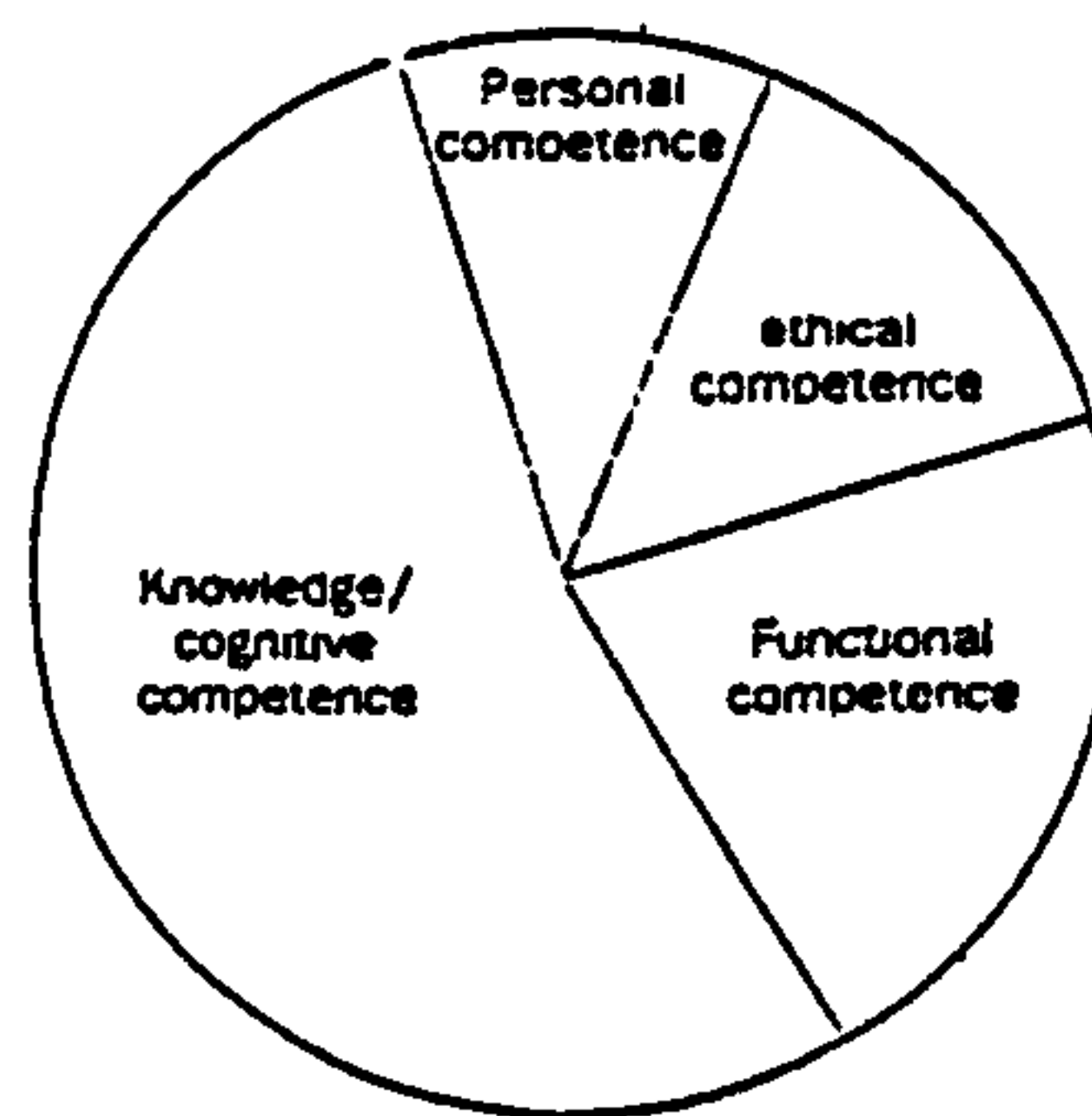


Occupational Competence Mix

All of these components are probably necessary for all professions. However, the relative importance of each will vary between professions. The relative importance of each component to a particular profession and, therefore, the ideal mix of these components for a person working that profession is indicated by the size of the segments. As an example, diagrams for two contrasting professions are shown below.



Barrister

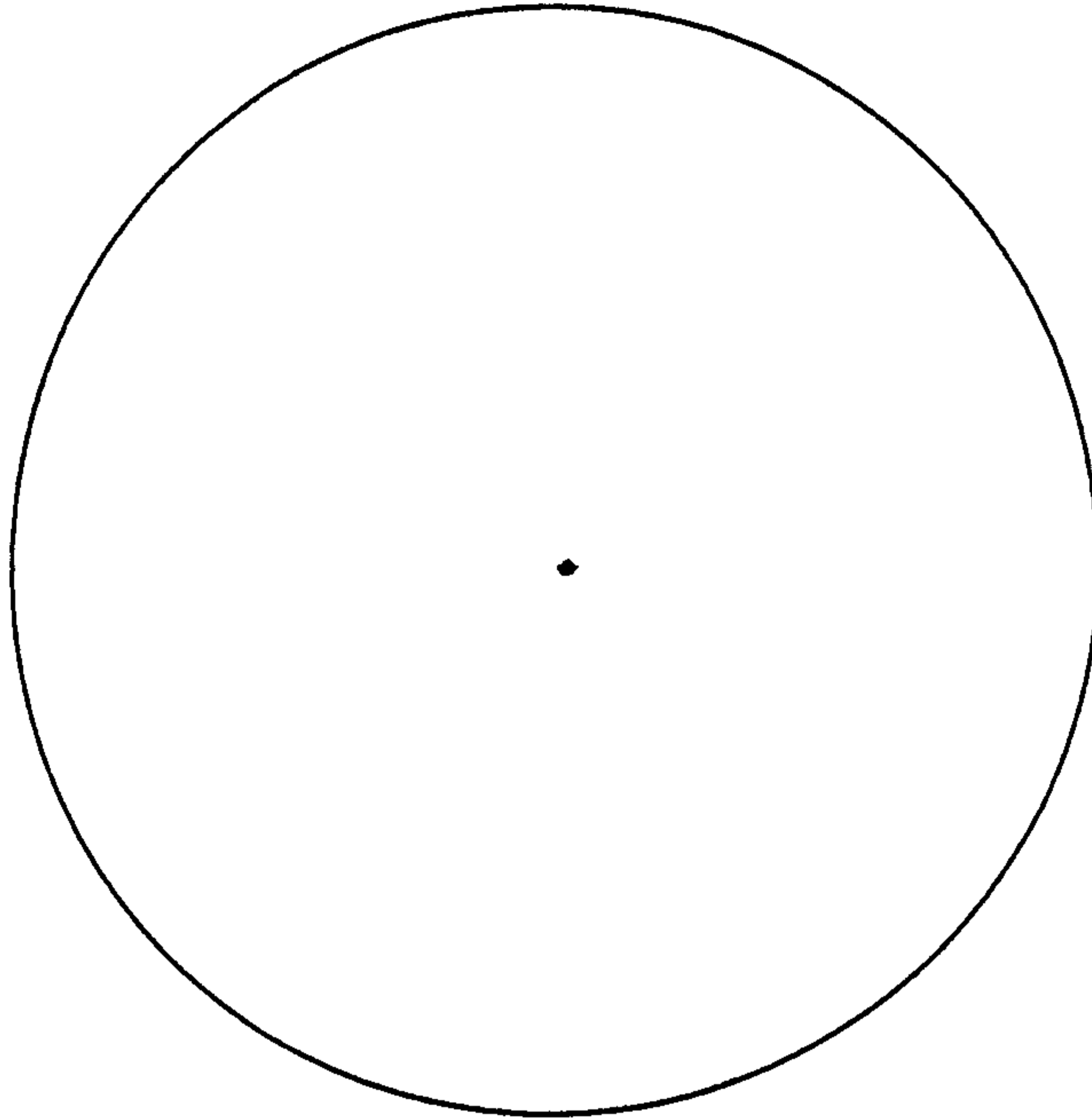


Research Chemist

Barristers need a large cadre of personal competence (e.g. self-confidence, speaking skills, and the ability to think on their feet) whereas research chemists, who work largely behind the scenes, will not require as much of this component. For them, the most important component is probably knowledge/cognitive competence.

Please now use the blank circle on the next page to draw a diagram showing the ideal mix of these components for a person working in your own profession. Please read the definitions first.

Use the segment size to represent the relative importance of each component to effective performance within your profession (i.e. the bigger the segment, the more important the component to effective performance).



Definitions

For the purpose of this exercise:

Knowledge/Cognitive Competence is defined as *"the possession of appropriate work-related knowledge and the ability to put this to effective use"*. It includes specialist, technical or theoretical knowledge, tacit knowledge, knowledge of procedures, knowledge of the particular working environment, etc..

Functional Competence is defined as *"the ability to perform a range of specific work-based tasks effectively to achieve required outcomes"*. It covers all the day-to-day functions required by the job, both profession-specific functions and more generic functions such as planning, delegating and time management.

Personal Competence is defined as *"the ability to adopt appropriate, observable behaviours in work-related situations"*. It includes things like self-confidence, empathy, ability to think on feet, interpersonal skills, control of emotions, listening skills.

Values/Ethical Competence is defined as *"the possession of appropriate personal and professional values and the ability to make sound ethical judgements based upon these in work-related situations"*. It includes things like adherence to personal moral or religious codes, adherence to professional codes of conduct, environmental sensitivity, ability to make (sometimes difficult) ethical decisions.

Thank you very much indeed for answering these questions.

Please return the completed questionnaire and diagram to:

Graham Cheetham
FREEPOST NEA4208
SHEFFIELD
S8 0PG

or fax to Graham Cheetham on: 0114 259 4694

If you have any difficulty with the questionnaire or would like more information about the research, please ring Graham Cheetham on 0114 259 3845 (day) or 0114 274 7468 (evening) or e-mail to: graham.cheetham@dfec.gov.uk

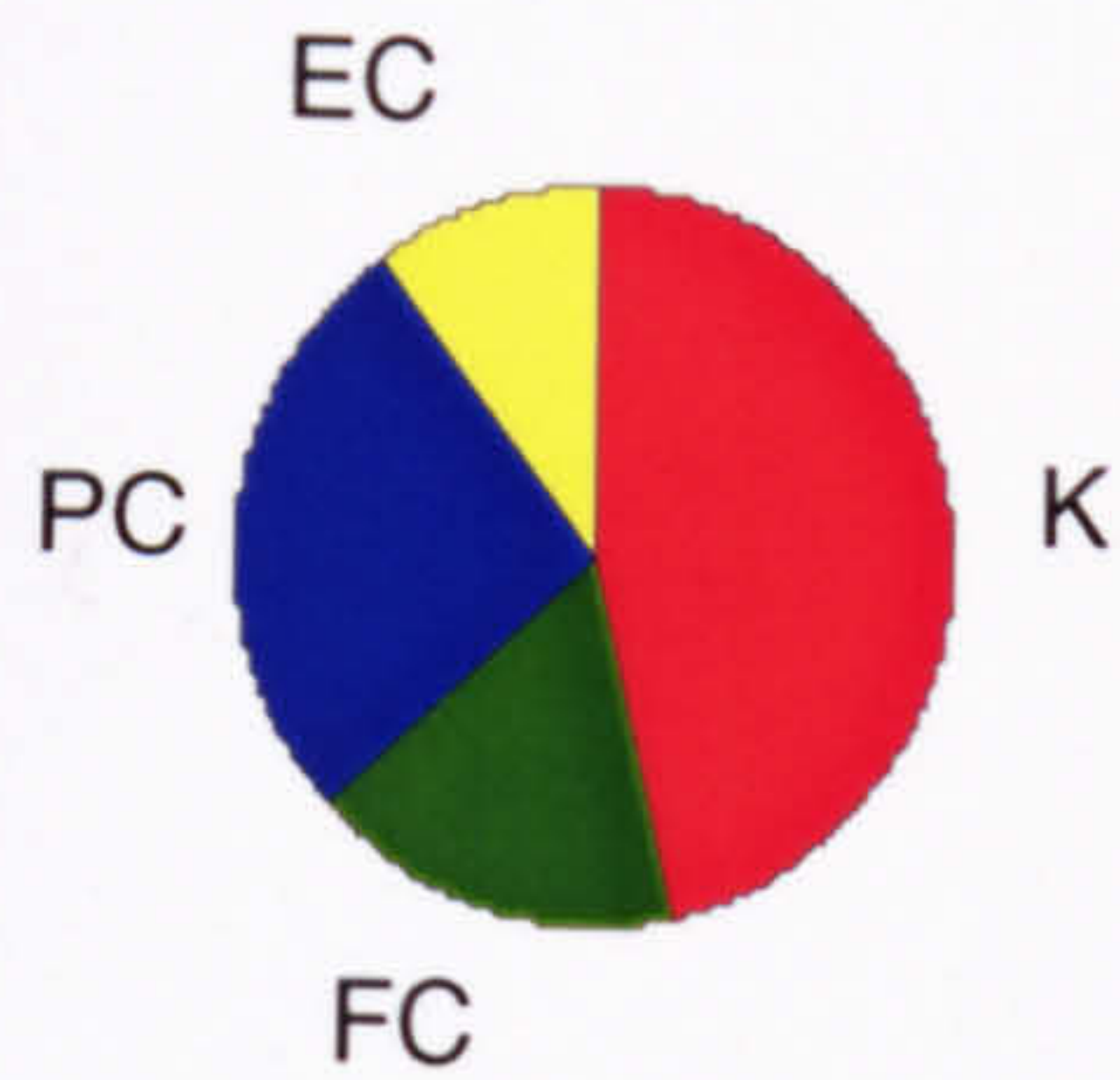
Appendix 4

Occupational Competence Mix Diagrams based on Interviews (20 professions)

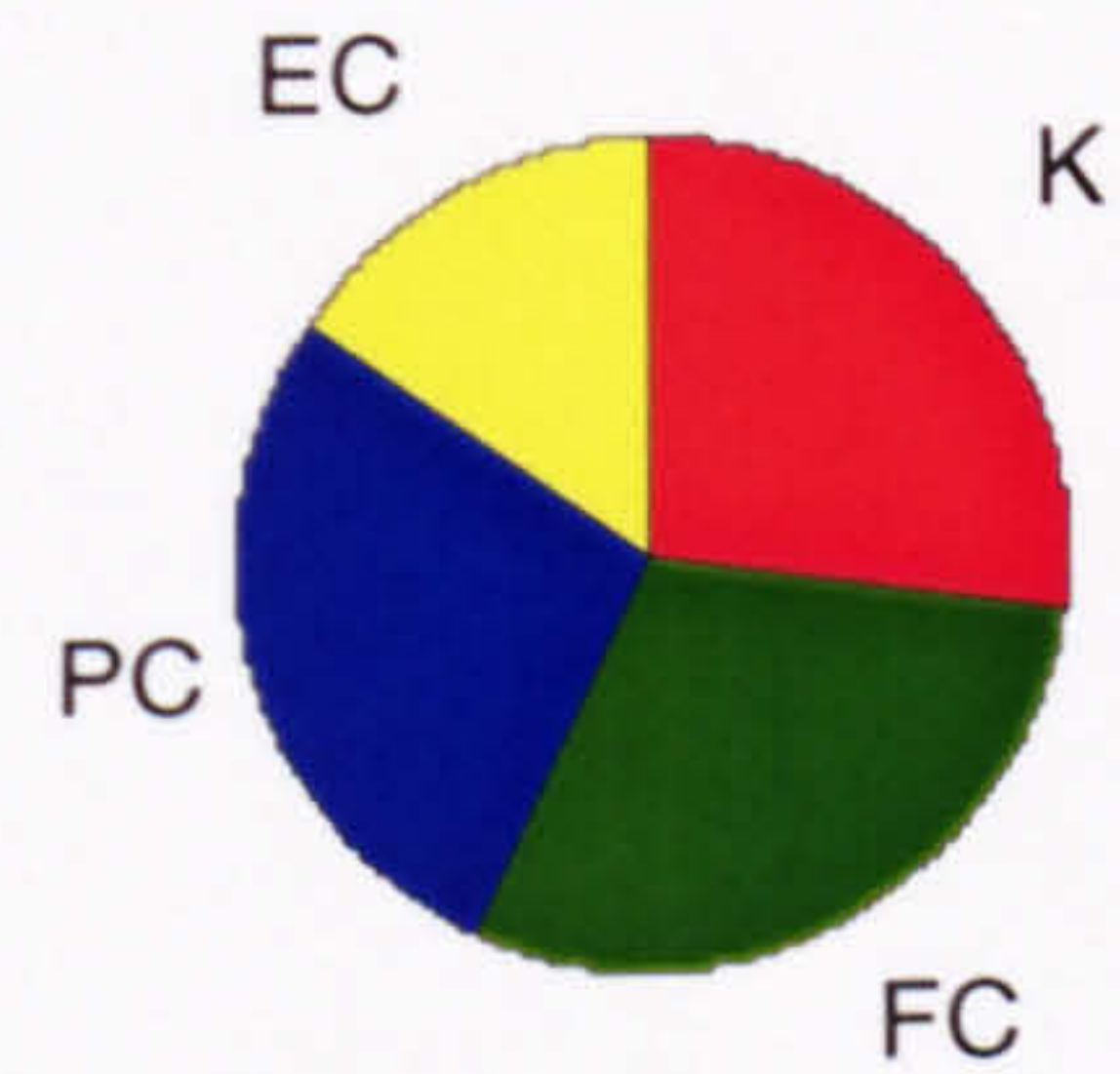
Occupational Competence Mix Diagrams based on Interviews

(N = 4 for individual professions, therefore no statistical reliability is claimed)

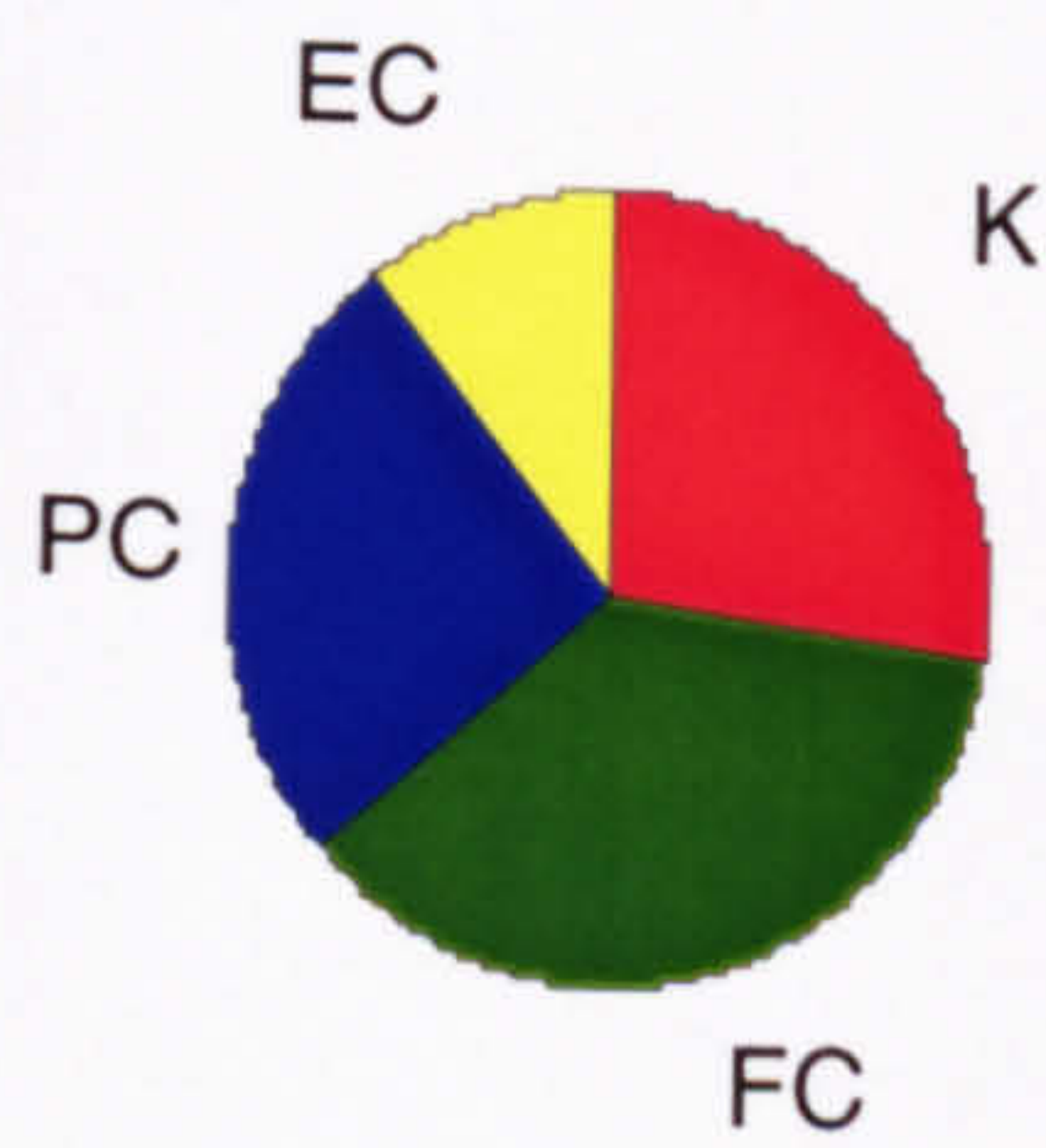
Sec Teachers



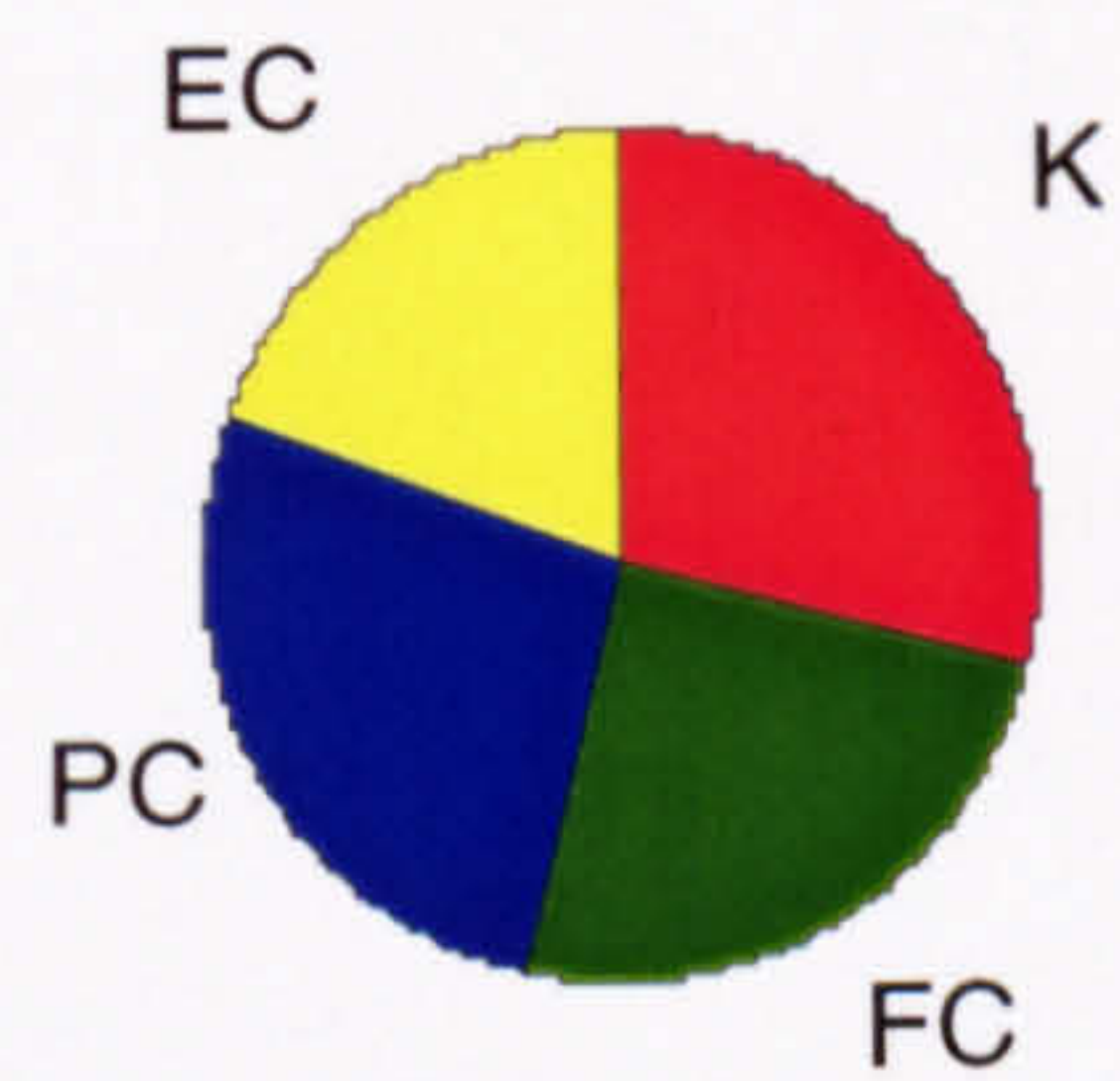
Solicitors



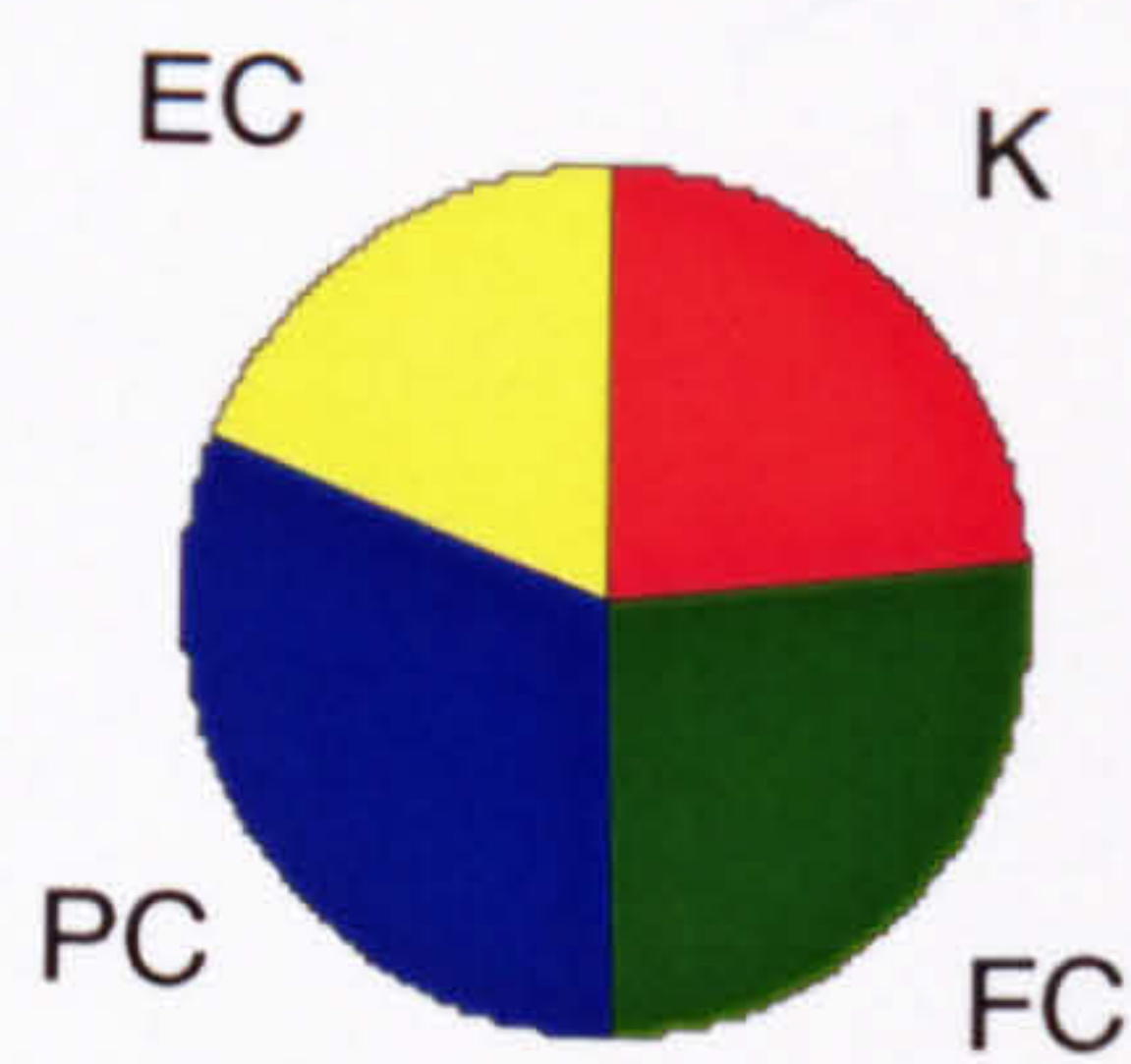
Barristers



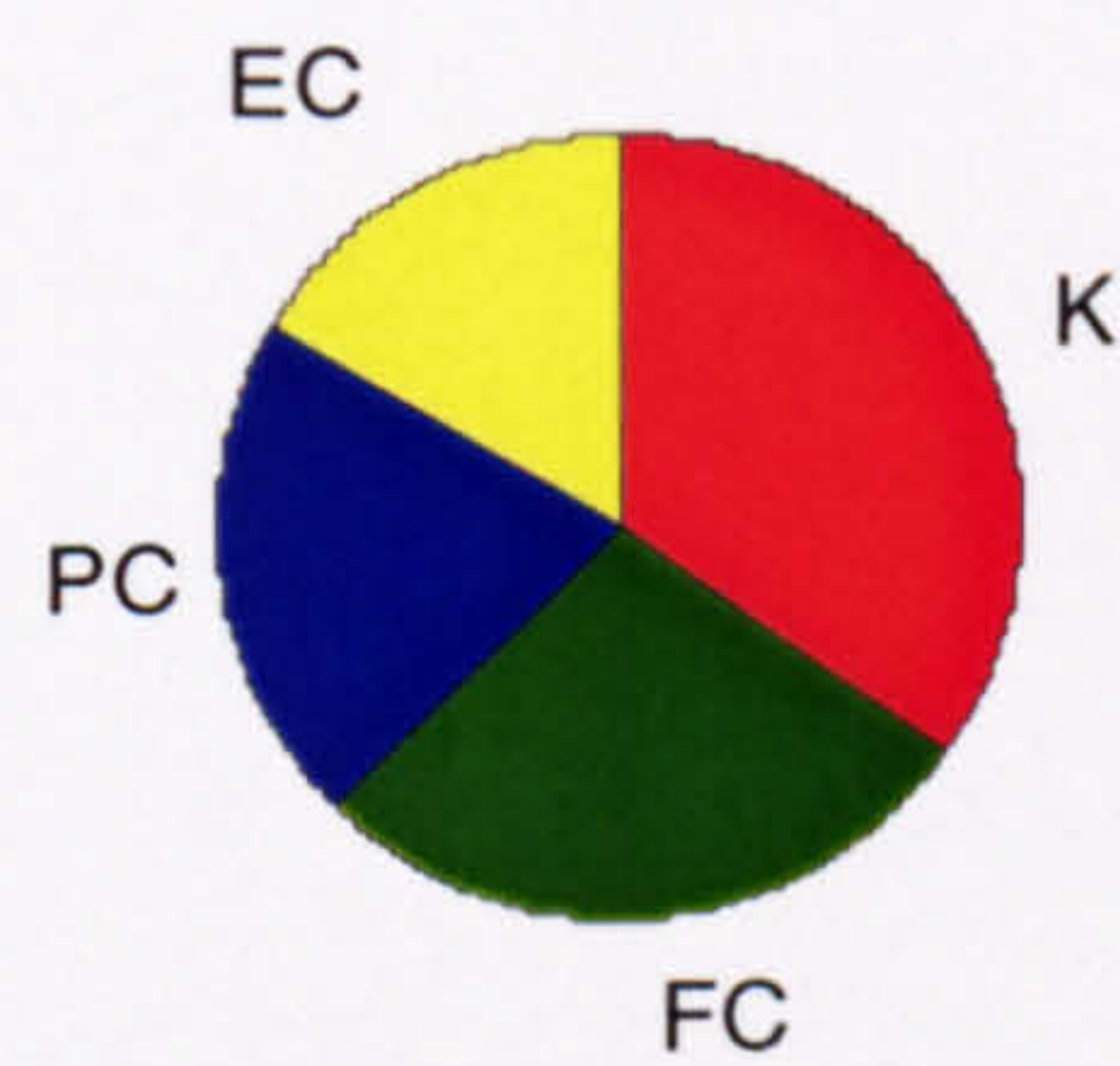
Physiotherapists



Prim Teachers



Hosp Doctors

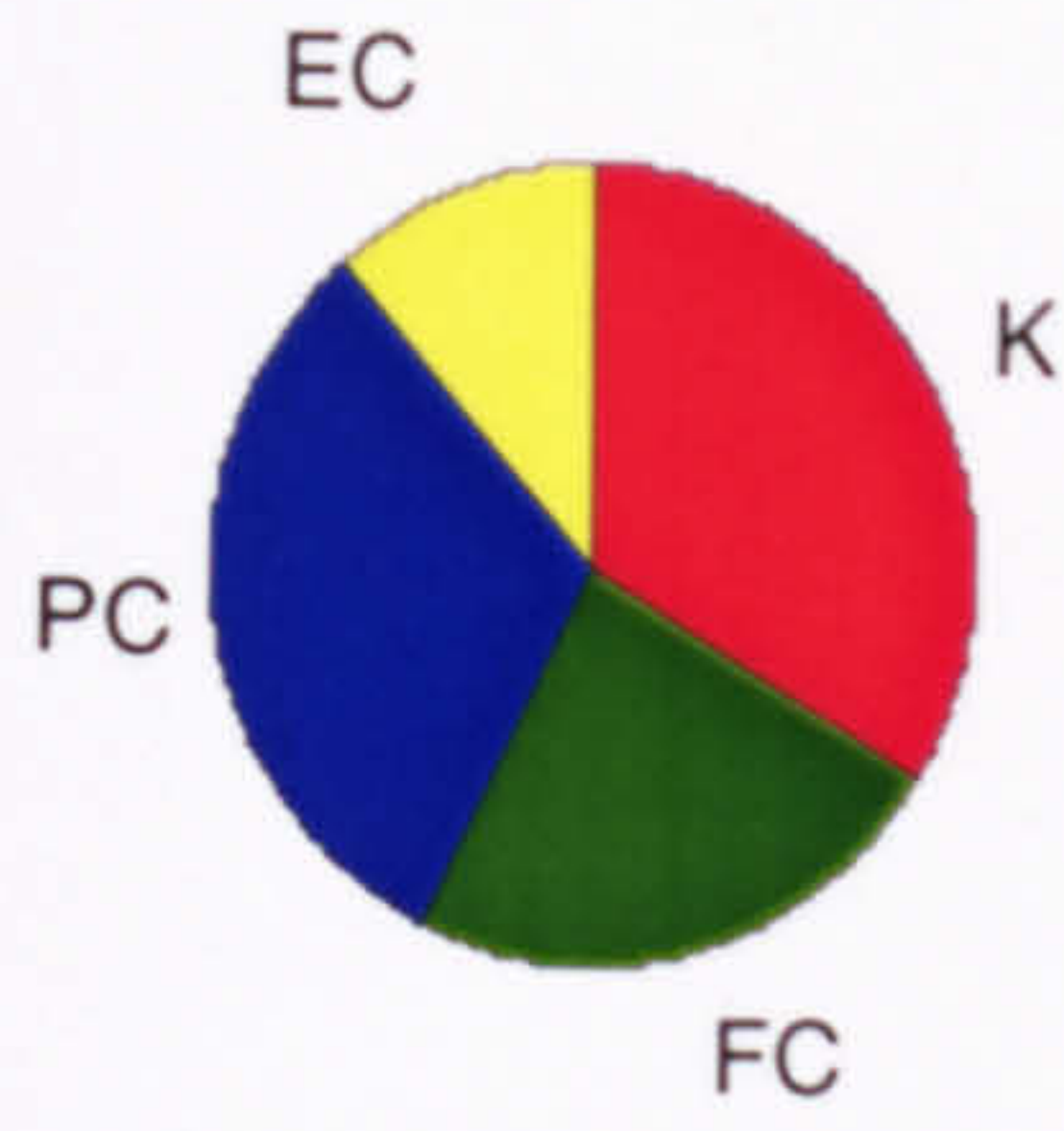


Key

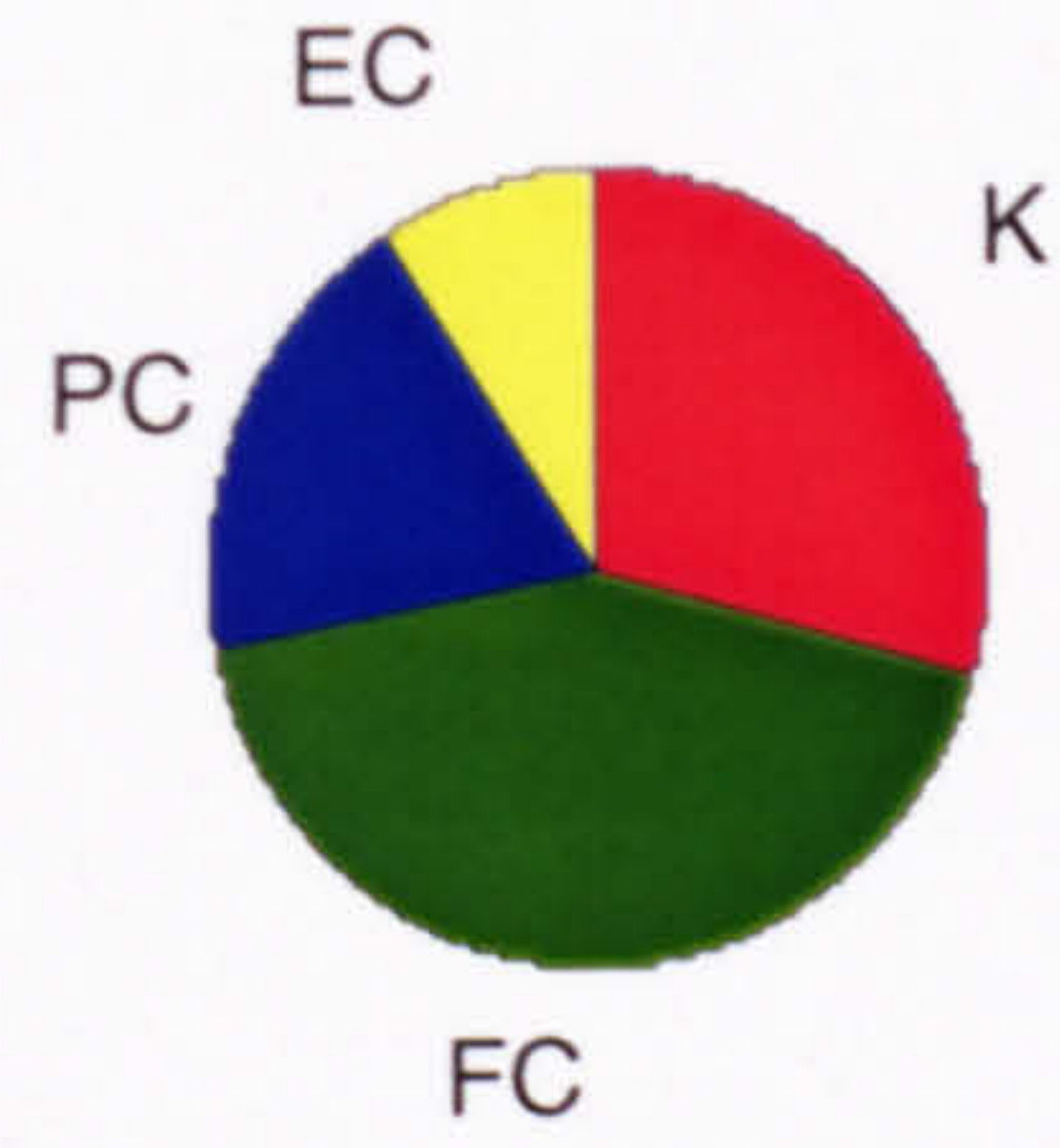
K = Knowledge/Cognitive Competence
FC = Functional Competence

PC = Personal Competence
EC = Ethical Competence

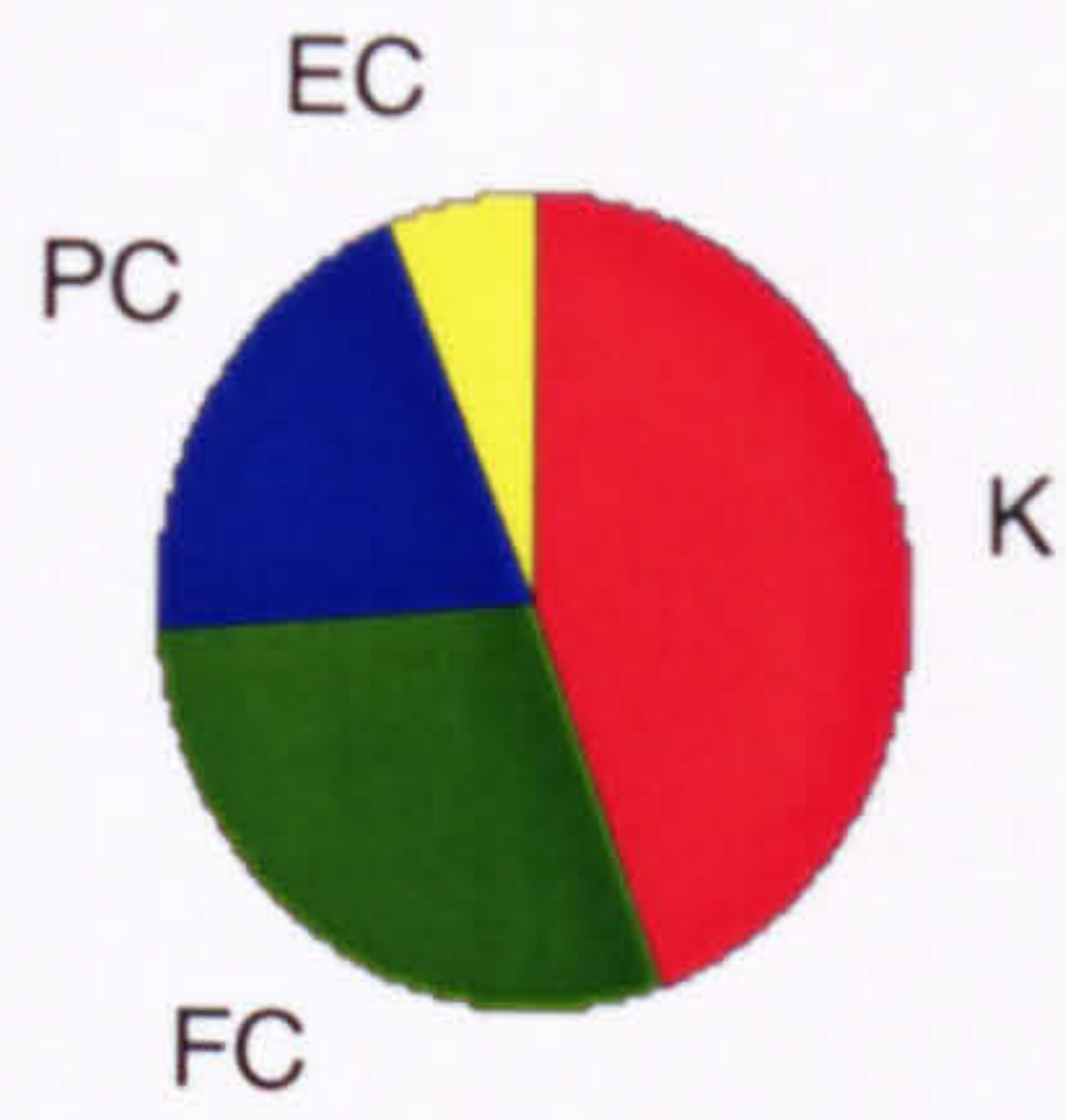
IT Consultants



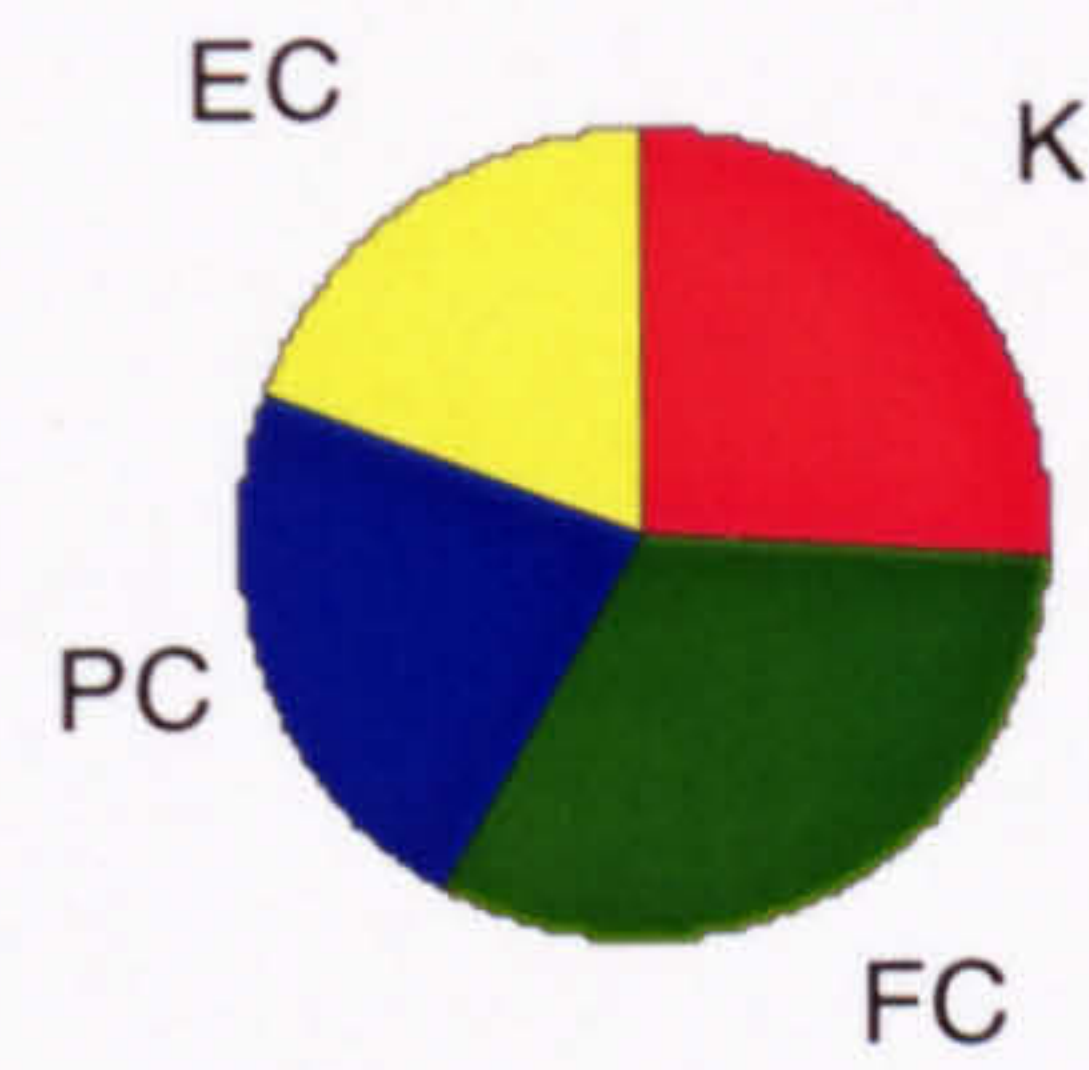
Architects



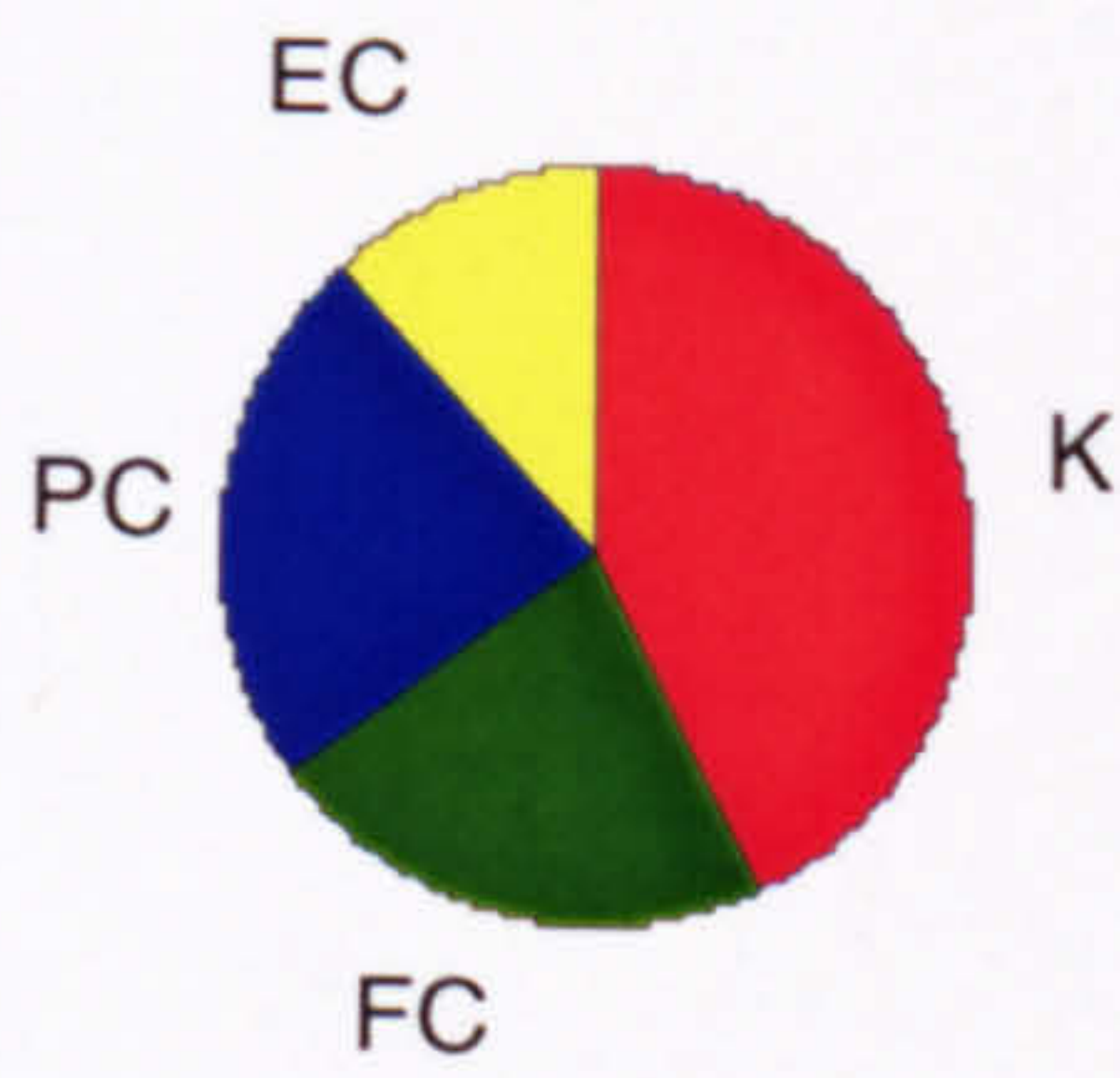
Res Scientists



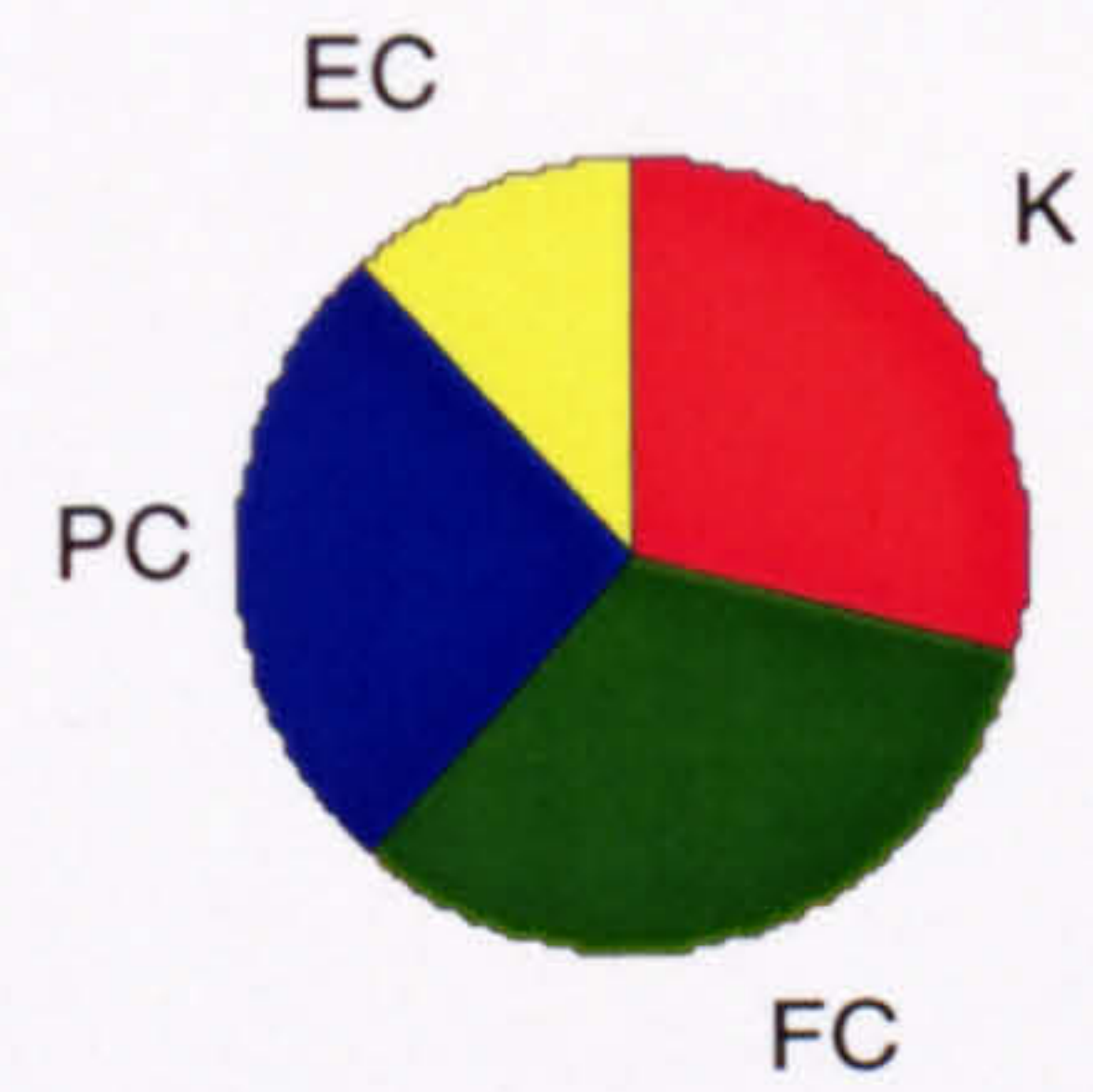
Nurses



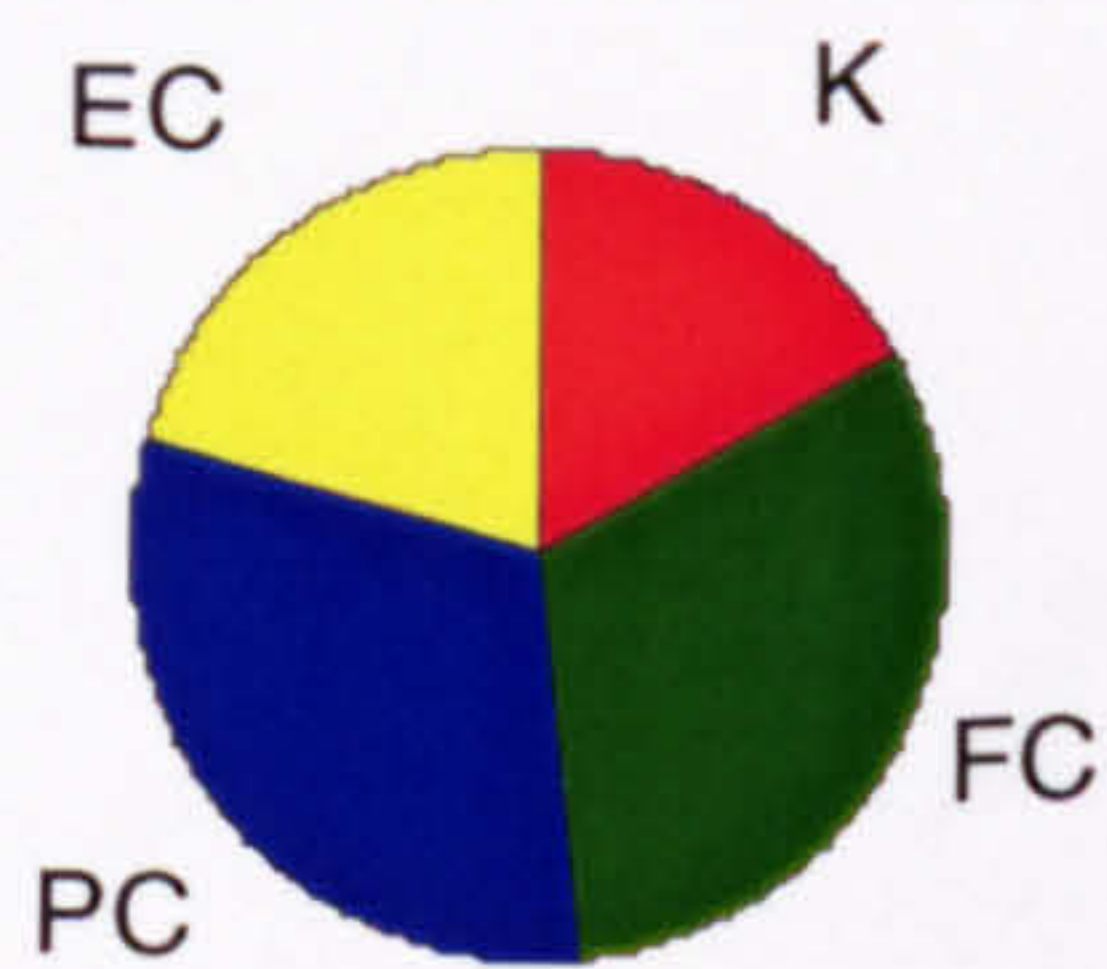
Univ Lecturers



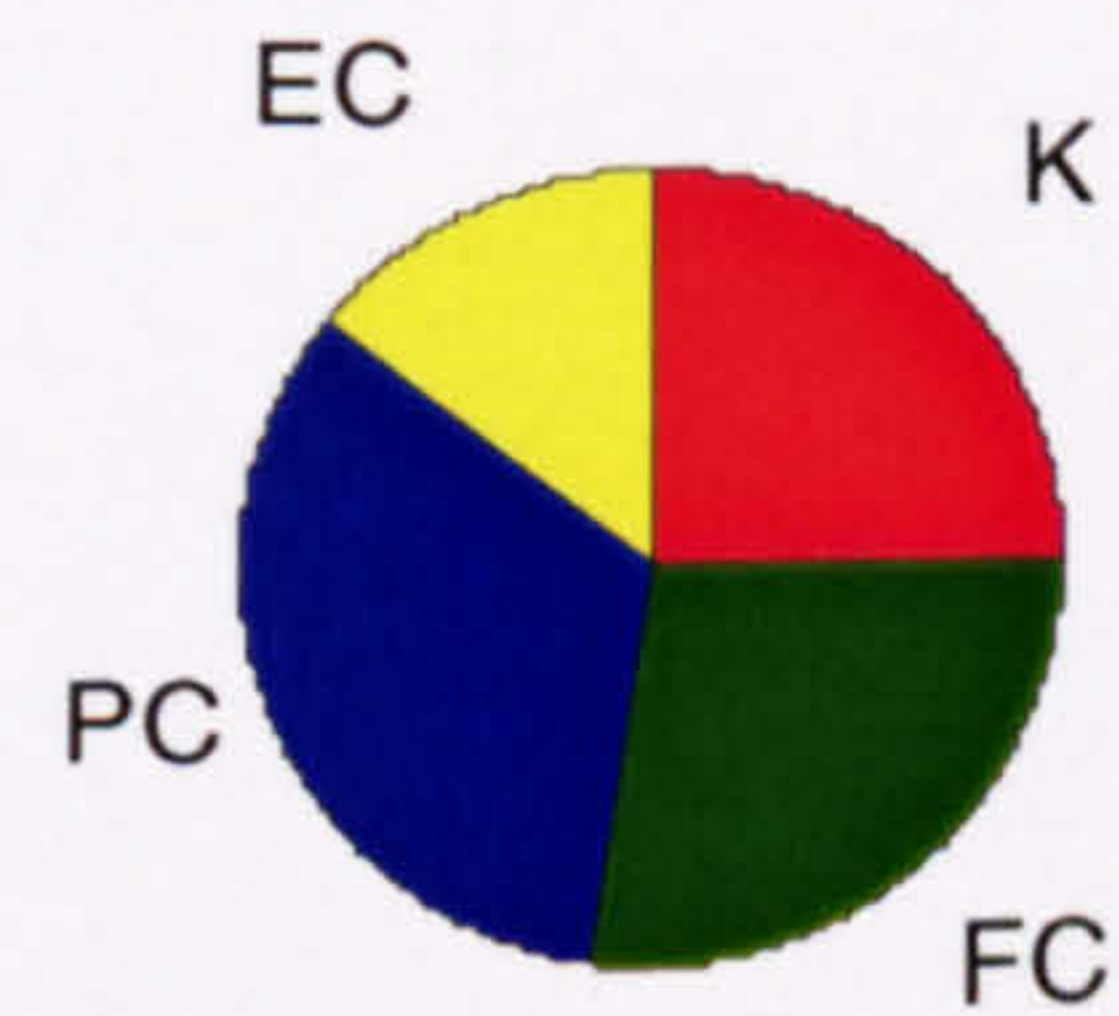
Librarians



Soc Workers



Personnel Mgrs

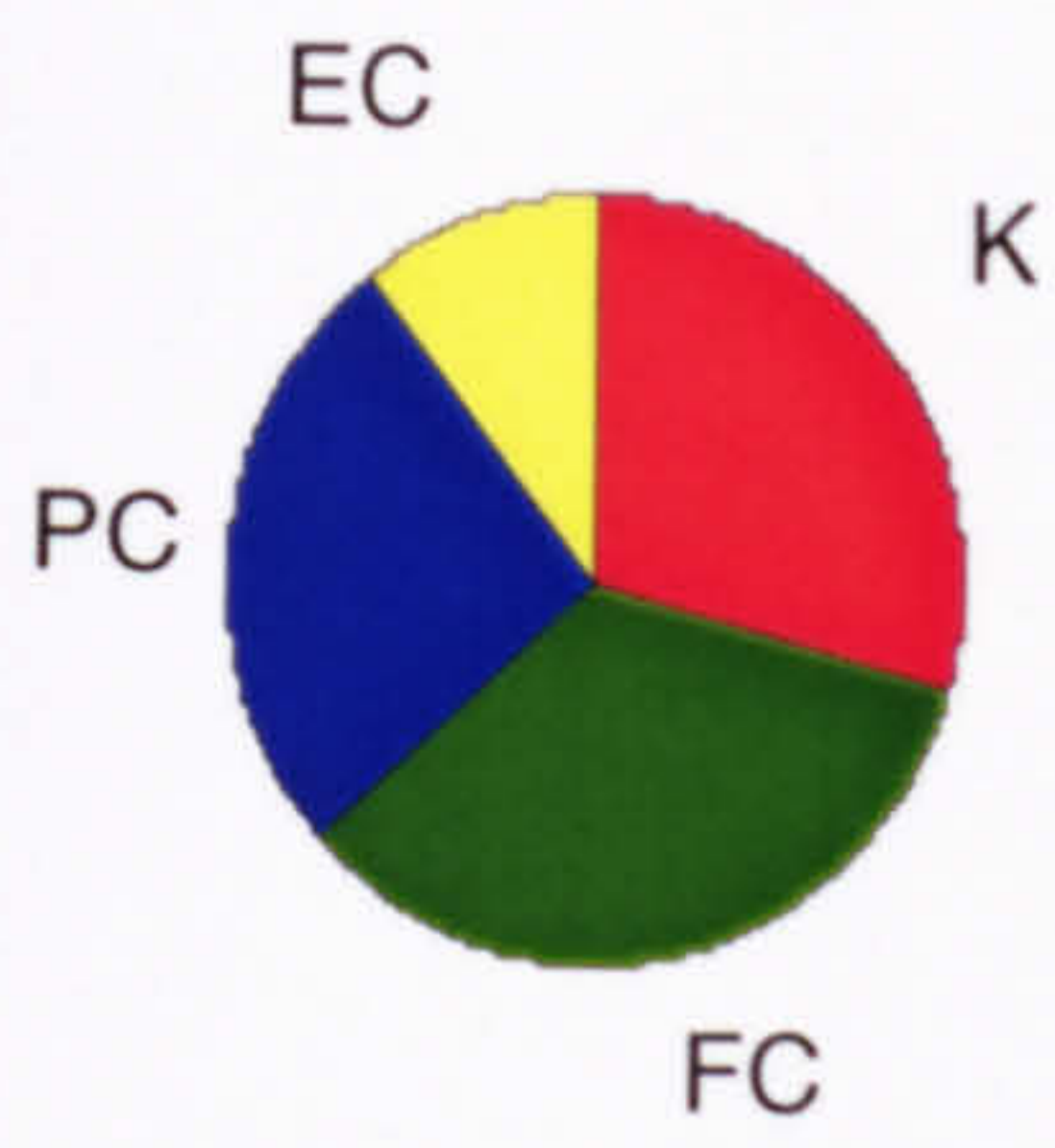


Key

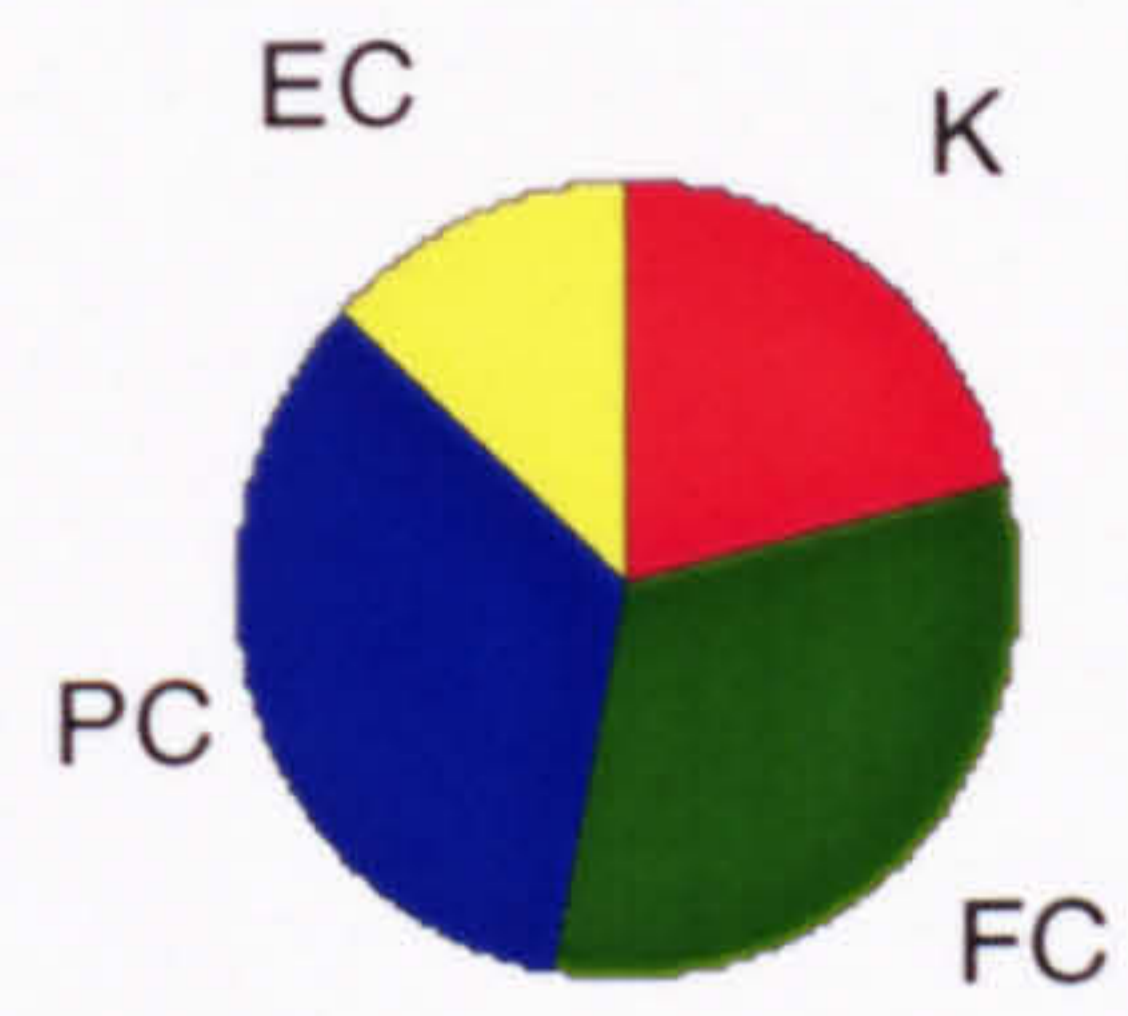
K = Knowledge/Cognitive Competence
FC = Functional Competence

PC = Personal Competence
EC = Ethical Competence

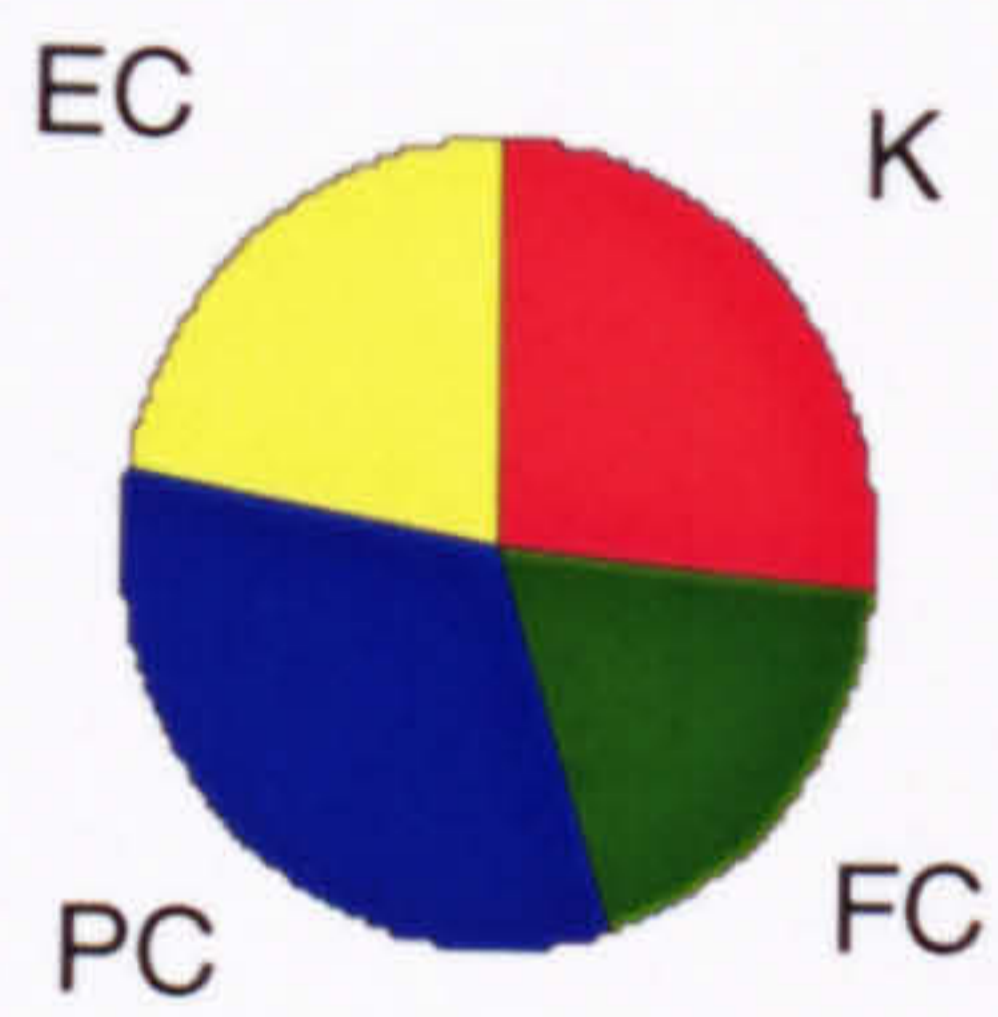
Surveyors



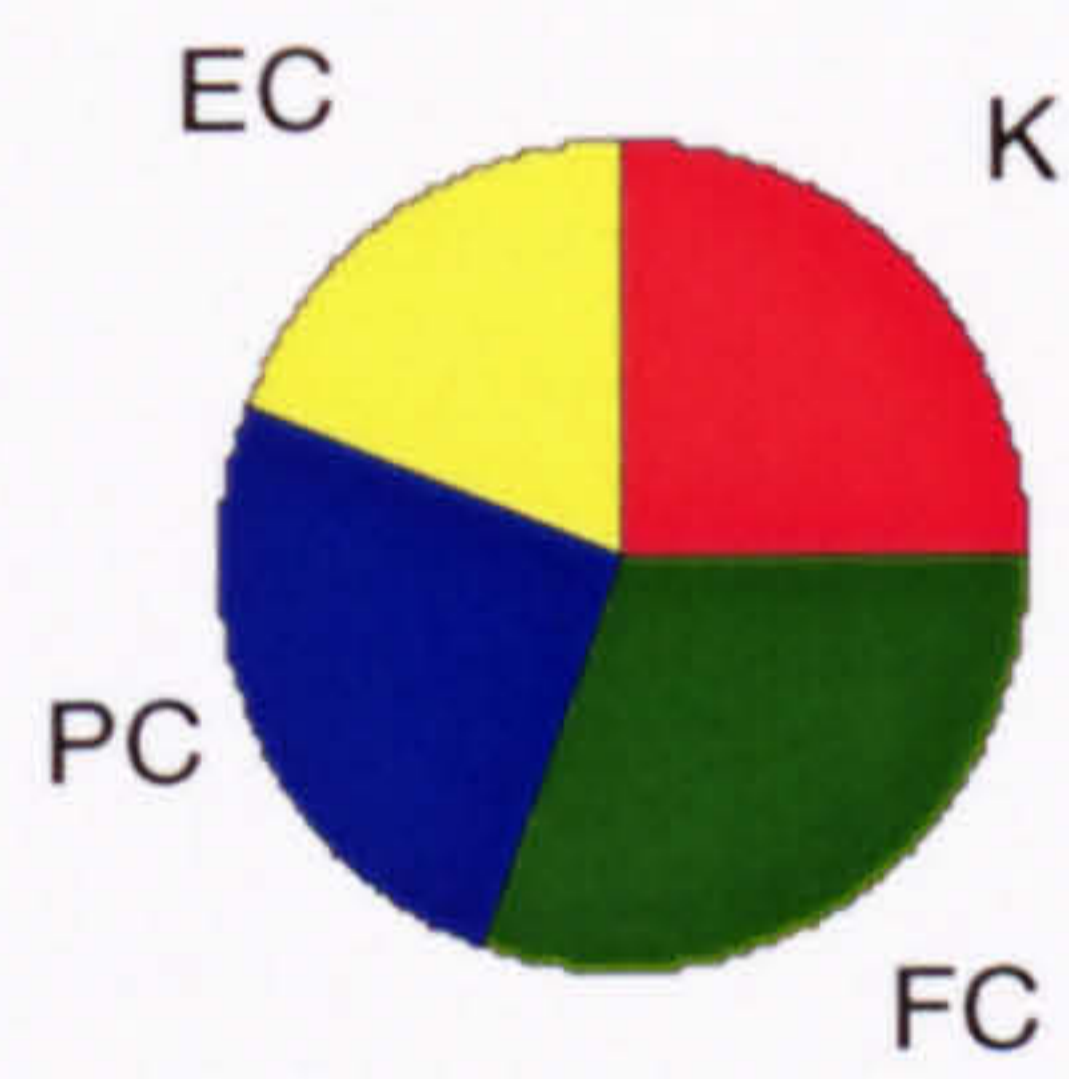
Trainers



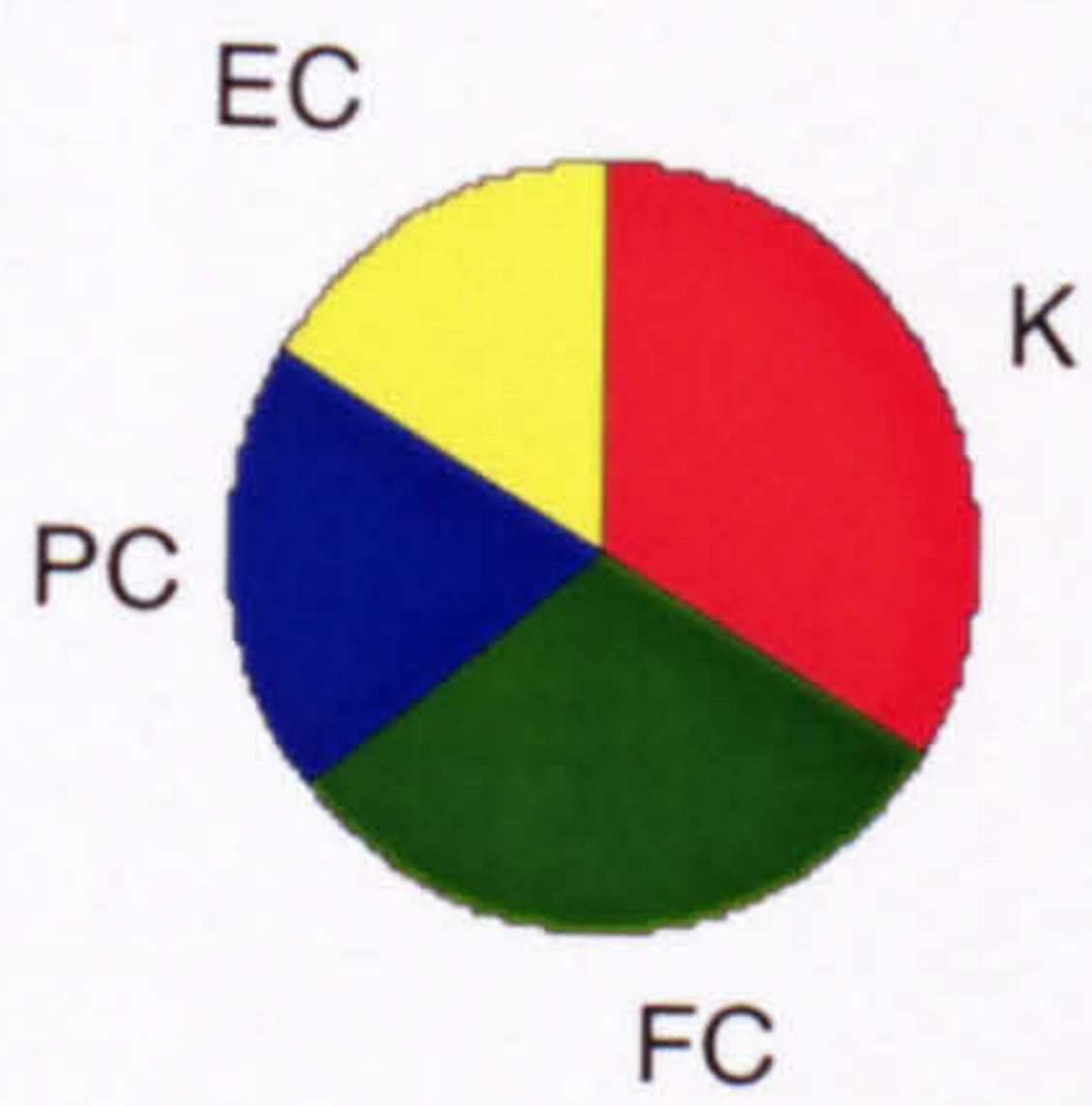
Anglican Clergy



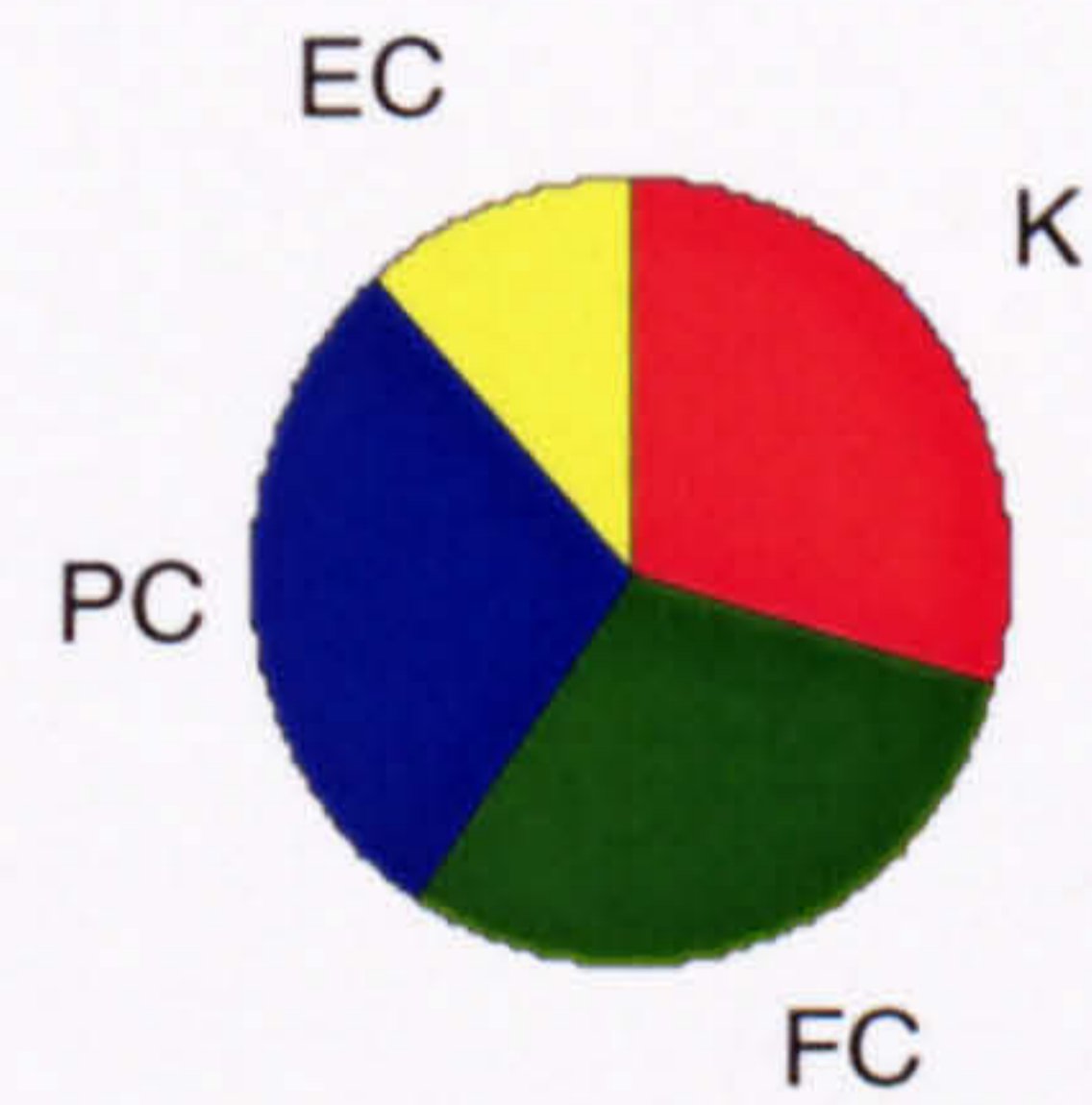
Dentist



Accountants



Civ Servants



Key

K = Knowledge/Cognitive Competence
FC = Functional Competence

PC = Personal Competence
EC = Ethical Competence

Appendix 5

Model of Professional Competence: Profession-specific Versions (in framework format)

Anglican Clergy: Analysis of key attributes using Professional Competence Model Categories

1. Meta-Competencies

Oral Communication, Creativity, Self-development, Problem solving, Reflection

2. Knowledge/Cognitive Competence Component

Technical/theoretical/specialist knowledge constituent

Theology,
Biblical knowledge
Greek, Latin and Hebrew
Ethics theory
Comparative religion
Church history

Tacit-practical knowledge constituent

counselling
when to intervene on pastoral/personal matters
what to say to the sick, dying and bereaved

Procedural knowledge constituent

services and offices
sacramental procedures
liturgical cycle
registration procedures (e.g. weddings, baptisms)
Canon law, faculty jurisdiction and linked procedures

Contextual Knowledge constituent

physical, social and economic geography of parish
individual parishioners' and congregation members' personal circumstances
history of own church
knowledge of factions or interest groups
liturgical preferences of congregation
Deanery and Diocesan peculiarities

3. Functional Competence Component

Occupation-specific constituent

preaching
conducting services
pastoral care
teaching
counselling
presentation skills

Process/organisational/management constituent

organising/supervising junior clergy, church office holders and youth and other voluntary workers
conducting PCC meetings
parish office duties
planning services and other activities
self/time management
long term planning of parish mission (e.g. 5 year plan)

Anglican Clergy: Analysis of key attributes using Professional Competence Model Categories

Mental (cerebral) constituent

memorising prayers, blessings, opening sentences, etc.
memorising addresses, sermons, talks, etc.
impromptu speech making and extempore sermons and prayer
literacy and scholarship skills

Physical (psychomotor) constituent

sacramental/liturgical choreography (use of imagery, gestures, etc.)
singing/chanting
voice projection and other speaking skills

4. Personal Competence Component

Social/vocational constituent

self-confidence
empathy
thinking on feet
sensitivity to others
spirituality
interpersonal skills
control of emotions (detachment, etc.)
sense of humour,
stamina/endurance in thankless situations
patience
listening skills

Intraprofessional constituent

sensitivity to needs/views of brother clergy
collegiality (within team, chapter, etc.)
conformity to norms of behaviour and dress
tutoring/mentoring skills

5. Values/Ethical Competence Component

Personal constituent

deep rooted religious belief and commitment
adherence to religious and moral codes
adherence to personal devotional rules
sensitivity to needs and values of others
adherence to state law

Professional constituent

adherence to clergy codes of conduct/advisory rules
self-regulation of hours worked, time off, etc.
adherence to church law, faculty and planning procedures
working within rules and constitution of PCC
upholding the confidences of individuals
judging circumstances in which confidences might have to be broken
dealing fairly/even-handedly with individual parishioners
dealing with factions
judging when to evangelise
judgements about appropriate uses of church premises/fund raising activities, etc.
judgements about appropriate uses of church income
commitment to assist in training new-comers to profession

Anglican Clergy: Analysis of key attributes using Professional Competence Model Categories

judgements about church doctrinal or procedural changes (e.g. ordination of women) and practical consequences of own position

MACRO OUTCOMES

- harmonious and stable congregation
- increased attendance by public at services and participation in other activities (relative to local demographic trends)
- effective management of church resources (financial and human)
- positive impact on non church-going parishioners
- active links with wider community (schools, hospitals, nursing homes, etc.)

Civil Servants (Policy): Analysis of key attributes using Professional Competence Model Categories

1. Meta-Competencies

Written Communication, Oral Communication, Analysis, Creativity, Self-development, Mental Agility, Problem solving, Reflection

2. Knowledge/Cognitive Competence Component

Technical/theoretical/specialist knowledge constituent

Knowledge within relevant specialism, if applicable (economics, finance, statistics, psychology, law, IT, etc.)

Tacit-practical knowledge constituent

political nous

creative speech writing

judgement in both oral and written briefings (tone and content, what to include/omit)

judgements about 'lines to take'

strategic thinking

reading different Ministerial styles

anticipating Parliamentary questions

adapting to changing Government philosophies

Procedural knowledge constituent

Parliamentary procedures

Treasury and public expenditure procedures

legislation procedures

Ministerial correspondence procedures

policy development and approval procedures

Ministerial briefing procedures

Parliamentary Question procedures

'Treat Officially' procedures

Ministerial briefing and speech procedures

personnel procedures

document security procedures

contracting procedures

Health and Safety and general security procedures

Contextual Knowledge constituent

knowledge of specific policy area

Ministers' and officials' responsibility divisions

scope and boundaries of own Department's responsibilities

Other Government Department responsibilities

Ministerial preferences (briefing, speeches, etc.)

Government policy priorities and manifesto commitments

3. Functional Competence Component

Occupation-specific constituent

general drafting skills

writing official letters, reports and policy documents

written and oral briefing skills

presentation skills

chairmanship and facilitation skills

Civil Servants (Policy): Analysis of key attributes using Professional Competence Model Categories

Process/organisational/management constituent

financial control and budgeting
general resource management
project management
human resource management
planning
evaluation
negotiation and contracting

Mental/cerebral constituent

literacy
basic numeracy
analysis (may also be seen as a meta-competence)
strategic thinking
critical skills
oral communications (may also be seen as a meta-competence)
decision making
problem-solving (may also be seen as a meta-competence)
mental rehearsal/memorisation

Physical constituent

keyboard skills

4. Personal Competence Component

Social/vocational constituent

self-confidence
thinking on feet
interpersonal skills
control of emotions (detachment, etc.)
listening skills
motivational and leadership skills
persuasiveness in policy advocacy

Intraprofessional constituent

networking skills
conformance to behavioural norms of service (dress code, etc.)
sensitivity to peers

5. Values/Ethical Competence Component

Personal constituent

adherence to law
adherence to personal moral codes

Professional constituent

political neutrality
confidentiality
loyalty to serving Ministers
adherence to codes of conduct
adherence to Departmental values
commitment to Whitehall standards
integrity in providing information to Ministers
judgements how much to say to public

Civil Servants (Policy): Analysis of key attributes using Professional Competence Model Categories

judgements about 'public interest'

judgements about 'proper' use of public funds and staff resources

when and how to 'blow whistle'

distinguishing between proper Ministerial work and improper political work

MACRO OUTCOMES

- Accurate and timely information provided
- Ministers/senior officials express satisfaction with service
- Policy objectives achieved
- Budgets accurately controlled with proper accountability

Trainers: Analysis of key attributes using Professional Competence Model in Framework Form

1. Meta-Competencies

Oral Communication, Analysis, Creativity, Self-development, Mental Agility, Problem solving, Reflection

2. Knowledge/Cognitive Competence Component

Technical/theoretical/specialist knowledge constituent

knowledge of particular specialism
developmental psychology and theories of learning, training and instruction
developmental methods/training techniques
validation and evaluation techniques
presentation techniques

Tacit-practical knowledge constituent

reading and adjusting to audience
pitching level of tuition
reading trainees' body language
responding to questions
keeping presentations to time
leading and promoting discussions
dealing with difficult trainees
judgements about interventions
summarisation

Procedural knowledge constituent

training needs analysis procedures
course planning, recruitment and administration procedures
assessment and accreditation procedures
relevant government initiative procedures - e.g. Investors in People
organisation succession planning procedures
training audit procedures

Contextual Knowledge constituent

operating domain, organisation, industry, sector
relevant examples/anecdotes
trainees' backgrounds and their likely prior knowledge
organisation's business plans and aspirations (to enable training plans to be based on these)

3. Functional Competence Component

Occupation-specific constituent

presentation skills
facilitation skills
IT assisted training skills
coaching
counselling
mentoring
instruction
visual aid production
training needs analysis
assessment skills

Trainers: Analysis of key attributes using Professional Competence Model in Framework Form

Process/organisational/management constituent

planning and operating training budget
course organisation and administration
planning
evaluation
negotiation and contracting (if consultant)
time management
resource management

Mental/cerebral constituent

memorising - key facts, examples, anecdotes, etc.
memorising names of trainees
impromptu presentation skills
literacy and numeracy, as required by domain
analysis (may also be seen as a meta-competence)
oral communication (may also be seen as a meta-competence)
problem solving (may also be seen as a meta-competence)
mental rehearsal
dealing with questions/interventions

Physical constituent

voice use (projection, etc.)
use of gestures and other body language
operation of visual aid equipment
dexterity (if involved in manual skills instruction)

4. Personal Competence Component

Social/vocational constituent

judgement
decisiveness
self-confidence
empathy
rapport building skills
thinking on feet
interpersonal skills
control of emotions (e.g. nervousness)
listening skills
personal learning and updating orientation

Intraprofessional constituent

networking skills
collegiality
joint presentation/facilitation
professional fora participation skills

5. Values/Ethical Competence Component

Personal constituent

adherence to law
adherence to personal moral codes
honesty
integrity

Trainers: Analysis of key attributes using Professional Competence Model in Framework Form

Professional constituent

sensitivity to diversity in trainees (ethnic cultures, etc.)

honesty in answering questions

acknowledging limits of own knowledge

confidentiality (especially if consultant)

MACRO OUTCOMES

- training objectives consistently achieved
- trainees display improved performance
- trainee evaluation and feed-back consistently good
- available resources optimised

Appendix 6

Statistical Calculations

Statistical Testing

Calculation of standard error of the mean and confidence interval

Means in the form of interval variables

For interval variables, *standard error of the mean* is given by the formula: $S_m = s / \sqrt{N}$, where S_m is the *standard error of the mean*, N is the sample size and s is the *standard deviation* of the population from which the samples were drawn (de Vaus, 1985, p. 151).

The range (\pm) within which 95% of the population mean can be expected to vary from the sample mean is $\pm 2S_m$. This is known as the *confidence interval*.

The rating scales, which were used in many parts of the interview and surveys, were considered as quasi-parametric in form, and the mean ratings themselves as interval variables. Therefore, the above version of the standard error formula was considered appropriate.

According to Greer (1979, p. 82), for sample sizes of 30 and above, the standard deviation for the population can be assumed to be the same as the standard deviation of the sample. All the samples used for comparative purposes were considerably larger than this. Nonetheless, the assumption was checked for a cross-section of readings using the formula for estimating the population standard deviation from the calculated sample standard deviation (see *Examples 3 a), b) and c)* below).

Example 1: Calculation of confidence interval for a typical numerical mean

The mean rating given to 'oral communication' across all the interview and survey respondents was 4.73.

The total sample size in this case (interviews plus surveys) was 452.

The calculated standard deviation for the data set was 0.551. This was shown to be very close to the estimated standard deviation for the population (see *Example 3 a)* below).

Standard error of the mean, $S_m = s / \sqrt{N}$. Applied to this example, $S_m = 0.551 / \sqrt{452} = 0.551 / 21.26 = 0.026$

Therefore, the *confidence interval* = $2 S_m = 2 \times .026 = \pm 0.05$

This suggests that the mean for the population (as whole) of the sampled professions is likely to fall between $4.73 + 0.05$ and $4.73 - 0.05$, i.e. 4.68 and 4.78.

Means in the form of non-interval variables

A variant of the formula was used for non-interval variables - e.g. the percentage of respondents answering 'yes' or 'no' to a particular question. In such cases, the data were converted (where necessary) into a binomial distribution and the standard error of the mean

(as a percentage) was calculated from the formula: $S_B = \sqrt{\frac{PQ}{N}}$, where S_B is the standard error of the mean (%) for the binomial distribution concerned, P is the percentage of respondents in one category of the variable, Q is the percentage in the other category, and N is the sample size (de Vaus, *ibid.*, pp. 151-152). Again, the *confidence interval* is given by: $\pm 2S_B$.

Example 2: . Calculation of confidence interval for a typical binomial distribution

An example of this application relates to the data on 'awareness of professional reflection'. Across all respondents ($N = 452$), a total of 441 (97.57%) were aware of reflecting about their

professional work, 7 (1.55%) were not and 4 (0.88%) were unsure (2.43% altogether). Therefore, $P = 97.57$ and $Q = 2.43$

Since *standard error of the mean*, $S_B = \sqrt{\frac{PQ}{N}}$, in this case, $S_B = \sqrt{\frac{97.57 \times 2.43}{452}} = 0.72$

Therefore, the *confidence interval* = $2 S_B = 2 \times 0.72 = \pm 1.44\%$

This suggests that for the population of the sampled professions, awareness of professional reflection is likely to fall between $97.57\% + 1.44\%$ and $97.57\% - 1.44\%$, i.e. 96.13% and 99.01%.

Estimate of population standard deviation from calculated sample standard deviation

In order to calculate the standard error of the mean and confidence interval, it is necessary to estimate the standard deviation of the population mean. This can be done using the formula $S_p = S_s \sqrt{\frac{N}{N-1}}$ where S_p is the population mean, S_s is the calculated sample standard and N is the sample size (Greer, 1979, p. 83).

Example 3 a): Estimating standard deviation for an aggregated mean across all professions ($N = 452$)

Using the example of 'oral communication', the mean rating across all the interview and survey respondents was 4.73.

The calculated standard deviation for the data set was 0.5510. Therefore,

$$S_p = S_s \sqrt{\frac{N}{N-1}} = 0.5510 \sqrt{\frac{452}{452-1}} = 0.5510 \times 1.001 = 0.5516$$

It can be seen that the estimated standard deviation for the population mean is very close to that calculated for the sample mean.

Example 3 b) Estimating standard deviation for a single profession ($N = 95$)

The second example is of a sample with a smaller sample size. The mean rating of written communication skills by civil servants was 4.73 and the calculated sample standard deviation was 0.5514.

$$\text{In this case, } S_p = 0.5514 \sqrt{\frac{95}{95-1}} = 0.5514 \times 1.005 = 0.5542$$

It can be seen that even with this considerably smaller sample size, the standard deviation for the population mean is very close to that calculated for the sample. Therefore is reasonable to use the calculated standard deviations for the sample means in lieu of the standard deviation for the population mean.

Example 3 c) Estimating standard deviation for a single profession with a smaller sample size ($N = 49$)

The mean rating given to physical skills by dentists ($N = 49$) was 4.89 and the calculated standard deviation for the sample mean was 0.3850. Therefore, $S_p = 0.3850 \sqrt{\frac{49}{49-1}}$

$$S_p = 0.3850 \times 1.0104 = 0.3890$$

Again, this is very close to that for the sample mean. It was therefore considered acceptable to use the calculated standard deviations for the sample as a proxy for the standard deviation for the population.

Standard deviations were calculated along with the means for each data sequence. This was done automatically using the statistical facility built into Microsoft Works. Standard errors of the mean and confidence intervals were also calculated automatically for each data sequence.