

# **‘We Need You to be Able to Do This Operation’: Continuity and Contradiction in the Training of Ophthalmologists**

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Doctor of Philosophy at Monash University

Eastern Health Clinical School

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October 2011

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# Abstract

Competency based training was introduced widely into Australian medical education during the 1990s, encouraged by the Australian Medical Council which accredits post-graduate training programmes. In 1997 the Australian and New Zealand College of Ophthalmology (the College) responded by introducing competency based training as its training form. It held the promise of allowing training to be more accountable to the community; of improved management of increasing levels of chronic (rather than acute) disease management resulting from the ageing of the population; and better accommodation of the increasing number of women in all areas of the workforce of medical specialties. Traditional time-based training is inflexible and this affects women more than men due to their different roles in child bearing. A question to be explored was whether competency based training, as an outcomes-based form of vocational education rather than a time-based form, might prove to be more flexible for trainees.

Examination of the relevant theories of curriculum was needed to understand how the training of ophthalmologists might respond to changes in the external environment. The driver for the study was to understand how ophthalmologists are trained, and whether theories of vocational education and training could inform that understanding. The concept of expansive potential, arising from contradictions felt by teachers and practitioners, was located in the vocational education and training literature; it proved to have explanatory value.

The curriculum change in the College was initiated in 1997 at a meeting of an invited group of ophthalmologists involved in postgraduate training. The researcher was a member of that group and was prompted to think deeply about how ophthalmologists are trained. This thesis is a result of that thinking. The research question for the study is 'How are ophthalmologists trained?' It was answered through an exploration of what was happening in curriculum, both according to the official view and to the reports of the lived experiences of curriculum by teachers and trainees.

The study methodology was qualitative. It consisted of an empirical case study drawing on thematic analysis using the lens of feminist epistemology. The data were textual, including the College's documents on training, transcripts of the curriculum review



meeting that considered the introduction of competency based training, and transcripts of 29 subsequent individual interviews with trainers and trainees.

The findings fill gaps in the literature about how this group of practitioners is trained, and examine from the perspective of the participants whether changes in training ought to occur and whether curriculum change might be possible.

The study findings were that ophthalmologists in Australia and New Zealand are trained using a mixture of two vocational educational forms, competency based training and apprenticeship. Despite the official position of the College, apprenticeship dominates as a form of training and largely subsumes competency based training. An emerging curriculum form, complexity based training, lies nascent in curriculum talk and may provide a bridge to the future.

The study also found that training is androcentric and continues to focus on acute disease. Androcentrism is supported by the requirement of the apprenticeship form that the apprentice model themselves on the knowledge and attitudes of the master. Although there is some evidence that change is possible, competency based training fails in its social reconstructive attempts because it has not replaced the apprenticeship-based curriculum. There is evidence in the data that the management of chronic disease is not regarded as central to the work of ophthalmologists, and there is no effective response to androcentrism. A 'culture of no culture' prevails which provides stability to the curriculum and silences critique of work practices. However, contradictions felt by practitioners that were identified in the data in relation to gender and the importance of chronicity of disease both indicate a potential for change to occur.

The data include contradictory dialogues about whether training and accreditation are to be understood as primarily work focussed, or primarily worker focussed. The data suggest that work is the curriculum. To change curriculum thus requires most attention to practice, the work itself. Attention to education primarily may be misdirected. This matter is currently ill defined in the policies of the College and the Australian Medical Council. Such a lack of clear definition affects both the training body's capacity to deliver good training, and the accrediting body's capacity to lead much-needed change.

# **Certificate of authorship**

This is to certify that:

- (i) the thesis comprises only my original work towards the PhD, except where indicated;
- (ii) due acknowledgement has been made in the text to all other material used; and
- (iii) the thesis is less than 120,000 words in length, exclusive of tables, references, appendices and footnotes.

Deborah Colville

October 2011

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## Acknowledgements

There are many individuals and organisations who have helped in the production of this thesis. I am grateful for the financial support of a RANZCO scholarship in 1997, a full-time Australian Postgraduate Association scholarship in 2007, and a top-up Monash Faculty of Medicine, Nursing and Health Sciences Faculty Postgraduate Excellence Award, also in 2007.

Institutional thanks are due to Associate Prof Ivan Goldberg for inviting me to the curriculum review meeting in 1997, and to Associate Prof Neil Paget who was that meeting's facilitator. RANZCO staff, Dr Julie Gustavs, Dr Mal Capon, Margaret Dunn, and Barry Diletti from the Sydney College office assisted with the ethics applications, mailing lists and meeting audiotapes. I am grateful for the support of Associate Prof Justin O'Day in attending the doctoral confirmation meeting. Ms Kei Owada from Monash University gave me valuable administrative assistance with the survey returns. The Monash Institute of Health Services Research at Clayton provided me with a well-resourced administrative base for four years. The Gender and Medicine Research Unit of the Monash Institute of Health Services Research, Faculty of Medicine, Nursing and Health Sciences, Monash University gave me the home I needed to start the research journey. I owe an enormous debt to the existence of this unit, which was unfortunately closed by the University during my candidature in April 2010.

My greatest debt is to my two supervisors. They have provided me with many hours of assistance in planning, discussing, critiquing and refining this doctoral work. My thanks particularly go to Associate Prof Jo Wainer, former head of the Gender and Medicine Unit at Monash University, now of Eastern Health Clinical School, Monash University. Her critical and practical insights about gender have been invaluable to me. In 'holding to the feminine', she has taken me from puzzlement, to a level of confidence that I had once only dreamed of. I also thank my PhD co-supervisor, Dr Rosalie Aroni, of the Department of Health Social Science, School of Public Health and Preventive Medicine, Caulfield Campus, Monash University Faculty of Medicine, Nursing and Health Sciences for generously applying her enormous expertise in social science research, her research supervision experience and the gift of including me in her network of doctoral students.

Two of the major themes in the thesis turned out to be gender and curriculum form. Intellectual inspiration from the past came from Professor Jill Astbury who inspired my interest in feminist epistemology in medicine when I enrolled in an elective in women's health during my Master of Public Health degree. Dr Dianne Mulcahy awakened me to the world of the history and philosophy of science using vocational education as an entry point. We met through my studies in technology analysis after obtaining my Graduate Certificate in Education at a Melbourne tertiary technical teachers' college called the Hawthorn Institute of Education.

I have received invaluable help too from fellow doctoral group students at Monash University and at the University of Melbourne, including Joan Benjamin, Dr Elizabeth Deveny, Associate Prof Jan Coles, Associate Prof Lyn Clearihan, Dr Ruth McNair, Barbary Clarke, Sabrina Gupta, Associate Prof Jenepher Martin, Eve Bowtell and Dr Robyn Cant. I also owe a debt to Dr Liz Molloy and Dr Margaret Bearman at the Monash Centre for Health Professional Education for organising their doctoral group.

My friends and family, often at bush camping sites, have assisted me in countless ways with completing this thesis. I thank them all for their faith, patience and sacrifice to this PhD. Special thanks are due to Kate Gilligan, James Gilligan, Bruce Gilligan, Cherry Blaskett, Sophie Gill, Ann Standish, Paul Francis Perry, Libby Avram, Patrice Higgins and Anne Schulze, and to my partner, Ben Nisenbaum.

Despite their busy schedules of ophthalmic work, and the vicissitudes of their lives as graduates and trainees, during 1997, 2003 and 2008, the 48 participants in my research graciously offered me their time and critical reflections. In particular, I thank the ophthalmologists and trainees who generously gave me an individual, hour-long interview. They were members of the ophthalmic community who came from all over Australia and New Zealand. I do not name them for privacy reasons, but they provided me with the inspiration to finish this work. The contradictions on which they were already drawing in expanding the College's educational expertise formed valuable data for this thesis.

## List of abbreviations

<b>AMA</b>	Australian Medical Association
<b>AMC</b>	Australian Medical Council
<b>ACGME</b>	Accreditation Council for Graduate Medical Education
<b>ANTA</b>	Australian National Training Authority
<b>CanMEDS</b>	Canadian Medical Education Directives for Specialists
<b>CBT</b>	Competency Based Training
<b>CDA</b>	Critical Discourse Analysis
<b>CR</b>	Curriculum Review meeting, transcript 1997
<b>CRC</b>	Curriculum Review Committee
<b>EBM</b>	Evidence-Based Medicine
<b>EBOP</b>	Evidence-Based Ophthalmology Practice
<b>ED</b>	Emergency Department
<b>ENT</b>	Ear Nose and Throat
<b>EEH</b>	Eye and Ear Hospital, Melbourne
<b>EPI</b>	Epidemiology
<b>EWTD</b>	The European Working Time Directive
<b>GMC</b>	General Medical Council, United Kingdom
<b>GT</b>	Grounded Theory
<b>I / A</b>	Irrigation / Aspiration
<b>IDI</b>	In-Depth Interviewing
<b>NICU</b>	Neonatal Intensive Care Unit
<b>MAN</b>	Male as Norm
<b>MMC</b>	Modernising Medical Careers
<b>MTRP</b>	Medical Training Review Panel
<b>NHMRC</b>	National Health and Medical Research Council
<b>NOMP</b>	National Ophthalmic Matching System
<b>NOOSR</b>	National Office of Overseas Skills Recognition
<b>NICU</b>	Neonatal Intensive Care Unit
<b>NSW</b>	New South Wales

<b>PBL</b>	Problem-Based Learning
<b>PC</b>	Politically Correct (colloquial)
<b>PCK</b>	Pedagogic Content Knowledge
<b>PGY</b>	Postgraduate Year
<b>PAR</b>	Participatory Action Research
<b>QEC</b>	Qualification and Education Committee, RANZCO
<b>RACO</b>	Royal Australian College of Ophthalmologists, became RANZCO in year 2000
<b>RACS</b>	Royal Australasian College of Surgeons
<b>RACGP</b>	Royal Australian College of General Practitioners
<b>RANZCO</b>	Royal Australian and New Zealand College of Ophthalmologists (formerly RACO)
<b>RCPSC</b>	Royal College of Physicians and Surgeons of Canada
<b>RCT</b>	Randomised Controlled Trial
<b>RVEEH</b>	Royal Victorian Eye and Ear Hospital, became EEH
<b>SAFEHOURS</b>	Safe Working Hours policy (Australia)
<b>TAFE</b>	Technical and Further Education
<b>UK</b>	United Kingdom
<b>USA</b>	United States of America
<b>VET</b>	Vocational Education and Training
<b>VTP</b>	Vocational Training Program
<b>WG</b>	Working Group of the RANZCO Curriculum Review Committee
<b>WHL</b>	Work Hour Limitations
<b>WHO</b>	World Health Organisation
<b>YAG</b>	Yttrium-Aluminium-Garnet

## List of terms

<b>Androcentrism</b>	Androcentrism is Western thought's orientation around a male point of view, with the result that what was treated as common sense or universal was, in fact, a reflection of male identity and male values. In this system of thought, the feminine perspective is treated as aberrant, a deviation from the male-centred norm (Charlotte Perkins Gilman 1911, cited in Buchanan 2010:20; Spender 1980; Bem 1993).
<b>Apprenticeship</b>	The institution of apprenticeship is 'the constellation of both legal and contractual rules and relations governing the status of employment, the associated workplace entitlements and the formal and informal educational processes that socialise a young worker into a workplace and occupational culture' (Guile & Young 1999:188). Apprenticeship has been studied more as a process of socialisation in official or unofficial workplace cultures, than it has as a process of learning (Guile & Young 1999: 176).
<b>Chronic condition</b>	Chronic illness is the irreversible presence, accumulation, or latency of disease states or impairments that involve the total human environment for supportive care, maintenance of function and prevention of further disability' (Royal Australian College of General Practitioners [RACGP] 1997, cited in National Public Health Partnership 2001:10). The term 'chronic condition' is interpreted as including any form of chronic illness, disease or symptom complex or disability. There are no 'magic bullet' solutions for chronic diseases. Prevention efforts need to be sustained over the long term; optimal disease management requires effective co-ordination across many boundaries. Health inequalities pose a particular challenge. These are difficult requirements in an already complex, and, as often said, fragmented system. Duplication of effort and 'reinventing the wheel' are common problems (National Public Health Partnership 2001:10; Nair 2003; Nair & Finucane 2003:257; Ponzer 1996; Ponzer et al. 1996).
<b>Competency based training</b>	Consists of the following four features: specification of outcomes; a learning process emphasising the attainment of the specified outcomes; measurement of learning outcomes; and crediting of prior learning rather than demanding its repetition (Harris et al. 1995:30). Measurement standards relate to 'industry, not to peer comparison' (Smith 1999). A teacher becomes, in effect, a



resource person. 'Students have a clear knowledge of the required learning outcomes and hence power is shared more equally between student and teacher' (Lowrie et al. 1999).

**Complexity and capability**

Complexity is the study of complex adaptive systems—the patterns of relationships within them, how they are sustained, how they self-organise and how outcomes emerge (Begun, Zimmerman & Dooley 2003:252). 'A complex adaptive system is a collection of individual agents with freedom to act in ways that are not always totally predictable and whose actions are interconnected so that one agent's actions changes the context for other agents' (Plesk & Greenhalgh 2001:625). Where competence is 'what individuals know or are able to do in terms of knowledge, skills, attitude', by contrast, capability includes adaptation, and is defined as the extent to which individuals can adapt to change, generate new knowledge, and continue to improve their performance (Fraser & Greenhalgh 2001).

**Equity**

Seven definitions of equity are: equality of expenditure per capita; inputs per capita; inputs for equal need; access for equal need; utilisation for equal need; marginal met need; and health status (Mooney 1992:102–120).

**Gender Analysis**

Identifying, analysing and informing action to address inequalities that arise from the different roles of women and men, or the unequal power relationships between them and the consequences of these inequalities on their lives, health and well-being (WHO 2002, Glossary).

**Gender Equality**

Treating everyone the same, thus the 'absence of [bias] on the basis of a person's sex in opportunities and the allocation of resources or benefits or in access to services' (WHO 2002, glossary) in an attempt at 'arriving at equitable outcomes' (NSW Health 2000:25).

**Gender Equity**

Achieving fairness while recognising that men and women have different life experiences, needs, levels of power and access to decision making in society, expectations, and different ways of expressing illness. Achieving fairness by rectifying imbalances in needs and power structures of men and women. International usage of this term will vary by country (NSW Health 2000; WHO 2002).

**Gender**

The socially constructed differences between women and men, with certain roles, characteristics, responsibilities and expectations that each culture ascribes on the basis of being female or male (WHO 2002; NSW Health 2000:25). 'Gender is socially determined' (NSW Health 2000:25).

**Medical Professionalism**

Today's society requires the exhibition of a range of qualities deployed in the service of patients, rather than

more traditionally defined aspects such as mastery, autonomy and self-regulation. These qualities incorporate demonstrated clinical competence, aspiration to excellence in practice while demonstrating humility and recognition of personal limitations, exercising professional judgement and maintaining a fiduciary relationship with patients by earning and maintaining trust (Hilton & Southgate 2007).

**Ophthalmologist**

An ophthalmologist is a medical practitioner with specialised qualifications who has skills in the diagnosis of disorders of the eye and related structures and in their medical and surgical management. The practice of ophthalmology includes prevention of blindness, promotion of eye health and the rehabilitation of those with visual disability (RANZCO 1996).

**Sex**

‘The classification of living things as man or woman according to their reproductive organs and functions assigned by chromosomal complement’ (World Health Organisation [WHO] 2002).



## **Dedication**

I dedicate this work to ophthalmology trainees. The trainee participants' courage in telling me their stories gave me inspiration in turn. Through their contributions in this thesis, it is my hope that the range of choices about how to practice ophthalmology widens for all ophthalmology trainees. My wish is that their choices might be better informed through the contributions their peers made to this study.

# Preface

One Saturday morning at Royal Children's Hospital in Melbourne, Australia, I found myself teaching registrars about a patient and his family. My impetus to explore curriculum matters in detail came through this experience I had as a teacher at a paediatric ophthalmology seminar for trainees.

The child suffered from an unusual condition called Duane syndrome that affects the movement of the eyes. In preparing to teach registrars, I discovered through conversation with the family that the patient's family themselves knew much that was of value to a doctor's clinical management, such as the way the child had presented, what questions the doctors had asked in the past, and what actions were taken by the doctors. However my experience was that the young trainee doctors who were coming to learn from this patient immediately leapt to performing eye muscle examination, rather than listening to the child's mother telling the trainees many interesting things useful to an ophthalmologist taking care of patients with this condition. From her own son's early childhood experiences, this mother knew much about such a case, and such a condition.

Classical textbook accounts of Duane syndrome point out that such children, paradoxically, have no double vision. The child before me, however, described experiencing double vision. In my teaching technique, I started to incorporate the parents' knowledge, often the mother's knowledge, the child's experience and description of the condition, as well as the physical examination rather than the physical examination alone, into my own teaching. I knew that respecting the physical examination as prime was not what had served me best in my own private practice. As an experienced doctor by now, I grew to know patients and made use of their own understandings and experiences with the condition in order to refine the treatment I offered. The question was how to teach this 'non-technical' knowledge and to overcome the primacy of the physical examination in the trainees' own learning strategies.

I recognised that I had no evidence base to improve my teaching through these observations and experiences. I knew I was participating in teaching a 'culture of learning', and that if I didn't understand it better I would continue teaching it simply because that is the way things are done.

I invite my reader to imagine for a moment a world without medical curriculum. Curriculum is not a timeless truth. The starting point for this thesis conceptually is that

the creation of a medical curriculum is a construction in which there are decisions made by many people. This doctoral journey includes reflection on my own medical student curriculum. I am now a 58-year-old ophthalmologist, but as a medical student I recall being vaguely puzzled at what it might mean for me when the curriculum handbook stated its intention that I and my female medical student colleagues embark on medical school training to ‘identify himself as a professional medical man with a broad understanding of man as an individual and man in society’ (Monash University 1970:64).

I completed my medical degree, went on to study ophthalmology, and graduated with a conjoint degree from Royal Australian and New Zealand College of Ophthalmologists (RANZCO) and Royal Australasian College of Surgeons (RACS) in 1983 at the age of 30 years. Again gender issues were vaguely in the background of the medical curriculum that guided my ophthalmic training. For instance, the hospital logo seemed to exclude me. It did not seem have a place for me to include myself in the core of the hospital culture (Figure 8.1 in this thesis, in Chapter 8). I didn’t wonder much then what this logo of the teaching hospital meant for my own identity as a doctor. Again at the time I felt merely vague puzzlement.

Years later, at 39 years of age, I found myself as Head of Unit of Ophthalmology at a teaching hospital. I recall that at that time I wanted to know better how to evaluate the patient care that I delivered, and that the Unit delivered, as part of the hospital and the health system. I realised I did not know as much as I needed to do a good job as a Head of Unit at a teaching hospital. I was also increasing my own teaching allocation and wanted to make sure, given all my other responsibilities, that my time was well spent in those educational pursuits.

To learn how to evaluate patient care better, not knowing where exactly to turn, but finding myself in the age of evidence-based medicine, I embarked on a Graduate Diploma in Epidemiology course at my nearest university. I learned, among other things, about critical appraisal skills for looking at the medical literature. Although at some level I sensed there was more to it, at that time I still thought that public health was just about ‘sewerage’ and clean drinking water.

Gender issues in curriculum again came into my life, this time far more floridly. My new role in the hospital as Head of Unit in Ophthalmology meant sitting on the Executive of the Division of Surgery. While in this role it was suggested that I stand for Royal Australasian College of Surgeons council. I was the first woman nominated to stand, and

I became the first elected Federal female councillor of that bi-national postgraduate medical college. I was re-elected twice, serving for nine years. At about the same time, I became an examiner in RANZCO, having offered to teach and examine the critical appraisal skills that I had learnt in the course about epidemiology. In the absence of a subject by that name in the existing RANZCO curriculum, but with a view to expanding the RANZCO curriculum from within, and with my past in research publications about the overlap between renal and ocular retinal physiology, I found myself nominated as a RANZCO Physiology examiner, and a member of the RANZCO Part I Court of Examiners.

It dawned on me over the next few years, seeing the puzzled reactions to my suggestion of introducing critical appraisal to RANZCO registrars from the other Part I examiners, that there was indeed more to public health than I presently knew.

I was still keen to understand better my own role in the health system that was my life's work. Over a few years, I therefore converted the Grad Dip Epidemiology into a Master of Public Health degree. Sociology and Health Policy were the hardest subjects. At the same time I enrolled in a short teaching course for health workers at a local Technical and Further Education College, learning some vocational education and training theory.

It turned out that the reason why I was elected to the Council of the Surgical College was that that College had a political problem of which a prior absence of elected women on council was symptomatic. From my position as the only woman on Council, I was asked to 'fix' many issues that involved women fitting into the existing male structures. Doing a subject about the determinants of Women's Health as a subject in the Master of Public Health was timely.

Coming across scholarship about women's health led me to reflect on the position in which I found myself. As the only woman, I was charged with the responsibility of fixing the very problem that led me there. I was bothered about the unequal power, the gender imbalances and struggles, and ultimately how gender issues contributed to the professional identity of surgeons and ophthalmologists, and always had done. I wanted to see time-flexibility for trainees who otherwise became infertile, waiting until they had graduated before they embarked on a pregnancy. I realised that my own experience of relative infertility after graduation, but at only 33 years of age, had a systemic component: it was not simply that I had experienced an individual problem.

During the time I was studying for the Graduate Certificate in Education, I learnt that some RANZCO Curriculum Review meetings were forthcoming. I recognised their potential as data to explore how the ophthalmic curriculum came to be as it was.

From the Graduate Certificate in Education, I enrolled to undertake a Master's degree in Education at the University of Melbourne, obtained Ethics Committee approval to audio-record the curriculum review discussion and conduct key informant interviews, and proceeded to gather the curriculum review meeting data as a participant observer. However I felt reluctant to proceed with the interviews. In the pilot interviews, I found that I was unable to elicit much data about teaching from the key informants. I withdrew from the Master's degree.

Subsequently, I read and reflected further. I re-enrolled: this time in a PhD at Monash University, obtained ethics approval to use the past data already collected for this new doctoral study, applied for a further ethics approval to complete Phase 3, and was able to pursue my interest in understanding more about what I and others were teaching. I tried out the hunch that, when prompted by questions about their work rather than about their learning, ophthalmologists would tell me much about both work and learning.

Questions for ophthalmic teachers (such as the one I posed myself in paediatric ophthalmology in the first three paragraphs of this preface) about the best ways to prepare trainees for their future practice are yet to be fully answered. I have now been on the teaching and clinical staff of two public hospitals for more than twenty years. I have conducted private practice ophthalmology as well since 1983. Writing up this thesis, in the last throes of my candidature, I am still receiving phone calls and sharing patient care work at the teaching hospitals with Registrars and Fellows. Nowadays, the technology is different, the Fellow recently sent me a photo of a patient's orbital cellulitis via our mobile phones, for instance, but these theoretical questions of what is going on in curriculum remain.

I was prompted to complete this work since I was not able to see how the profession would be able to continue into the future unless some of the issues that I felt unsettled about were laid open for possible scrutiny, and were openly explored. My hunch about returning to research candidature in order to explore ophthalmic work as a piece of research about curriculum seemed to have the potential to bear fruit. This thesis is the result of that exploration.



# Section I: Background

Most people in our community are concerned in some way about medical education. This is because it informs medical practice, and almost everybody is interested in the way medicine is practiced.

Blindness is one of the most feared of conditions. Treatment of eye disease is one of the most important medical questions for the community. Whenever concerns about practice arise, questions about medical education follow.

Medical education can take a number of curriculum forms, each with different implications for the prevention of blindness in the community. Society expects the peak body that is responsible for training eye doctors to strive for excellence in medical practice towards this goal of prevention of blindness.

This section, Section I, provides the background and foundation for this case study that explores what form the curriculum for postgraduate training of ophthalmologists takes in Australia and New Zealand.



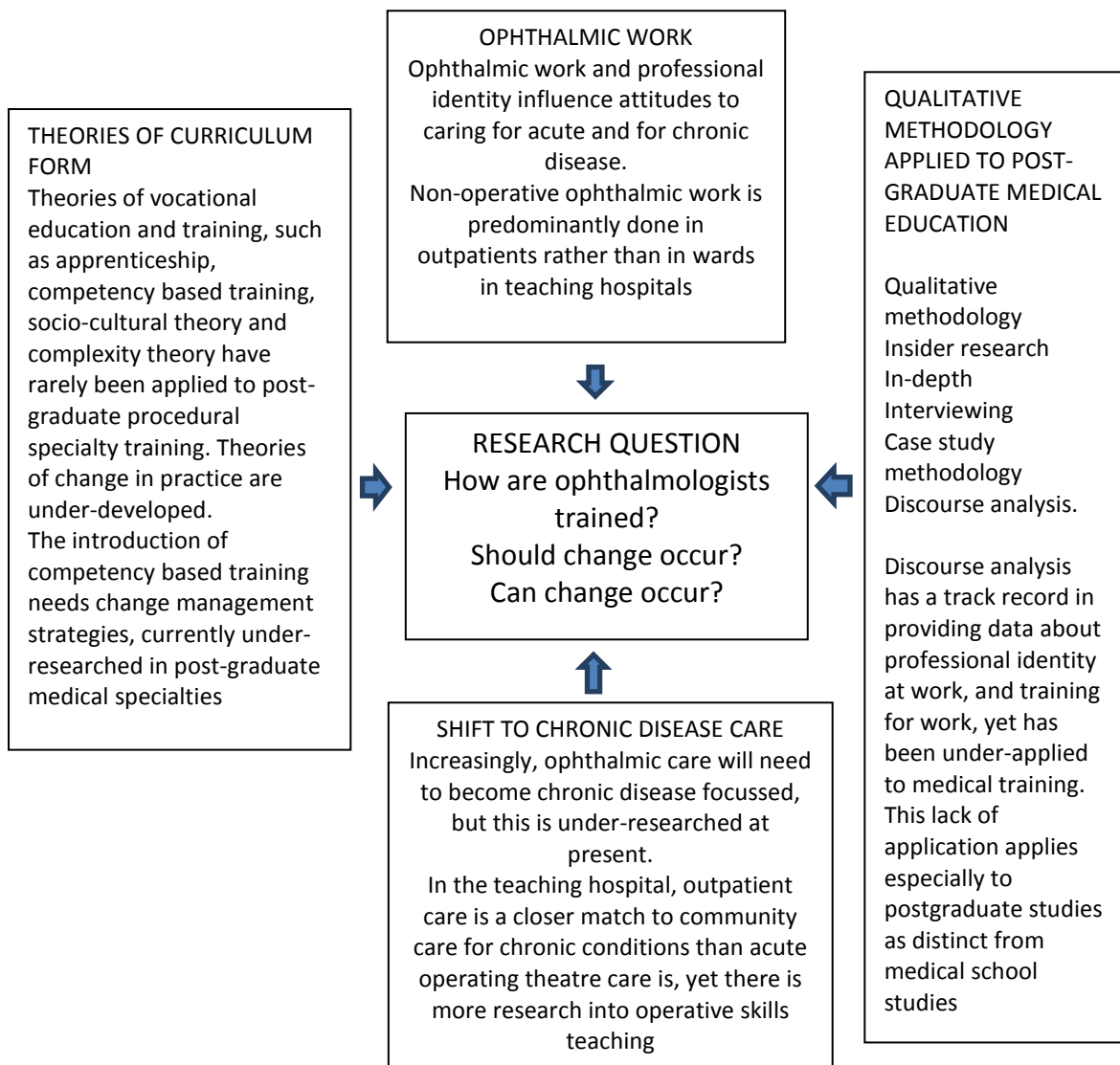
# Chapter 1 Introduction

There are competing views on the best way to train doctors. There are also practices in medical education that have remained in place over time, despite criticism of these traditions. Medical education is a contested field and the intensity of interest is high. The community relies on well trained doctors and values them. Questions about the best way to produce good doctors are asked both by the general community and within medicine, including the different sections of medicine. Each of these sections has their own answers.

There are many problems that have been identified in the process of training effective doctors. This can be looked at both from within and from without medicine. Policy makers have problems identifying how to train doctors most effectively, particularly because it is very expensive and takes a long time. The community becomes concerned if doctors do not provide the services they have come to expect. Patients have problems because sometimes doctors do not interact with them in the way that meets their needs. Doctors have problems because the training can be too difficult, too long, too expensive, and incompatible with having a 'life', leaving a gap between training and a good fit with their personal values.

For good practice, it is necessary to know what the current wisdom is in Australia about these important questions. This includes understanding how postgraduate medical training is conceptualised and delivered and what it is like 'on the ground' in the lived experience of trainers and trainees. It is useful to explore what forms, models and strategies underpin postgraduate medical education, what is seen as effective or ineffective, and by whom.

The guild apprenticeship, for instance, is an enduring model of medical training, particularly for postgraduate medical education. In a case study of the training of ophthalmologists in Australia and New Zealand, this thesis reviews how these issues around training are dealt with. The four pillars of the research are ophthalmic work, curriculum theory including curriculum form, the societal need for eye care, and qualitative methods. An overview of these pillars is found in Figure 1-1 below.



**Figure 1-1: Four key pillars of the research**

## 1.1 Stakeholders

The study is of interest to a range of stakeholders.

Firstly, the patients served by ophthalmologists, the numbers of both of which are growing, are stakeholders. The International Council of Ophthalmology estimates that 285 million people are visually impaired, of the then world population of seven billion. Australia's population is 21 million and New Zealand's is two million. Ageing in such populations is a strong determinant of blindness, and, in the world, the population of those over 60 years of age has grown by fourteen per cent in the past five years.

Second, ophthalmologists and trainee ophthalmologists might look to this study for evidence about strategies that can improve training. Their choices of professional identity, of clinical practice, and strategies to engage their trainers may be broadened.

Thirdly, RANZCO as the peak body that provides ophthalmology training in Australia and New Zealand is a major stakeholder, as are its curriculum committees. RANZCO is one of 239 colleges of ophthalmology internationally. The International Council of Ophthalmology estimates that 5,516 ophthalmologists start practice somewhere in the world each year, that there are 199,750 ophthalmologists globally and that 3,233 leave practice each year (Taylor 2011). Australia and New Zealand combined contribute 1,000 ophthalmologists in practice to these statistics, as well as 125 new graduates annually (RANZCO 2002-3).

Hospital administrators who organise the patient care work done by ophthalmologists in teaching hospitals, along with hospital staff and funders, are also stakeholders in this research. Teaching hospital staff, including ophthalmologists and trainees, have an interest in the study. Medical administrators will also find this research is useful when taking training requirements into account when designing systems and clinical spaces in medical facilities.

Medical educators are another stakeholder group. Those who work towards social reconstructive curricula for doctors might be particularly interested, but medical educators in general recognise that postgraduate medical education is under-researched.

Those who wish to improve patient care in order to achieve the sorts of reform of doctors' work that is envisioned by public health practitioners have a stake in this study.

Work-based learning in postgraduate clinical training is famously opaque to those outside the professions. Little has been published about how actual clinical teaching is best performed (Bleakley 2002; Swanwick 2005). Even to relative insiders such opacity may be surprisingly common, as the following remark an English hospital consultant is reported to have made to a researcher attests—'ward rounds are a sort of mystery. Everyone else's ward rounds are a complete and utter mystery' (Bleakley 2002).

Finally, there are some potential theoretical contributions for medical education researchers particularly, on theories of workplace learning and emancipatory gender curriculum that were explored in this study through the empirical data.

## **1.2 The training pathway**

To satisfy the pre-requisites, trainees first undertake medical school training, then hospital medical officer pre-vocational jobs. They then undertake vocational training in

ophthalmology. The training pathway for ophthalmologists in Australia and New Zealand is shown in Figure 1-2 below, from RANZCO 2000:19. Although the figure shows four years, the program has now been extended to five years. A recent recruitment brochure showing more of this pathway is also appended (Appendix 1-1).

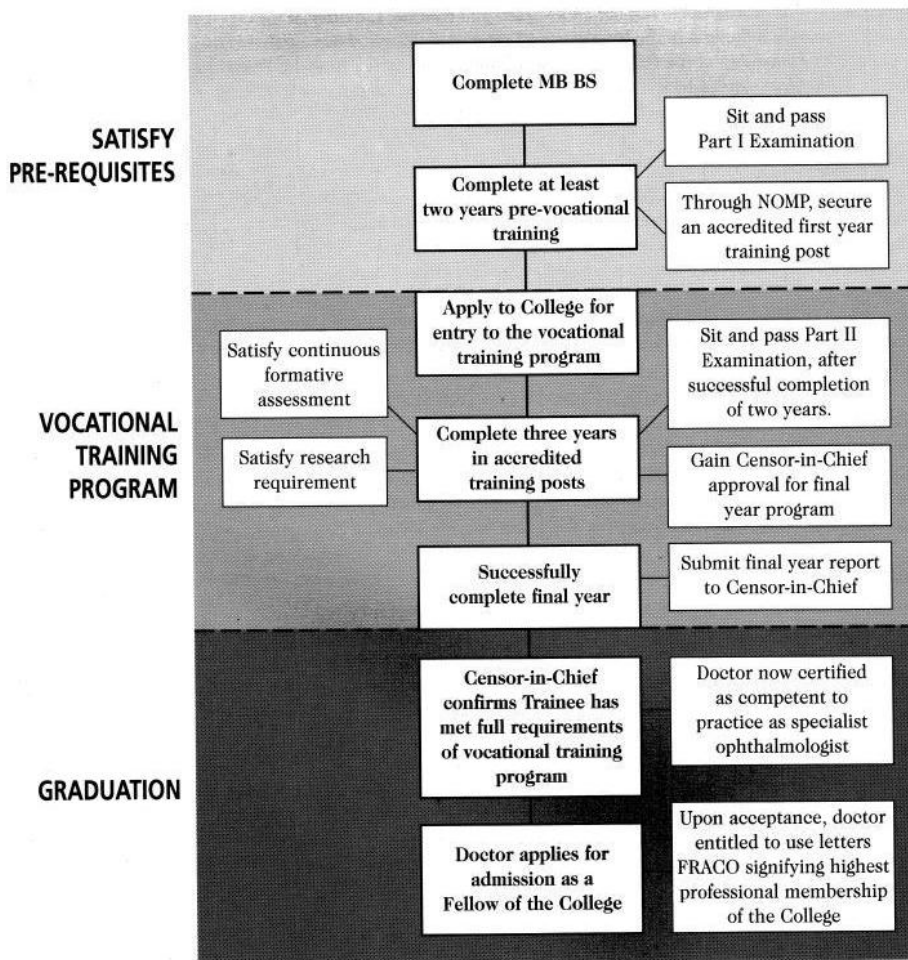
Trainees are located along a pathway of medical training that spans a minimum of ten years from medical school entry to graduation from postgraduate specialist training. The trainees in this study, for instance, have already completed their university based training to become a medical doctor, graduated thus with a Bachelor of Medicine and Bachelor of Surgery (MBBS), and have worked as an intern (a junior doctor undertaking a specified period of training and education in an accredited training site/organisation for example, working one or more years as hospital medical officers). Once graduated, trainees become specialist ophthalmologists.

While such a structural diagram is mandatory in understanding ophthalmology trainees' workplaces, it cannot illustrate their experience of the lived curriculum. It is this lived experience that is the core of this thesis.

### **1.3 Curriculum form**

The term 'curriculum form' has explanatory potential for this research. There is more to training than the simple curriculum structure in the above pathway diagram. Curriculum form is a term used in this thesis to represent curriculum structure and content together. Some examples of curriculum form that have been used in postgraduate medical training include that of guild apprenticeship, which has a long history in medical education, and competency based training which has been used for decades in other vocational educational programs, and is used in medical education in Canada.

If the curriculum form for training ophthalmologists were found to be predominantly apprenticeship, then the question to ask is whether training can be enhanced by paying better attention to its theory, its focus on learning at work, and on time-based training. If the curriculum form is competency based training, the question then to ask is how its outcomes focus can be used to improve training, and how its potential for flexibility, and its de-emphasis of a time basis for training, could be employed more effectively. An important question is whether a change in practice might require a change in curriculum, as is implied in competency based training; or whether a change in practice is a prerequisite for a change in curriculum, as seems to be implied in apprenticeship based training.



**Figure 1-2: The pathway to specialist ophthalmology**

A particular feature of ophthalmology training is its location in hospital outpatient services. Learning in this setting is under-researched. The question that arises here is what the implications for forms of curriculum are when trainees spend a considerable portion of their training in this outpatient area, rather than in hospital wards or in the operating theatre.

It is clear that these questions have not been asked adequately locally. This thesis is structured to ask these questions. As a case study to answer them, this thesis asks the following questions of ophthalmic surgeons and trainees.

## 1.4 The research question

The study is a curriculum study. Its research question is 'How are ophthalmologists trained?'

The list of subsidiary questions begins with:

- What is the official view?

- What is really going on in terms of actual practice and the lived experience of the actors involved? Does it differ from the official view?

As the study evolved, those two questions led on to the following two subsidiary questions:

- Should change occur?
- Is change possible?

The appropriate methodology to explore these substantive questions was found in the qualitative social sciences, and the methods used were based on textual document analysis and interviews. Data includes documents produced by RANZCO, curriculum review meetings and interviews with ophthalmology trainers and trainees.

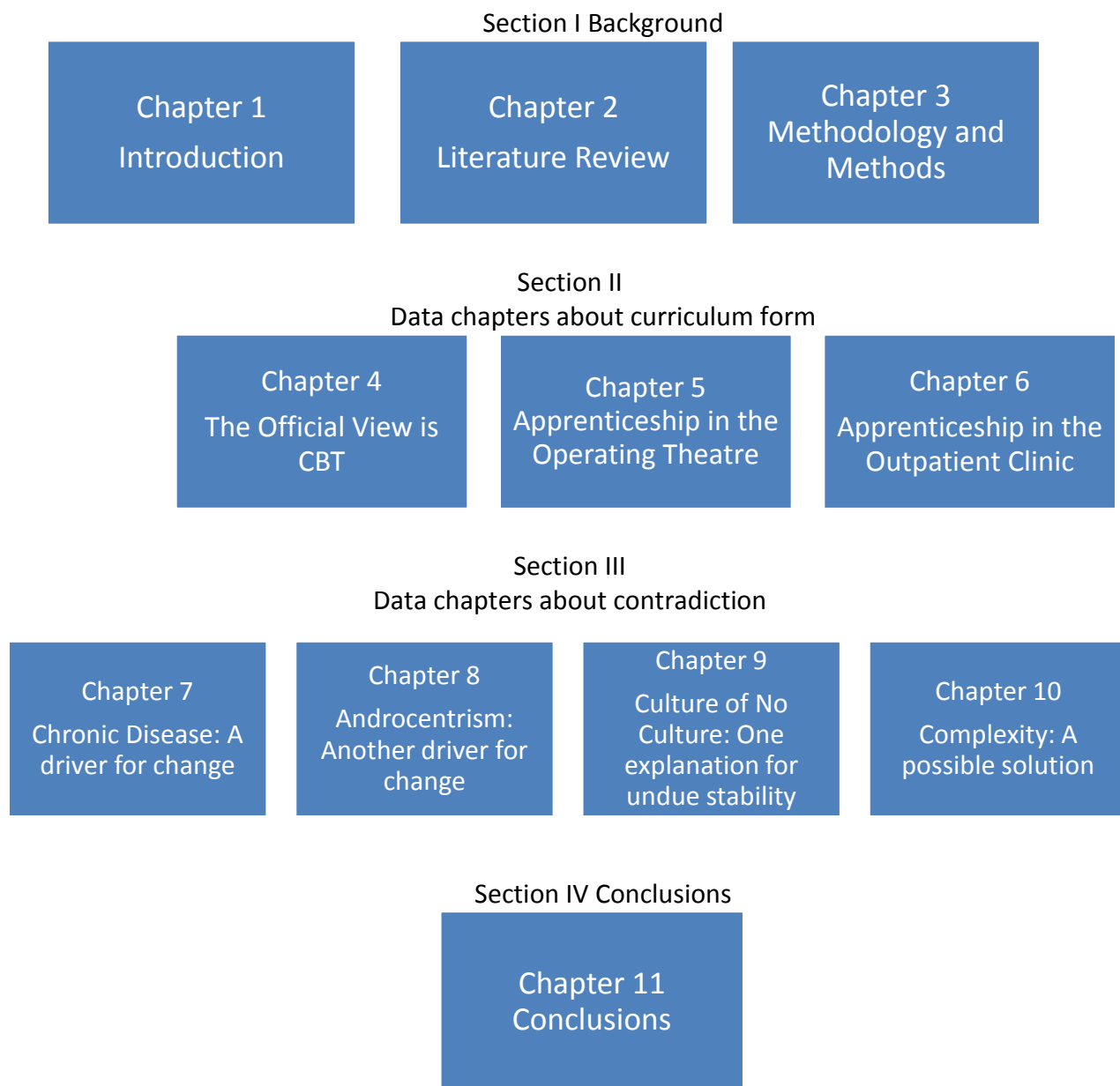
## 1.5 Chapters in the thesis

The thesis has eleven chapters. Figure 1.3 is a diagrammatic summary of the relationship between the chapters.

The thesis is arranged in four sections. The first, Background, contains this introduction, a literature review, and an outline of the methodology. This chapter provides the introduction. Chapter 2 reviews the literature to place the research question within the existing body of knowledge about training doctors, to identify what is known and what now needs to be investigated, and the place of this study in taking that inquiry further. Chapter 3 provides the reader with accounts of the methodology used to design the study, how it was developed and implemented, and an account of the way the study was undertaken, including methods of sampling, recruitment, data collection and analysis, and its ethical dilemmas.

The second section, Curriculum Forms, contains the data about the various curriculum forms. Evidence on the three training forms and accounts of the official and lived views on training are provided in this section, which starts with the official view that ophthalmology training is competency based, and provides contrary evidence that the apprenticeship based training form remains influential. Chapter 4 explores these forms of curriculum, while noting also that curriculum form is not a dichotomous entity. Chapters 5 and 6 provide the reader with discussion of the data analysis of apprenticeship in the operating theatre, and in the outpatient department, respectively.





**Figure 1-3: Thesis chapter overview**

The third section, entitled Can and Should Change Occur? draws on the data obtained to describe the treatment of chronic disease and of androcentrism. In this section, the evidence on contradictions suggests some need for changes to both work practice and curriculum. Chapter 7 discusses chronic disease management, and Chapter 8 discusses androcentrism, each as drivers for curriculum change. Chapter 9 provides discussion of the data about a ‘culture of no culture’ that exists in relation to curriculum stability, contradictions and change. In its last chapter, Chapter 10, about complexity based training; this section also contains some discussion of study data about a potentially useful emerging curriculum form.

Section four comprises only Chapter 11, in which the conclusions that arise from the study are presented. The findings are summarised, their implications explored and conclusions drawn. The section also outlines the contributions the study makes to theory, the questions for further research it raises and its potential salience to the case of other postgraduate medical colleges in the future.

## **1.6 Terms used in the thesis**

A glossary of terms used in the study is included at the beginning of the thesis. Chronic disease is defined in an introductory way there also. Basic terms such as gender and androcentrism are explained.

A note about the conventional use of terms for medical personnel may be useful for the reader. The terms ‘resident’ and ‘physician’ carry ambiguous meanings around the world. These terms have a different meaning in Australia from that in the United States of America. It is useful to explain the differences so that the reader understands the Australian usage in this thesis.

In Australia the term for a medical graduate is ‘doctor’. A physician in Australia is an internal medicine specialist. A resident in Australia is a junior member of the hospital hierarchy, usually within three years of graduation. Once in a training program, a doctor in Australia is known as a registrar, rather than a resident. In the United States of America, by contrast, such trainees are said to be in ‘ophthalmic residency’ whereas in Australia this position would be described as ‘occupying an accredited training post as Ophthalmology Registrar in a post-graduate training program’ (RANZCO 2000:19).

Table 1-1 (below) shows further synonyms in use to describe medical personnel. It points out too that the educational terms ‘evaluation’ and ‘assessment’ can also have a local meaning.

The terms trainer and trainee are key terms that themselves form part of the research puzzle. The convention in Australia is to call an ophthalmologist on the staff of a teaching hospital ‘the consultant’. In the United States, these doctors would be called ‘attendings’, short for ‘attending physicians’. A more subtle difficulty is that in Australia, although Eye Registrars are often called ‘trainees’, consultants who act as trainers are, strangely it would seem, not nearly as often named as trainers.

	<b>Australia</b>	<b>NZ</b>	<b>UK</b>	<b>USA and North America</b>
<b>Vocational trainee</b>	Registrar Trainee Vocational Trainee in vocational training program	Registrar Trainee	House officer	Resident/ Residency
<b>Fellowship position</b>	Post occupied by a sub-specialty Fellow, who is an advanced trainee specialising in a sub-specialty.	Specialty Fellow	Senior Registrar Post	Fellowship
<b>Consultant</b>	Consultant Supervisor Fellow of the College	Consultant Supervisor	Consultant	Attending Physician
<b>Intern</b>	Intern Postgraduate Year 1 (PGY1)	Intern	Pre-Registration House officer (PGY1) Foundation Year	
<b>Doctor</b>	Doctor	Doctor	Doctor	Physician
<b>Term</b>	Term Rotation	Run	Rota	
<b>Educational terms</b>	Assessment			Evaluation

**Table 1-1: Synonyms in medical personnel and their education**

The term ‘tutor’ is even more problematic a term, used by RANZCO in official correspondence to mean those consultants who are not the main supervisor of the training post but who nevertheless teach registrars. The term ‘tutor’ is not used among ophthalmologists themselves. They simply refer to one another as consultants in the unit, and distinguish the head of unit by the term ‘post supervisor’, or simply, ‘the supervisor’.

The convention within ophthalmology is to use the term Fellow, capitalised, to refer to an individual who is a year or so either side of graduating as a fellow of the College, while the ‘fellow of the College’ is less often capitalised. The award of College fellowship is either imminent or recent for this doctor. This doctor is often spoken of as doing their ‘Fellowship year’ and is making the transition from advanced trainee to belonging fully to the profession as a specialist.

The terms ‘curriculum’, ‘education’ and ‘training’ are used interchangeably in this study. The thesis title itself embodies this. “‘We Need You to be Able to Do This Operation’: Continuity and contradiction in the training of ophthalmologists’ refers to inherent conflicts in the task of educating ophthalmologists that are explored in this thesis.

The reader will find the phrase ‘curriculum form’ used in this thesis to combine both curriculum content and structure into one phrase. This usage draws from esteemed educators in the vocational literature, such as Eraut (1976), so it is not unique, but the author is aware that it is not a mainstream usage in medical education. This option has been taken for brevity. Just as the convenient phrase ‘curriculum form’ is used to connote a combination of content and structure, the term discourse, or sometimes, Discourse, is used analogously in this thesis as an abbreviation that refers to particular ways of conceptually combining systems of social content and structure together. Discourses exclude and include, and create identities, for those who construct them. Curriculum forms themselves, for instance, could be conceived of as discourses. The point is that discourses are regimes of truth (Foucault 1977) that are a combination of social content and social structure.

The term ‘practice’ has wide resonance in vocational education and practice. However the term ‘work’ holds far more meaning in medicine and in medical education. For this reason I have tended to use the term ‘work’ in preference to ‘practice’ even though this might seem strange to those from a vocational education background.

The terms ‘manifest’ and ‘latent’ may need some introduction for the reader. Analysis of manifest data explores the explicit content of a document or interview that is immediately obvious to the reader. Latent content analysis explores the meaning behind the explicit content, whether this meaning is available consciously or not to the document writer or interviewee. Latent content analysis is included in this thesis. This phrase is used to speak of the combination of grounded theory, semiotic analysis and discourse analysis that is used to analyse the data sets.

It is acknowledged to the reader that there is some duplication of quotations drawn on in this thesis. The results are presented according to the key themes. In some instances, quotations have been used in relation to more than one theme because they are the most explicit data relating to that theme. Multiple instances may have been evident from other participants, but the quotes from which it is easiest to draw the meaning have been used throughout. It is also acknowledged that an unwarranted suggestion of awkwardness in the speaker is, at times, inevitably suggested to the reader from literal spoken words in quotation.

In conclusion, this thesis is a qualitative case study of ophthalmic medical education, investigating how ophthalmologists are trained. The thesis centres on theoretical notions of medical education, curriculum form, apprenticeship, competency based training, and gender in curriculum. This theory is now critically reviewed, in Chapter 2, the Literature Review

# Chapter 2 Literature Review: How are ophthalmologists trained?

Medical education theory lies at the core of the thesis. Curriculum and curriculum form are its more specific focus. This review focuses on where contradictions lie in the existing literature about curriculum form. This chapter uses a narrative approach to the literature review.

## 2.1 Medical education in the health policy context

Widespread policy change is necessary in medical education. According to Richards (1998), medical education is ‘unfit for the millennium’:

*Professional conservatism [and] inertia ... have left it struggling to cope with rapidly changing health care systems. Those universities [and other medical education bodies] that have adopted new educational programmes may dispute this, but globally they are in a minority and their experiences have mostly not been evaluated or well disseminated. Too few train doctors, both new and established, to acquire the skills that the new trends in health care demand. (Richards 1998)*

Australia has 100,000 practicing doctors and an annual output of 1,506 from its medical schools (Medical Training Review Panel 2005:7). Medical education is an important determinant of the standards of health and health care internationally (Committee of Enquiry into Medical Education and the Medical Workforce 1988), and medical education must be optimal. Health policy reform implicates medical education (Committee of Enquiry into Medical Education and the Medical Workforce 1988).

At a broad level there is the question of how educational policy reform, such as advocacy for a greater emphasis on competency based training, or an enhancement of apprenticeship training (Paltridge 2006; Jolly & Prideaux; Swanwick 2005), for instance, might in theory benefit the work performance of whatever group of doctors is the target of that policy reform. Policy sociology applied to medical education may help but has not been widely applied in the medical context (Ball 1990, 1994, 2000).

The terms ‘medical education’ and ‘medical curriculum’ are used interchangeably in the literature and six broad areas of research into medical education and curriculum predominate. These are student selection, teaching and learning methods, student characteristics, ‘train the trainers’ programs, and assessment and outcomes evaluation. However, studies focussed on

medical education using educational theory are relatively lacking (Dornan et al. 2011; Swanwick 2005).

One reason why medical education has been under-investigated using educational theory may be that medical education was considered to be relatively untouchable by sociological investigation (Becker et al. 1961). Medicine itself is an ‘untouchable institution’ (Gabe et al. 1994, cited in Luke 2003:44; Kneebone 2002). Since Flexner’s reforms that placed medicine on a scientific rather than a craft-based footing (Flexner 1910), medical education philosophies have been debated in the sociological literature. However, rarely do these debates cross the boundary into the medical literature. Flexner’s emphatic role of science in medical education continues to be problematic since it sets up a dichotomy between science and the art of medicine (Dornan 2005). It is claimed that since Flexner there has simply been ‘reform without change’ in medical education (Bloom 1995).

One area of practical debate is that of curriculum form. Two evolving curriculum forms within medical education that have strong underpinning theoretical foundations from outside medicine are known as competency based training, and complexity based training. Their attempted introduction provides a prompt to look at medical education through theoretical lenses derived from outside medicine. Curriculum theorising is an important and emerging area of understanding, particularly for medical education in an era of widespread advocacy for assessment to be based, for instance, on the new competency based training principles.

In the history of medical education, the competency based and complexity based movements form part of recent general debates about professionalism in medical education (Sturmberg 2002; Fraser & Greenhalgh 2001). Despite this, calls for reform of medical education often neglect the explicit educational theory about competency based training and complexity based training that could be helpful, particularly theories from the vocational education and training (Swanwick 2005; Bleakley 2002; Colville 1999). The original article by the researcher that explored early data from the study is attached as Appendix 2-1.

### **2.1.1 Medical professionalism**

Concerns from within the profession about teaching professionalism better are prominent (Dornan et al. 2011; Irby 1995; Roter 2000). A shift from ‘mastery, autonomy and self-regulation’ to ‘qualities deployed in the service of patients ... such as humility and recognition of personal limitations, and earning and maintenance of trust’ is brought into medical education research via debates around professionalism (Hilton & Southgate 2007). Such a shift embodies a conflict between an internal and an external focus for medical

education, but is considered possible. A contrasting view is that it is not possible to teach the competency of ‘professional’. According to Erde it is naïve to think ‘professionalism’ is easily taught (2008):

*The call to professionalism is naive nostalgia. Straightforward didactics in professionalism cannot do the desired work in medical education. The most we can say is that students should adopt the good aspects of professionalism and the profession should stop being some of what it has been. (Erde 2008:6)*

It is clear that the problem of curriculum change and curriculum form has not been resolved, and that further research is required to explore the underpinnings of professional medical practice. Further research that clarifies exactly how professional attitudes are negotiated and passed on to trainees appears to be needed. A further impetus for attention to curriculum form is flexibility of professional life. In Europe, the European Directive in which working hours are reduced by law first to 58 hours per week, and later to 48, has also spawned research into the flexibility of postgraduate training (Pickersgill 2001).

An ‘ideology of indeterminacy’ needs to be addressed in professional training (Willis 1989). There is a tacit dimension to training as a doctor that is called habitus (Bourdieu 1998), specifically medical habitus (Luke 2003; Cassell 1997). More research into this topic is needed as its tacit nature is relevant to the lived experience of trainers and trainees.

### **2.1.2 Professional knowledge**

Medical education provides for the transmission of professional knowledge. Although definitions of professional knowledge are a contested zone where the relations between theory and practice are important (Pinar 1999; Munro 1995; Kleibard 1975), professional knowledge includes four types of knowledge (Eraut 1985):

1. Propositional knowledge (‘knowing that’) including academic knowledge and ideas derived from other professionals;
2. Process knowledge (‘knowing how’) including skilled action and deliberative analysis in decision making, problem solving and planning;
3. Personal knowledge including experiences, personal theories and memories; and
4. Ethical principles or socialisation into the professional approach, including gaining a sense of professional identity.

To understand how professional knowledge is produced, theorists speculate that ophthalmic knowledge is multidimensional, requires academic knowledge as well as practical training, involves the doctor in developing self-knowledge (Thomas 2006), and in gaining a professional persona that rests on the ethical dimensions of training (Munro 1995; Doll, Wear

& Whittaker 2006). This research suggests that to provide a detailed account of ophthalmic training, all four dimensions of ophthalmic knowledge need inclusion.

These understandings of professional knowledge production were used throughout this study. Professional education encompasses not only a detailed understanding of a specialised knowledge base but also learning about how and when to apply this knowledge through accumulated experience and using professional principles. The knowledge base is more than propositional knowledge, and understanding how this takes place is important in understanding how doctors are trained.

## 2.2 Definitions of curriculum and curriculum form

Curriculum theorising is important because it explores what underpins learning (Pinar 1998). While set within health policy and professional practice, this research topic is predominantly a curriculum enquiry. The most apt definition of curriculum for this thesis is ‘that which underpins any learning and may be seen in the actions of teachers and learners in situ’ (Dornan et al. 2011).

There are several useful definitions in common usage. For example, the *Oxford English Dictionary* (Little et al. 1985:475) defines curriculum as ‘a course, specifically, a regular course of study’. ‘Plans for learning and their outcomes’ is a further simple definition (Print 1993). Based on a systems approach, curriculum may be seen as ‘all of the learning of the students which is planned by and directed by the school to attain its educational goals’ (Tyler 1949). A proposed, detailed definition of curriculum is that a curriculum consists of

***planned learning experiences, offered within an educational institution or program, represented as a document [including] experiences resulting from implementing that document. (Print 1993:9)***

The learning process itself is the focus of other definitions, such as accepting a constellation of social practices and social actions (Wenger 1998). Wenger’s definition includes documents and artefacts in a complex duality of (social) ‘participation and reification’ (Wenger 1998, p. 63) that can be used. Of relevance to this study, which includes curriculum documents, Wenger’s definition includes documents and artefacts in a complex duality of (social) participants and reification’ (Wenger 1998:63) that can be used to simplify representations of workplace learning and workplace ‘curricula’.

The way of defining curriculum that was most useful to this study’s research question was one that considers curriculum to be all learning activities up to the level of the conceptual underpinnings of the educational process (Dornan et al. 2011). Munro’s understanding that



curriculum is a moving form, a form that it is both static and fluid, also proved useful (Munro 1995).

### **2.2.1 Curriculum form**

What form the ophthalmic curriculum takes is the central question of this research. A curriculum is often represented as a series of elements. Ophthalmic medical curriculum form is a convenient term for the specific vehicle through which the training of ophthalmologists is achieved.

Curriculum form is the term used in the thesis for the arrangement of curriculum elements in a context. The phrase ‘curriculum form’ is understood to mean both the structure of elements (and the arrangement of those elements) that make up a curriculum. The term includes the nature of the gaps or spaces between curriculum elements and curriculum structure and is understood to be far more influential than individual curriculum elements.

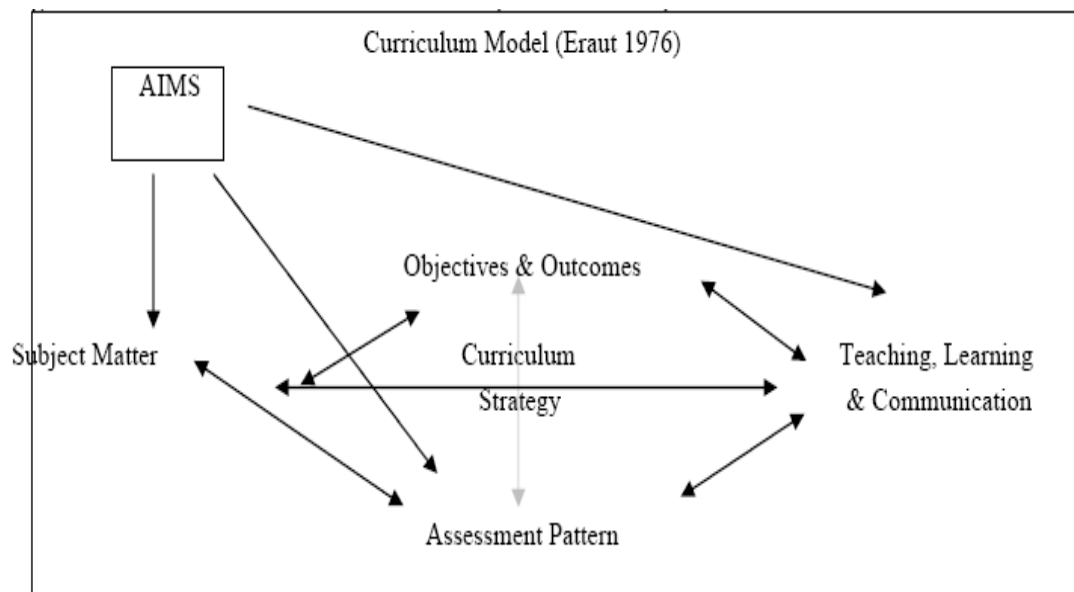
A simple vocational curriculum model or structure below illustrates this, Figure 2-1. This Figure introduces the notion of curriculum elements in more detail. Its original source is Eraut (1976).

This model contributed conceptually to recent Australian postgraduate medical college curriculum research and embodies two ideas (Prideaux & Jolly 2005:5). The first is that a curriculum is comprised of the elements of ‘aims’, ‘subject matter’, ‘objectives and outcomes’, ‘curriculum strategy’, ‘assessment patterns’, and ‘teaching, learning and communication’. The second idea is that these elements are embedded in a context and need to be ‘analysed and comprehended within their contexts’ (Prideaux & Jolly 2005:5). This latter concept underpins the usage of the term ‘curriculum form’ that is the centrepiece of this thesis.

There are many common examples of curriculum elements for instance, in vocational education and training (VET). Eleven of these curriculum elements are goals, objectives, policy environment, selection, recognition of prior learning, student characteristics, teaching and learning strategies, sequencing, assessment tasks, ‘train the trainers’ activities and evaluation (Print 1993). The length of this list of elements alerts us to the breadth of issues that contribute to curriculum.

Social context has a powerful influence on curriculum (Munro 1995). To talk of curriculum ‘form’ is to treat a curriculum’s social context as crucial. In this view, content and context are inextricable. Moreover, each of the elements, such as objectives and assessment, must be consistent with one another. Prideaux and Jolly (2005) argue that even when the elements are

aligned with one another, ‘content is only one dimension of a curriculum or program: ‘to consider content alone out of context presents only part of the overall picture’ (Prideaux & Jolly 2005:31). Without a detailed analysis of curriculum form, including its context, the full salience of a curriculum is missed. This study therefore extends beyond conventional curriculum analysis, as recommended by Prideaux and Jolly (2005:5). By focusing on ‘curriculum as delivered’, this thesis addresses this gap in the literature.



**Figure 2-1: Curriculum model**

### 2.2.2 Learning at work

Theoretical lenses from scholarship into VET have been available for several decades, while these are reported as being neglected in post-graduate medical education (Swanwick 2005; Colville 1999; Bleakley 2002).

Table 2-1 below uses a systematic outline from the broad to the specific. Scholarship in VET is shown starting with some broad conceptualisations. Broad conceptualisations of the language of learning are shown narrowing to vocational education, and then narrowing further down to ophthalmic education. There are three broad understandings of work learning (Fenwick 2010). These are network theory, activity theory and complexity theory. Fenwick (2010) debunks as myth the notion that skill is neutral, meaning that skill and performance are about behaviour. Rather skill is about ‘identity, craft, system design purpose and policies’ (Fenwick 2010).

Fenwick (2010) introduces three approaches to work learning: expanding, translating and emerging. Understanding work learning also requires further conceptualisations such as

expansive learning, participating, becoming, and learning indigenous knowledges, and ‘emerging’ (Fenwick 2010).

Name/metaphor	Conceptualisation	Source
<b>Language of learning</b>	Transmission or experience Transfer learning or experiential learning Product or praxis	Grundy 1987
<b>Curriculum approaches</b>	Curriculum typologies	Eisner & Vallance 1974 Print 1993
<b>Vocational education and training</b>	Epistemology Socio-cultural theories Activity theory Expansive learning Actor network theory	Lave & Wenger 1991 Vygotsky 1930/1978 Engeström 1999 Star 1998
<b>Medical education</b>	Competency based training Cognitive apprenticeship Complexity based training Activity theory	Swanwick 2005 Lave & Wenger 1991 Wenger 1998 Pratt et al 2001 Engeström 2001
<b>Ophthalmic education</b>	Apprenticeship based training Competency based training Competency based assessment	Colville 1999 Lee 2003 Lee & Carter 2004 Frank, Danoff & RCPSC 2007

**Table 2-1: The language of vocational education and training**

The question of curriculum form is central to the research undertaken for this study. Curriculum form is a term used to refer to a conceptual level above that of a day-to-day curriculum. Interrogating those curriculum discourses that influence ophthalmology resonates with research into other educational discourses, for instance, those in public health (Lupton 1992, 1995) and in gender (Nobelius & Wainer 2004; Mullola et al. 2011). The curriculum forms of most relevance to this study are competency based forms and apprenticeship, while complexity theory is a further form described in the literature, including in medical education (Plesk & Greenhalgh 2001).

Both complexity and socio-cultural theorists emphasise that the day-to-day activities of curriculum can be important data for analysing workplace learning. Actual practice and the lived experience of the curriculum for teachers, learners and other actors is a vital aspect of curriculum. There are curriculum theorists such as Swanwick who emphasise the ‘cultural’ over the ‘cognitive’ (Swanwick 2005), and like Bleakley (2002) who stress the day-to-day practical work of medicine over the cognitive, abstract aspects of being a doctor. Simple accounts of the lived experience of medical education can provide information that is just as

valuable as the more complex accounts such as those available in written documents (Bleakley 2002).

## 2.3 Curriculum forms in medicine

The literature on competency based training (CBT), apprenticeship and complexity are critiqued here. Recent impetus for attention to medical curriculum form has come from CBT in Canada. However, changes are occurring also in United States of America and the United Kingdom. The official view is that both CBT and apprenticeship are influential, yet the implications of each are poorly defined in the literature (Frank & Danoff 2007). There are contradictory forms of evidence.

### 2.3.1 Competency based training

Competency based training has a long history in VET and is derived from studies of military training in the USA in the 1940s; it is by no means new in vocational education at large (Beyer & Apple 1988). Three key points related to CBT are common to most general definitions (Smith 1999:62–3). They are that:

1. The focus of training is the outcomes of training,
2. Outcomes are measured against specific standards, and that
3. Standards relate to industry, not to peer comparison.

To this list a further point may be added. A teacher becomes, in effect, a resource person. This fourth point of discussion then is that, under CBT,

4. ‘Students have clear knowledge of the required learning outcomes and hence power is shared more equally between student and teacher’ (Lowrie et al. 1999).

Canadian Medical Education Directives for Specialists (CanMEDS), from a combined medical and surgical body in Canada, is becoming a ‘popular standard’ for medical education around the world (RCPSC 2005). The acronym CanMEDS is explained below (RCPSC 2005):

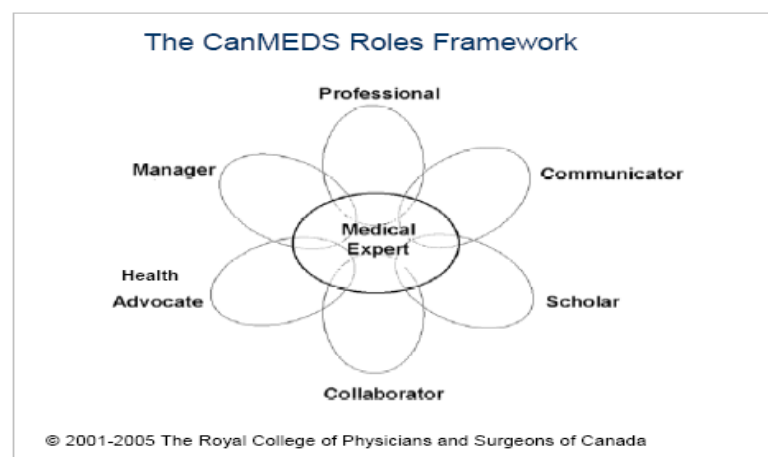
*In 1996, RCPSC Council adopted a new framework of core competencies for all specialists, called the ‘CanMEDS roles’. The CanMEDS name, which has become well-known to medical educators in Canada and around the world, is a derivative from ‘Canadian Medical Education Directives for Specialists’.*

The document continues by distinguishing medical expert as the central role in a list of seven core competencies, listing those elements of the medical curriculum form in which the roles have become incorporated and advocating those competencies as educational policy in medical education, worldwide (RCPSC 2005):

*This framework of core competencies includes the Roles of Medical Expert (the central role), Communicator, Collaborator, Health Advocate, Manager, Scholar and Professional. This framework now forms the basis of the standards of the educational mission of the Royal College and has been incorporated into accreditation, evaluation and examinations, as well as objectives of training and standards for continuing professional development. Furthermore, the CanMEDS framework of competencies that began as an initiative of forward-thinking Fellows of the RCPSC and family physician contributors has now become a popular standard for medical education in Canada and around the world. (RCPSC 2005)*

With links to the evidence-based practice movement, the CanMEDS Societal Needs Working Group called their document ‘Skills for the New Millennium’ (1996). The group wanted to add something to traditional medical training so that the roles or competencies of new medical professionals allow them to be more than simply medical experts (RCPSC 2005; Frank & Danoff 2007).

Figure 2-2 below shows the Canadian Medical Education Directives for Specialists (CanMEDS) flower comprising the seven competencies: medical expert, professional, scholar, health advocate, health manager, communicator and collaborator (CanMEDS 2001).



**Figure 2-2: CanMEDS flower**

In the Canadian CBT curriculum form, doctors are expected to fill all seven roles rather than one traditional central role (medical expert) alone (CanMEDS 2001). Bio-medically oriented doctors with a focus on being a medical expert may be challenged by this expansion of expected responsibilities. The CanMEDS flower has been particularly influential in Australia. CBT is now widely used as the official dominant training form, determining the written structure of external accreditation descriptions of medical educational programs in Australia (Australian Medical Council 2002).

Use of CBT internationally in the early 1990s led to its integration in some form into Australian medical colleges in the mid-1990s. Institutional accreditation of all postgraduate medical colleges by the Australian Medical Council is required in Australia. The Australian Commonwealth Government has mandated the use of the language of competency based

training as part of this accreditation process (Iredale 2001). This mode of reporting back during accreditation using CBT language is in keeping with other vocational and educational programs in Australia (Australian National Training Authority [ANTA] 1994).

CBT is a principal curriculum form derived from vocational education and training theory that has been introduced into medicine. The need to respond better to societal needs and improve professionalism was a political driver for the introduction of CBT from Canada into the accreditation of Australian medical schools and postgraduate medical colleges. Some years since its introduction, CBT's originators in medical education in Canada have published their reflections. They admitted that they had intended a 'revolution' in medical practice which has not yet occurred. They identified that explicit change management processes were needed for the successful introduction of CBT into medical education, in addition to defining the curriculum. (Frank, Danoff & The Royal College of Physicians and Surgeons of Canada [RCPSC] 2007).

In summary, there is now widespread advocacy of competency based training generally in vocational education (Harris et al. 1995; Mulcahy 1997) and also in medical education, including ophthalmic education (Lee 2003; Lee & Carter 2004).

Internationally, there has been considerable educational policy work along competency lines in health-care settings, including ophthalmic health-care settings such as the residency programs in the United States (Lee & Carter 2004). Competency lists based on the CanMEDS flower numbering seven, six or eight competencies are in use in various contexts in Australia, the United States of America and Europe (Cate & Scheele 2007; Dornan et al. 2011). Whatever the number of competencies in a list, the core principle of a short list of competencies remains the same (Faarvang & Da Silva 2009). Often these only vary by the inclusion or exclusion of the mention of surgical skills, or by conflating several competencies of similar intent.

The considerable limitations of CBT are well documented in the VET literature (Beyer & Apple 1988; Mulcahy 1997a). These are its reductionism, and its de-emphasis on the teacher. There is also debate in the medical literature about the value of CBT. CBT is often based around modularisation of the curriculum. A simple standardised framework is used to define the work of the relevant occupation. CBT is atomistic and lacking easy measurement, it risks devaluation and neglect of the less easily defined skills of medicine, such as professionalism and ethical behaviour (Mulcahy 1997a). Teacher skills may be devalued (Mulcahy 2000).

Medical professionalism is difficult to define in behavioural terms (Erde 2008; Freidson 1994:121), and any attempts such as CBT that challenge the 'indeterminacy' of medical tasks

are fraught with difficulty. CBT risks challenging deep ideological traditions in medical norms and is likely to be resisted by the profession and by its educators. Paradoxically, then, erosion of professionalism is a feared consequence of the introduction of CBT into medicine. Setting up an obstructive division between technical and social competencies, rather than integration of 'real' and 'cultural' into one (Taylor 2003) is a risk involved in introducing CBT into medical training.

This study explores whether CBT is the most appropriate model for ophthalmology given the conflicting evidence on its effectiveness.

### **2.3.2 Apprenticeship based training**

According to the foundational medical educational theorist Flexner, medical work is based in a vocational form of curriculum known as an apprenticeship (Flexner 1910). Specifically, for Flexner this is a science-based, technical craft apprenticeship. Although not always explicitly named as such, the curriculum form of scientific apprenticeship has endured to this day (Dornan 2007).

Flexner's contribution was to introduce bioscience as essential to medical training. He did this, for example, through advocating the use of the microscope in all teaching programs. This shift laid the foundation for scientific apprenticeship as the site of medical identity formation. To some, this biomedical emphasis is misplaced and ultimately harmful to patients. This is because a biomedical emphasis tips the balance in favour of medical care resting on a scientific, biomedical base, rather than a psychosocial-biomedical base that takes into account the humanity of the patient.

Apprenticeship has a long, work-based history originating in medieval times. It is characterised by careful grooming and selection of apprentices, strategies involving one-on-one teaching, a tight sequencing of teaching and learning strategies over the duration of the course and strict assessment procedures (Lave & Wenger 1991; Wenger 1998; Guile & Young 1999; Gamble 2001). Strict assessment is based around peer comparison. Since Flexner, there has been a strong biomedical basis for such assessment in medicine. It is traditional for apprentices to be recruited from among kin, and not uncommonly, from the same family (Lave & Wenger 1991; Bunn 1999).

In addition to the above features, apprenticeship also implies that there exists a community of practice that supports training (Wenger 1998). A community of practice conceptually comprises three elements: domain, practice and community (Wenger, McDermott & Snyder 2002:27).

***In detail, these are 1. a domain of knowledge which defines a set of issues 2. the shared practice that they are developing to be effective in their domain, and 3. a community of people who care about this domain. When they function well together, these three elements make a community of practice an ideal knowledge structure—a social structure that can assume responsibility for developing and sharing knowledge. (Wenger, McDermott & Snyder 2002:27–29)***

Many aspects of domain, practice, and community overlap. Practice and community are discussed in the data chapters to come, about apprenticeship, Chapters 5 and 6.

Apprenticeship, being hierarchical in its form, supports the sharing of ideas between socially connected members of the community of practice, such as fellows, Fellows and trainees. In this account, the term ‘Fellow’, which refers to a person who is in the last year of their training, is capitalised to make a distinction from a ‘fellow’, who is a graduate of the College. Apprenticeship in a community of practice involves a close and controlling relationship between trainer and trainee. The intergenerational issues within this community are characterised by Lave and Wenger call the ‘continuity-displacement’ contradiction:

***A contradiction lies between legitimate peripheral participation as the means of achieving continuity over generations for the community of practice, and the displacement inherent in that same process as full participants are replaced. (Lave & Wenger 1991:114)***

There lies beneath the surface of all master–apprentice relations:

***The continuity-displacement contradiction is present whether the apprentice and master jointly have stake in the increasingly knowledgeable skill of the apprentice, or whether there is a conflict between the masters’ desire for labour and the apprentice’s desire to learn. (Lave & Wenger 1991:115)***

Another key concept in apprenticeship is ‘practice’. Practice is defined as ‘a set of frameworks, ideas, tools, information, styles, language, stories, and documents that community members share’ (Wenger, McDermott & Snyder 2002:27). Briefly, practice is work, or situated action. Whereas a domain denotes ‘the topic the community focuses on’, practice is ‘the specific knowledge the community develops, shares and maintains’.

The community of practice is one in which there is shared work, experience and knowledge. ‘When a community has been established for some time, members expect each other to have mastered the basic knowledge of the community’ (Wenger, McDermott & Snyder 2002:27). In any community of practice, learning happens through legitimate peripheral participation in that community of practice (Lave & Wenger 1991; Wenger 1998; Wenger, McDermott & Snyder 2002, Guile & Young 1999). Theoretically, outpatient clinic work, for example, is a site of situated action that is governed by broad social structures. Situated action and social structure lie at either end of an axis that is key to understanding learning in the workplace (Wenger 1998: 5, 12, 14).

In summary, the apprenticeship system means a master–apprentice relationship, a community of practice and an epistemology of practice largely determined by that community of practice. Lave and Wenger studied a number of groups who learned through apprenticeship. Their



studies provide detailed accounts of apprenticeships, of tailors, for instance, and were conducted in the 1960s and 1970s. They studied midwives but did not study doctors.

Doctors have, however, been studied by the activity-theorist Engeström, who studied chronic disease in children in Finland using groups of doctors commenting on the inter-professional care in a teaching hospital (Engeström 1999). His study of paediatricians found improvement in care through the application of activity theory. He found in his ‘teaching lab’ that exchange of views by clinicians improved care, but he did not address the issue of the tacit culture of apprenticeship that has a particularly strong impact within disciplines such as ophthalmology (Engeström 1999). The places where activity theory based research is effective are under-defined in the medical and health literature.

There are many local variations in both health care practice, and in training for such practice. ‘Institutional presentations of training tend to mask local variations in health care’ (Mooney 2002). This local area variation is well-researched in health economics literature, for example in publications about cataract surgery rate, but has not been so well explored in the area of clinical care in the outpatient department, and local area variations appear to be even less well defined in relation to clinical teaching.

The apprenticeship curriculum form is also characterised by a strictly controlled sequence of specific technical activities (Guile & Young 1999). A ‘social reconstructive’ curriculum form is characterised by maximal teaching and learning experiences chosen on the basis of their transformative potential. By further comparison, the major characteristic of the ‘academic’ curriculum form is the goal of developing sophisticated conceptual thinking through ‘learning from books’ (Eisner & Vallance 1974).

Theories of ‘cognitivism’ are understood to simultaneously dominate and hamper the understanding of settings in medical education, where apprenticeship has been the more explanatory model of training in sites such as hospital wards and outpatient departments (Bleakley 2002; Colville 1999). As already mentioned, Appendix 2-1 contains this latter publication (Colville 1999), in full, for background. It has been noted that research into teaching hospital culture has been relatively neglected, with individual psychological approaches tending to be the rule rather than more-needed studies of the culture of teaching, according to Bleakley (2002).

***Even where conservative ‘transmission’ approaches to teaching have been replaced by liberal approaches of ‘facilitation’, the latter is still typically framed in psychological terms, as in the suggestion that an individual is accruing knowledge and skills at work. (Bleakley 2002)***

This focus on individual learning matters because, according to workplace learning experts, a focus on individual knowledge and skills misses the impact that cultural factors in the

workplace have on learning. For instance, the group norms of ophthalmologists about the level of prestige a condition holds might be found to be a far greater determinant of the health care that this group of practitioners delivers than is their individually held biomedical and technical knowledge. Such influence of socio-cultural group norms is neglected where medical education research focuses on the individual psychological aspects of learning alone.

Actual practice and the lived experience of the curriculum for teachers, learners and other actors is a vital aspect of curriculum. There are curriculum theorists such as Swanwick who emphasise the cultural over the cognitive (Swanwick 2005) or like Bleakley, who stresses the day-to-day rather than the cognitive and abstract and the simple over the complex (Bleakley 2002).

Ophthalmic training is a form of surgical speciality training. As such, its training is accomplished by serving what is known as a cognitive apprenticeship (Collins et al. 1989). A cognitive apprenticeship is a model of training that is conceptualised in five essential phases, named for their key activities (Pedowitz et al. 2002).

	<b>Key Activities</b>	<b>Role of learner</b>	<b>Role of teacher</b>
<b>Phase I</b>	Focussed Explaining	Observe performance of skills, develop mental model or schema	Model the procedure proficiently. Talk about pitfalls and tricks
<b>Phase II</b>	Scaffolding Coaching	Approximate doing the real thing. Reflect on teacher's performance	Provide coaching. Provide support when needed
<b>Phase III</b>	Fading	Continue approximating the real thing, individually or in groups	Decrease coaching and scaffolding but maintain close supervision
<b>Phase IV</b>	Internalisation	Practice tasks independently, meeting acceptable standards of proficiency	Provide assistance only when requested
<b>Phase V</b>	Generalising	Discuss the generalisability of what has been learnt	Explain and discuss general relationships for what was learnt

**Table 2-2: Learning surgery through cognitive apprenticeship**

The table above shows that these five phases are modelling, scaffolding and coaching, fading, internalisation, and generalisation (Table 2-2, from Pedowitz et al. 2002). Evidence of each of these phases was found in this study.

### **2.3.3 Apprenticeship and curriculum form**

On the one hand, apprenticeship based training is well established in medical education and is believed to lead to high technical standards (Prideaux & Jolly 2005). It has been the tacit basis on which most postgraduate medical education has been built. On the other hand, there

is more explicit medical educational policy supporting competency based training (Lee & Carter 2004). Any gap between policy and practice may be problematic and require explanation (Ball 2000; Mulcahy 1998; Mulcahy 2001) and converting competency policies into practice is not simple (Mulcahy 1997a).

Medical education in Australian hospitals occurs under an apprenticeship based system, noteworthy for being currently under threat, and for appearing unsustainable in the future (Paltridge 2006). Despite the belief that apprenticeship is entrenched in medicine, apprenticeship research has been focussed on ward-based internal medicine rather than in the more surgical disciplines where training occurs in the operating theatre and outpatients, which have been little researched.

If ophthalmologists are taught in an apprenticeship based training system in Australia, this has recently been asserted to be useful but insufficient by Lee and Carter (2004). To improve training they provided a specific checklist for procedures conducted by their trainees. The claim is made that this is an improvement in spelling out the curriculum, yet this is argument is hard to sustain since the change is focussed on already well-defined skills such as cataract extraction alone. The formulaic nature of the assessment begs the question of how to assess judgments about the timing of surgery, the management of complications of surgery, the communication skills required for both routine decision making, and patient-centred decision making. In summary, the underpinning reasons for the lack of explicit attention to medical education theory and practice have been noted to be under researched in medical education at large (Swanwick 2005; Erde 2008).

### **2.3.4 Apprenticeship and control**

Apprenticeship involves a close relationship between a master and an apprentice. It is useful to educational theory to explore this in more detail because it is relevant to flexibility of the trainee's life course during apprenticeship.

The guild apprenticeship model involves one-on-one training of a student by a master who is paid by the student and in which the master must abide by the rule that 'he' pass on all 'his' knowledge to the apprentice (Foucault 1977:315).

The apprentice's body provides labour to the master in return for experiences that lead to skill and knowledge. The apprentice may be understood theoretically as a 'docile body' under the control of the master. Foucault's theories of power and control illuminate apprenticeship, for instance in *Discipline and Punish* (Foucault 1977). Apprenticeship practice is theorised as involving a system that controlled 'docile bodies'. Foucault's interest in education and

training practices was that they involve 'the organisation of genres', and systems of possibility.

It is useful to introduce some discourse theory at this point. Drawing on Foucault, the educational theorists Usher and Edwards (1994:90) emphasise the power of regimes such as apprenticeship as being discourses, or systems, of possibility, thus:

*Foucault is not claiming that a discourse is a set of true statements but rather that a discourse, in defining what can be said and thought, provides the means for statements to be assessed as true, the reasoning which enables truth-claims to be made and validated. He describes a discourse as a system of possibility which makes a field of knowledge possible. ... For those who speak it, a discourse is a given - it operates 'behind their backs', it is an 'unthought'. It is not itself questioned although it is the means by which questions are asked. Discourse, therefore 'speaks' but is yet silent - it is an absent presence, yet a powerful one, since what it is to be a speaker, an author or a knower, and with what authority these positions are held, is itself a function of discourse. A discourse author -ises certain people to speak and correspondingly silences others, or at least makes their voices less authoritative. A discourse is therefore exclusionary. (Usher & Edwards 1994:90)*

As an enduring system of possibility, apprenticeship, for instance in tapestry making under the Gobelins in Paris in 1667, involves the 'handing over' of knowledge, and an exchange of money and labour in return for learning. Foucault again:

*In 1667, the edict that set up the manufactory of the Gobelins envisaged the organisation of a school. Sixty scholarship children were to be chosen by the superintendent of royal buildings, entrusted for a time to a master whose task it would be to provide them with 'upbringing and instruction', then apprenticed to the various master tapestry makers of the manufactory (who by virtue of this fact received compensation deducted from the pupils' scholarships); after six years apprenticeship, four years of service and a qualifying examination, they were given the right to 'set up and run a shop' in any town of the kingdom. We find here the characteristics of guild apprenticeship: the relation of dependence on the master that is both individual and total; the statutory duration of the training, which is concluded by a qualifying examination, but which is not broken down according to a precise programme; an overall exchange between the master who must give his knowledge and the apprentice who must offer his services, his assistance and often some payment. The form of domestic service is mixed with a transference of knowledge. This mixture appears clearly in certain clauses of the apprenticeship contract: the master is obliged to give his pupil- in exchange for his money and his labour- all his knowledge, without keeping any secret from him; otherwise he is liable to a fine. (Foucault 1997:156)*

The Gobelins brought in two hours per day of lessons and, fifty years later, roll call. Foucault sees these strategies for 'taking charge of the time of individual existences' as being for regulation:

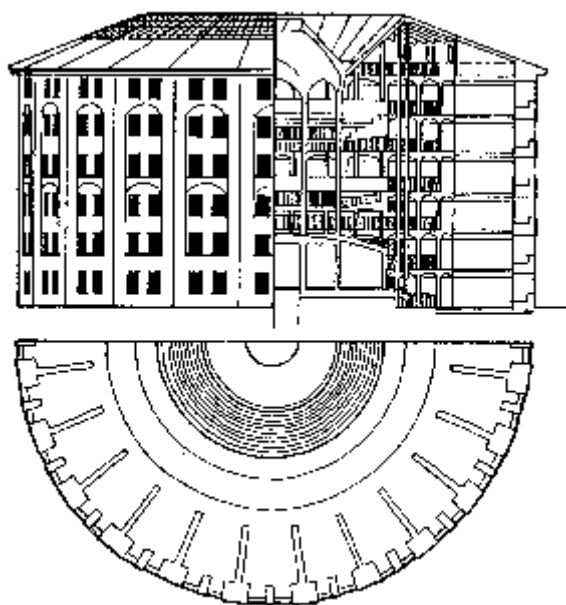
*The Gobelins school is only one example of an important phenomenon: the development, in the classical period, of a new technique for taking charge of the time of individual existences; for regulation the relations of time, bodies and forces; for assuring an accumulation of duration; and for turning to ever increased profit or use the movement of passing time. How can one capitalise on individuals, accumulate it in each of them, in their bodies, in their forces or in their abilities, in a way that is susceptible of use and control? How can one organise profitable durations? The disciplines, which analyse space, break up and rearrange activities, must also be understood as machinery for adding up and capitalising time. (Foucault 1997:157)*

Foucault's theories of power and of the regime of power of the clinical gaze in hospitals also, in regulating teaching hospitals, may be explanatory of medical culture (Lupton 1995, Iedema 1999). Unless his theoretical notions of associated individual agency are clearly included in accounts of the ophthalmic workplace, a discourse of power and control could dominate

accounts of workplace learning and neglect this fundamental aspect of the structure of apprenticeship.

One further useful point from Foucault appears to be that self-discipline is a powerful and a pervasive form of social control. Theoretically, such self-imposed discipline might fit with the regime of regulation in hospitals, but may not fit with other aspects of individual identity, such as holding to the need for family caregiving, rather than the identity of the worker who is always available for work. According to apprenticeship theory, surveillance might conceivably be implicated as a routine part of belonging to a medical community of practice.

Curriculum forms involve power and Foucault's (1977) theories of power are highly influential. The panopticon in Figure 2-3 is a model of building design allowing constant central surveillance of the periphery. It shows cross-sections of the same building. The design is such that all locations in the building can be seen from its centre. The reverse is not the case and those at the periphery cannot see its centre. This makes possible surveillance from the centre without the timing of surveillance being known to those at the periphery. Such a device renders surveillance constant.



**Figure 2-3: The panopticon affords extensive visual surveillance**

Figure 2-4 is again from Foucault (1977). An analogy can be drawn with a curriculum that can be understood as the combination of a 'post' and a 'rope' that together mould the student to the desired form. Foucault (1977:167) uses this picture as a reminder of how 'docile bodies' are created in a society or in a community of practice where apprenticeship is the training form.



**Figure 2-4: Training is a form of control**

Training is a form of control, according to Foucault (1977). The point is that the rope in the picture, a metaphor for curriculum, acts the way a discourse does in society: it exerts control over an individual in a systematic way, while leaving room for some variation due to individual agency. The curriculum to train ophthalmologists might, on close inspection, be conceptualised likewise. The advantage of Foucault's metaphor here is that the ways the individual trainee is systematically constrained while at the same time allowed some individual agency, might be more easily understood when seen through this theoretical lens.

Wenger (1998) talks of curriculum design as a 'proposal of identity'. This is valuable in emphasising professional identity in apprenticeship, where both an individual's potential stake in developing their own contributions to professional identity, and the community of practice's involvement in the proposal, are important. Apprenticeship theory would propose in addition that it is not only their own identity that is at stake for individual trainees, it is the professional identity held within the group of practitioners. For trainees, having a stake in this professional identity means having a stake in their own future (Wenger 1998).

Communities of practice can nurture learning about professional identity (Wenger 1998).

Using the term 'community of practice' is a way of talking about a professional union in the language of trade training or guild membership. A craft-based curriculum learnt in a community of practice is one of 'professional identity formation' according to Mulcahy (1998) who quotes an interviewee as saying 'I want to pass on part of myself through training'. This study explores how the professional identity of the community may depend on excluding some individuals (or including only some), and how this may make it difficult to include those who are differently embodied, such as women.

### 2.3.3 Complexity based training

A complexity theory–based curriculum form offers a combined approach that encompasses process and outcome simultaneously, but is different from either of the previous approaches. A third curriculum form known as complexity based training has been introduced into medical education.

Complexity based training is anti-reductionist, and it integrally involves adaptation and change. Complexity theory has already been fruitful in supporting conceptual change in other complex organisational systems, such as organisational change, including curriculum change in undergraduate medical school through faculty-wide consultation (Duffy 2006).

Complexity based approach proponents argue that increased attention to process-based training is needed. Rather than a sole focus on CBT alone, a combined process and outcome form is considered achievable. Complexity theory, at its core, embraces the non-linear nature of any patient care consultation, including the fact that small alterations in the consultation may result in major differences in outcome, and that the doctor's and patient's mutual, empathic engagement with one another crucially influences the consultation and, therefore, the health-care outcome (Beach & Inui 2006). Failure to encompass complexity is argued as simply ignorant, short sighted and unauthentic (Beach & Inui 2006; Fraser & Greenhalgh 2001; Roter 2000).

Complexity science involves 'coping with complexity', and thus 'educating for capability' according to its major theorists, Fraser & Greenhalgh (2001). Whereas competence is 'what individuals know or are able to do in terms of knowledge, skills, attitude', capability includes adaptation, and is defined as the extent to which individuals can adapt to change, generate new knowledge and continue to improve their performance (Fraser & Greenhalgh 2001). Put simply, 'capability is more than competence' (Fraser & Greenhalgh 2001). Fraser and Greenhalgh (2001) list concepts of complexity theory that apply to education and training:

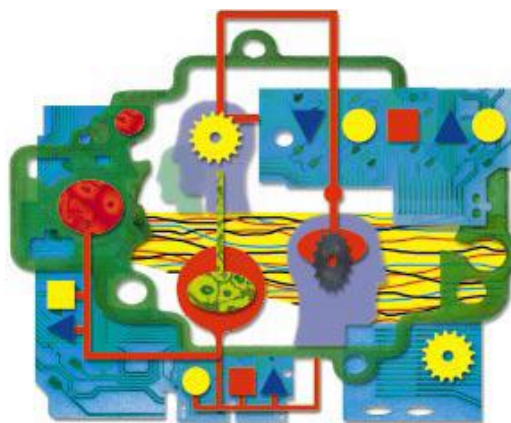
- Neither the system nor its external environment are, or ever will be, constant
- Individuals within a system are independent and creative decision makers
- Uncertainty and paradox are inherent within the system
- Problems that cannot be solved can nevertheless be 'moved forward'
- Effective solutions can emerge from minimum specification
- Small changes can have big effects
- Behaviour exhibits patterns (that can be termed 'attractors')
- Change is more easily adopted when it taps into attractor patterns

In other words, a complexity based approach dissects and spells out what is going on, or what might go on, in a doctor–patient encounter at the micro level, in a way that recognises complexity, rather than ignoring or reducing it. Medical educators incorporating complexity approaches aim towards a macro-conceptualisation of the medical encounter that takes into account its simultaneous micro-practices.

Complexity science is the study of complex adaptive systems, the patterns of relationships within them, how they are sustained, how they self-organise and how outcomes emerge (Zimmerman 2005). A useful definition is:

***A complex adaptive system is a collection of individual agents with freedom to act in ways that are not always totally predictable and whose actions are interconnected so that one agent's actions change the context for other agents. (Plesk & Greenhalgh 2008: 625)***

Features of complexity theory include unpredictability, paradox and that some features will remain unknown. Another feature is that new conceptual frameworks incorporating a dynamic, emergent, creative and intuitive view of the world must replace the traditional views that reduce and resolve approaches to clinical care and service organisations. A complex system has fuzzy rather than rigid boundaries. Figure 2-5 below, from Fraser and Greenhalgh (2001) shows this multiplicity as a collage of separate yet interwoven elements.



**Figure 2-5: Complexity theory in a diagram**

Developing complexity theory within medicine, and applying it to curriculum form is a strategy supported in another complex area in health, in the arena where public health, rather than clinical care, is dominant (Fraser & Greenhalgh 2001). While simple, the conceptualisation of single disease management is considered now only a relic (Palmer & Short 1994), and a limitation on, the scope of doctors' clinical practices (Nair & Finucane 2003).

Complexity based theory appears to warrant further research in the context of ophthalmology education. A complexity based approach may be becoming an emergent and influential way



to analyse clinical practice and, hence, a basis for an alternative form of curriculum. It is useful in this study as a theoretical comparator for the existing forms (Fraser & Greenhalgh 2001).

## 2.4 Should change occur?

National mandates within ophthalmology in the United States have led to considerable local effort towards implementing competency policies within Australian health-care settings. It is generally agreed that the translation of policy into actual teaching practice has rarely occurred. Nevertheless, international leaders in ophthalmic accreditation strongly urge ophthalmologist-teachers to teach competencies.

CanMEDS competencies are strongly advocated for Australian doctors, specifically, the most conventional role of ‘medical expert’ (Frank & Danoff 2007). If it can be argued that the less conventional roles (suggested in CanMEDS policies, discussed below) can be termed different ‘discourses’ of medical practice, and that a ‘good student-subject’ is the product of the ophthalmic apprenticeship curriculum, then it is predictable that if the training of ophthalmologists is apprenticeship based there will be problems with implementing change such as including CanMEDS policies within ophthalmology’s apprenticeship form of curriculum. For example, in discussing apprenticeship as a form of curriculum with a strong element of one-on-one teaching, the Australian curriculum theorist Lee states:

***It is difficult to see, in a pedagogy of apprenticeship, what space is available for a good student-subject to identify different positions and different discourses, much less desire to take up different positions or mobilise different or oppositional discourses. (Lee 1996: 222)***

Ophthalmology trainees and ophthalmologist-teachers may have problems in adapting the apprenticeship form (if this form is primarily in use) into one that encompasses any CanMEDS roles except for the traditional technical expert role.

It is common sense that medicine needs to change in order to keep up with changing societal needs. A frequent call is to alter medicine from being technically based so that it can better incorporate the socio-cultural aspects of health and health care. This comes at a time when there is a shift in the burden of disease from acute to chronic disease. Changes in patterns of illness must be matched by changes in medical education strategies (Nair & Browne 2008).

Lingard et al. suggest that surgeons learn intensively and effectively in theatre, but are subject to a strong collegial sense of order that limits their capacity to communicate and to pursue the necessary self-development in the non-technical aspects of their own training (Lingard et al. 2002). This study revealed that powerful learning occurred within the operating theatre, but left open the question of how technical skills can be learnt in outpatient based specialities.

Balmer (2006) studied paediatric residents in USA. Even in outpatients, and under CBT auspices, she found that trainees learnt and about their own personal styles of practice and ‘when to worry’, but not about systems thinking in terms of the roles doctors play in the health system. This is concerning because if a doctor has a lack of insight about his or her own roles they will have limited awareness and appreciation of the roles that others play, including patients and allied health providers who are now part of multidisciplinary teams providing care to patients with chronic and complex illnesses.

Complexity theory approaches are also a response to changing patterns of illness and the dynamics of the doctor–patient encounter (Fraser & Greenhalgh 2001). These societal changes are driving changes in the training of a heterogeneous medical workforce, to ensure they can better meet the needs of ageing and heterogeneous populations, including a growing number of people with chronic diseases.

### **2.4.1 Policy work towards changes in medicine and medical education**

The training of doctors, their behaviour as providers of health care, and health outcomes are linked. Training does not occur in a vacuum. It must be responsive to social change. Moreover, graduates have a responsibility to the health-care system according to the Committee of Inquiry into Medical Education and Medical Workforce (1988):

*The system of medical education in Australia must be considered in relation to the health-care system as a whole with which it is inextricably associated. It prepares practitioners to work in the health system, and must ensure not only that its graduates have the knowledge, skills and attitudes that are required, but also that they understand how the health-care system functions and what responsibilities they have to it. (Committee of Inquiry into Medical Education and Medical Workforce 1988:29)*

Australian Commonwealth Government policies about doctors’ workplaces are closely related to how medical practitioners are trained:

*The Commonwealth Government recognise[s] the close relationship between, on the one hand, how medical care is delivered and financed, and, on the other, how medical practitioners are trained (medical education) and their number and distribution (medical workforce). (Committee of Inquiry into Medical Education and Medical Workforce 1988: iii)*

Further, there are many stakeholders in the standards of medical education:

*Ensuring the on-going competent clinical performance of practicing doctors presents many challenges. The public, its elected representatives, employers, and doctors themselves may all have expectations and anxieties that need to be reconciled. (Finucane et al. 2003:842)*

It is common sense that medicine needs to change in order to keep up with changing societal needs. It must cater to diversity in the population as well as diversity in gender and cultural composition of the medical practitioners. A frequent call is to alter medicine from being so technically based so that it can better incorporate the socio-cultural aspects of health and health care. This comes at the time there is a shift in the burden of disease from acute to

chronic disease. Changes in patterns of illness must be matched by changes in medical education strategies (Nair & Browne 2008).

There is a moral overtone to the development of competencies as a basis for medical education. A moral dimension is revealed by how we act in the future (Addelson 1994). Cynicism about achieving morality within routine medical practice is part of the hidden curriculum within Australian medical education (Shapiro 1989:220) that is unlikely to be beneficial to patients. Learnt professional conservatism and cynicism can lead to 'contemptuous disbelief in man's sincerity of motives or rectitude of conduct' rather than the humanitarianism that is 'a regard for the interests of mankind' (Eron 1955).

Shapiro has explored what happens to medical students as they learn this hidden curriculum of cynicism and found that:

***A claim by theorists... was that the training period not only provided the student with the knowledge and skills necessary for competent practice, but also a milieu in which the 'culture of medicine', for example, is transmitted. This was commonly referred to as professional socialisation, whereby the medical school performs the task of training practitioners to perform and live up to the medical role long after they leave training. ... However... the Australian evidence presented here suggests that the ideology of the medical profession that places the patient at the forefront of professional responsibility appears not to be transmitted during the training stages of professional development.... Instead of acquiring attitudes that favoured patient care, respondents were more likely to reject such orientations. ...Exposure to clinical role models and clinical work... [and] ... a variety of patient problems and concerns appears to work to reduce compassion...Instead of developing in the direction indicated by student values, and by the ideology espoused by the profession, respondents' orientations shifted towards a pattern that the community and professional schools seek to de-emphasise. (Shapiro 1989: 220)***

Students acquire ethical values about the health-care system through the hidden curriculum. Despite what teachers think they are doing, it appears that professional conservatism, rather than conservatism, is a learnt part of a group norm. It is necessary to understand in detail how the technical skills and attitudes of clinicians are transmitted through training programs if this discontinuity between what educators think they are doing, and the attitudinal outcomes that result, is to be better managed. Tracking down these details is part of the work of this study of the training of ophthalmologists.

There is rational argument to support changes in clinical practice in a direction towards which CBT, as proposed for medicine in such documents as CanMEDS and the Accreditation Council for Graduate Medical Education (ACGME) wishes it to move (Joyce 2006),

The argument is that although the intent of introducing CBT is to better meet societal needs, societal needs insufficiently impact on the mind set of current trainers to form a common ground on which to base a move for change. Rather than smooth, comfortable transition, the argument is made that doing curriculum in the way foreshadowed by the current motivations

to move to CBT would involve what Wear (2006) (who teaches medical humanities) terms ‘a pedagogy of discomfort’.

*Doing curriculum in the medical academy should involve a pedagogy of discomfort for all of us as we scrutinise a medical curriculum that purports to educate skilled, caring, empathic doctors even as it relentlessly sorts, categorises, normalises and pathologises, hailing objectivity and scorning subjectivity at every turn. (Wear 2006:33)*

Wear notes that those who design and deliver a curriculum must accept responsibility for, and work together with students to enact, change. Colloquially, she is saying that faculty are both part of the problem and part of the solution (Williams 1991:129; Wear 2006:33). When faculty are part of the problem, then apprenticeship-based training requires careful scrutiny.

## **2.5 Changes that may be necessary in ophthalmic education**

There are many drivers for curriculum change identified in the above discussion. This section now focuses on two that are particularly relevant to Australian ophthalmology, the changing epidemiology of chronic disease, and the increase in the number of women in the specialty.

### **2.5.1 Shift from acute to chronic disease**

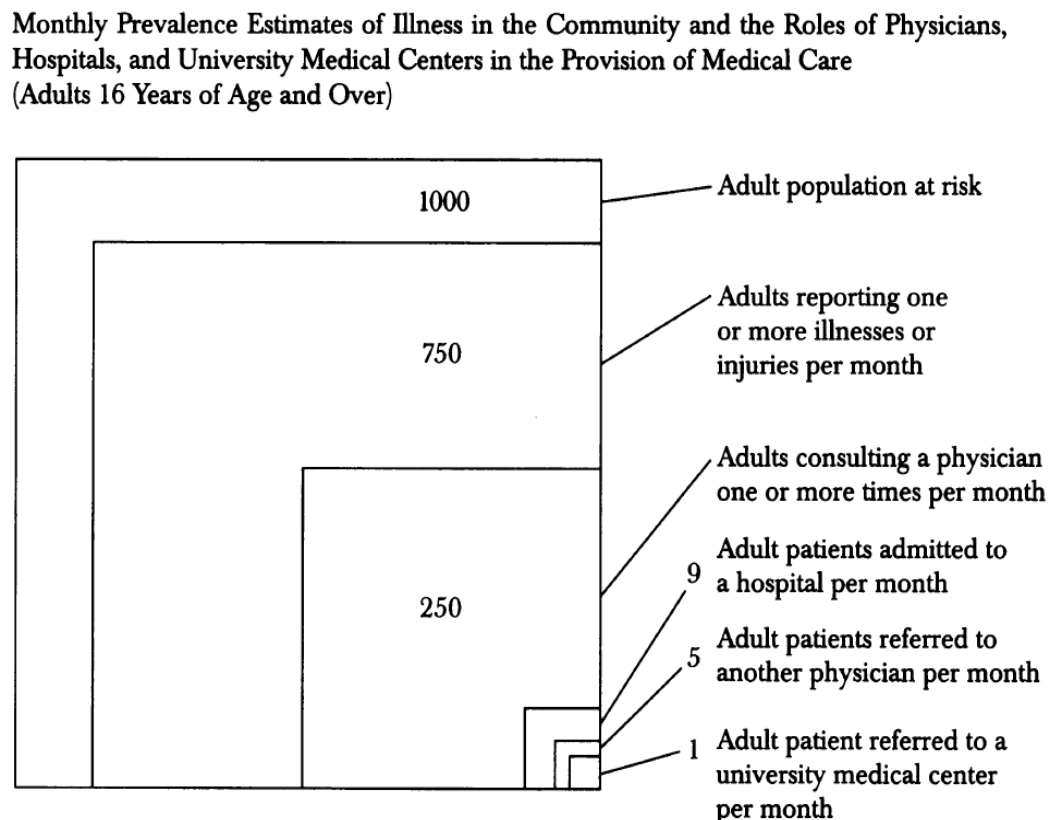
Compared to acute disease, chronic disease has been relatively neglected in medical education. This oversight particularly disadvantages the aged population (Nair & Finucane 2003). This is particularly relevant to ophthalmology since ageing of the eye is the biggest determinant of vision impairment (Taylor 2001; Taylor 2003). There are also gender differentials in health that also require attention (Abou-Gareeb et al. 2001; Saltman 1995; Quadrio 2001). These include gender differentials in dry eye (McCarty et al. 1998).

Learning chronic disease management is recognised as being difficult when training occurs in an acute health-care learning environment (Berende et al. 2009). Medicine historically has had an acute disease focus, but there are now many effective strategies for preventing and managing chronic disease. How to achieve a shift in medical education away from its focus on acute disease is under-researched (Malterud 2001a; Nair & Finucane 2003; Ponzer 1996; Ponzer et al. 1996). Chronic disease management requires different skills from acute disease management (Nair & Finucane 2003).

A shift to outcomes focus is considered inherent to CBT (Smith 1999) and serving time in such training is de-emphasised. Shorter training that is based around the principles of CBT might improve the efficiency of medical training for medical work (Berende et al. 2009). Ideally, graduates could have a skill set targeted towards chronic disease and also graduate at a younger age.

The question here is whether changes in practice and training ought to occur. Ponzer et al. (1996) point out that even acute disease outcomes are affected by social circumstances that are conventionally only talked about in relation to chronic disease. Such convention reduces the effectiveness of acute treatment.

Calls for increased attention to chronic disease are frequent. The difference between the delivery of community health care and teaching hospital health care is well understood, for instance as shown in the famous Kerr's cube, Figure 2-6 below.



**Figure 2-6: The 'ecology of medical care' cube**

This distribution of illness, likely to be applicable in Australian ophthalmology, demonstrates the potential importance of teaching for practice outside a teaching hospital.

## 2.5.2 Learning about chronic disease

Outpatient department teaching is often mooted as a teaching site for chronic disease management (Irby 1995; Kenny 2003; Foucault 1981). Clinical practice is a form of situated action. In the present discussion about outpatients, the situated action occurs in a particular area of the teaching hospital that has traditionally been marginalised from inpatient care; yet because outpatient care is far closer to community care, it is becoming recognised as crucial to teaching chronic disease management.

Figure 2-6 above presents the famous Kerr White cube from the health services literature. Australian teaching hospitals would be represented in the 'university medical centre' seen in the lower right hand corner of this American diagram. The chance that an individual is seen in an outpatient clinic of a teaching hospital is 1/250 of the chance that they will see a community specialist (White 1961 in DeFries 1997; Glanz 2000:389). This cube represents an ecological approach to health in health services delivery. Feinstein shows that the problem goes further than this simple matter of prevalence. The spectrum of disease is different, with the average case in the community being also of lower complexity (Ransohoff & Feinstein 1978). Again, this makes outpatient care more similar to community care than hospital inpatient care, a form of bias known as referral filter bias (Feinstein 1985).

Chronic disease requires a different skill set from acute disease (Irby 1995; Holman 2004). What is not so established is whether and how those learning from experts in acute disease will learn chronic disease management. The literature in fact suggests that this will be a difficult transition, because of the culture of heroism and heroic identity formation for doctors (Becker et al. 1961). In their classic study *Boys in White* Becker et al. conducted ethnographic work with medical students, and identified what they termed 'clinical responsibility'. This sense of responsibility excluded patients with particular diseases, and a hierarchy of prestige of medical conditions suffered by patients existed.

Patients suffering from conditions low in prestige were termed 'crocks' by the students. Although their problems were common medical presentations, crocks were seen by students as wasting students' time: they were garrulous, had no clinical signs and were dismissed by consultants as non-teaching cases. Becker et al.'s study was performed more than three decades ago and with medical students rather than postgraduate doctors. Furthermore, research in the 1980s and 1990s into strategies to provide better care to patients that might be termed 'crocks' or 'heart sink patients' (O'Dowd 1988) is sufficiently well developed to provide checklists for general practitioner registrars in managing such patients better. Even so, a body of research has shown that doctors still label patients as crocks, and regard patients as having conditions of higher and lower prestige (Album & Westin 2008).

The disadvantages of this state of affairs for the patients are now also well documented (Malterud & Hollnagel 1999; Werner & Malterud 2003). The methodology for researching such situations in clinical medicine has also been provided (Malterud 2001a). Calls by researchers to explore the management of medically unexplained disease, particularly in women, exist. Along with the growing recognition of the importance of chronic disease strategies, there is an enlarging awareness that good professional practice includes not simply

the diagnosis and treatment of disease, but also the recognition of the personhood of the patient, and the role that the patient can play in the management of their own chronic illness.

This research has extended as far as ‘sicca’, a synonym for dry eye, short for ‘keratoconjunctivitis sicca’, in the rheumatological literature (Malterud 1999; Malterud 2000) but its importance has not been recognised in the ophthalmic literature thus far. Strategies to care for them have already been identified in the literature, so it is important for ophthalmic medical educators to include management of medically unexplained conditions in their repertoire of skills. This is because patients with such conditions are prevalent, treatable and frequent attenders at hospital outpatients. How such educational change might occur is under-addressed in the ophthalmic literature and in the literature about dry eye in particular. There is useful research about medically unexplained neuro-ophthalmic conditions in relation to prognosis (Griffiths & Eddyshaw 2004), but the educational implications have not been equally researched.

Ophthalmology clinical training is largely based in public hospital outpatients departments. An alternative statement of the case is that outpatient sites are a place where medical discourse has been demonstrated to construct a patient as an ‘other’, reducing their ability to request the care they need (Wodak 1996:179). Myths have been identified that doctors believe there can be no change in the way things are done, and patients are stereotyped rather than seen in their full humanity:

***It is important to realise that the outpatients ward has a very low status and prestige in relation to the hospital. It is a type of outpost that, among other things, serves as a training ground for young doctors, which results in inexperienced insiders working where experienced ones are arguably the most necessary. Hierarchy, knowledge, experience and gender are interlinked in a strange and unique way in the outpatients ward. Inefficiency, bad organisation and bad training are disguised by the propagation of myth. A myth of collective knowledge exists, yet the reality is of insiders and outsiders. Stereotypes emerge: doctors never have enough time, they are never wrong, and there is simply no better way of doing things. (Wodak 1996:179)***

Since ophthalmology is a more outpatient based specialty than many others, it seems important to clarify just what is going on when teaching ophthalmology in an outpatient setting. If outpatient clinics are well-placed to teach chronic disease, educators can focus their attention on the content of teaching and perhaps enhance such issues as the continuity of the patient care by trainees in the outpatient teaching setting. If the outpatient milieu is governed by myths that might teach attitudes adverse to good outcomes in ophthalmic care, because of the community of practice’s values and norms, then that matter ought to be addressed first, before simply instituting strategies that might improve the effectiveness of transmitting those values and norms. It is the purpose of this study to shed some light on this question.

A further development in the calls for increased responsiveness to societal needs as a feature of professionalism is the call for increased attention to outpatient teaching in teaching hospitals. On the one hand this might lead to the effect of good skills in chronic disease management, on the other, because there is less ward based training than other specialities, chronic disease might be under served. There is contrary evidence about this point (Kenny 2003). Ophthalmology is an outpatient based speciality and yet its unique features have not been capitalised on to explore teaching in outpatients and its relationship to chronic disease management in general.

### 2.5.3 Including women

The World Health Organisation through its Gender, Women and Health department has identified the health effects of gender differences, and has recently developed specific tools to support health services to address the health outcomes that arise from gender and health inequities, including *Human Rights and Gender Equality in Health Sector Strategies: A tool to assess policy coherence* (WHO 2011)<sup>1</sup>. The goal of the WHO department is to create, sustain and support evidence-based policies and programs to achieve gender equality, health equity and improve women's health. Medical curriculum must also take account of gender differences if it is to address one of the major social determinants of health in the twenty-first century.

All forms of curriculum are manifestations of the wider cultural context in which 'teaching, learning and communication' take place (Eraut 1976). Although multiple cultural influences are at play, there is a strong view that some of medicine's dominant aspects are nevertheless 'mono-cultural' or culturally constrained (Hak 1999).

One aspect of the medical culture is its gender composition and the cultural influences of gender on curriculum. For several hundred years the form of training for clinical medicine has been apprenticeship based, dominantly influenced by a masculine culture, and doctors have overwhelmingly been men. The question here is what happens to this curriculum form when considerable numbers of women enter as teachers and students.

Wainer has identified how important it is to identify how women fit with medicine, how women are changing medicine and how gender relations can be best used to therapeutic effect in patient–doctor encounters in medicine (Wainer 2005). Since two thirds of the world's blind are female, and gender plays a complex role in eye conditions, gender applies specifically also to ophthalmology patients as well as doctors.

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<sup>1</sup> WHO (2011) [www.who.int/gender](http://www.who.int/gender) Accessed 31st May 31st 2011

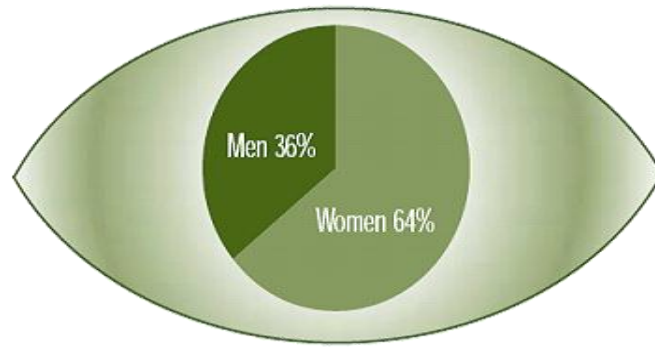


Despite the existence of women as doctors for more than a century, there is frequent talk of so-called ‘feminisation’ of medical culture, along with a ‘fear of tipping’ arising from the large proportional increases of women in many areas of medical practice in the last twenty years (Lorber 1993:65; Lo Sasso et al. 2011). This ‘fear of tipping’ refers to anxiety among men, and some women, that the presence of women in large numbers in parts of the profession will lead to a reduction in status and income, as women are believed to be less driven by these values.

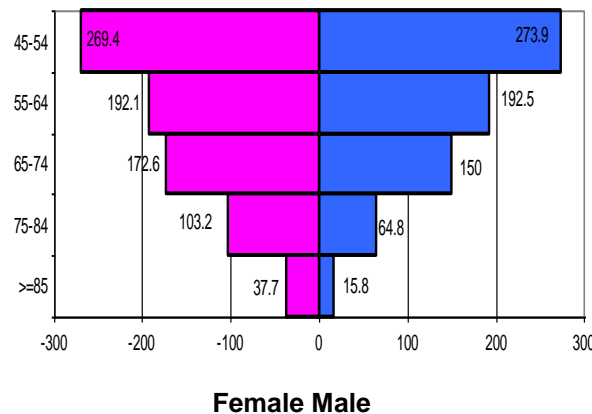
These factors make the relationship between any dominance of the apprenticeship form and gender a pressing issue for educators. Missing from history is the recognition of the impact of the exclusion of women from significant areas of medical culture identified by Wainer, such as knowledge making and professional policy making, including curriculum policy development within medical colleges (2005).

The next topic in this literature then is the influence of gender on curriculum. In order to discuss this, definitions of sex, gender, gender analysis and gender equality were required. An explanatory list of such terms is included at the beginning of the thesis. Sex and gender are strong socio-cultural and biological determinants of health (Astbury 1996; Doyal 2001; WHO 2011). It is important to note that generalisations about gender are both useful and problematic, that gender ‘traps’ men as well as women (Quadrio 2001), and that the term equity differs from equality (Mooney 1992).

Both men and women experience gendered advantages and disadvantages in their health status. The simplest way of elaborating this point is to say that within gender-disaggregated statistics in ophthalmology, there are many examples in which men are over-represented as a result of gender expectations of masculinity, such as in occupational eye injury statistics, and women are over-represented due to their experiences of powerlessness. Eye health statistics show that 64 per cent of the proportion of global blindness is in women, shown in Figure 2-7 below, from Abou-Gareeb et al. 2001. This is largely due to cataracts, and is related to women’s relative longevity compared to men (Australian Bureau of Statistics [ABS] 2005) as shown in Figure 2-8, the Victorian population age-sex pyramid of cataract prevalence. The explanation for the gender differential is lesser access to resources and decision-making authority within a family required to access care (WHO Commission on Social Determinants of Health 2007; McCarty et al. 1999; Carlsson & Sjostrand 1996).



**Figure 2-7: Burden of blindness in men and women**



**Figure 2-8: Victorian population age-sex pyramid**

Some theoretical contributions to the topic of women, teaching and learning come from feminist curriculum theorists. Jipson has identified that teaching itself poses a conflict for women: ‘To become a teacher—women’s true profession—was to continually struggle to negotiate a contradictory identity’ (Jipson 1995).

Professional identity is defined as ‘the possession of clear and stable pictures of one’s goals, interest, personality and talents’ (Henry 1996:844). Women as teachers face considerable dilemmas in adopting and perpetuating curriculum forms that may be gendered in ways that sit uneasily with their own personal view of the world (hooks 2003). A teacher’s own ‘picture’ of herself may not be a stable one, in that the curriculum form she practices may involve goals quite divergent from her personally held values. This divergence includes a conflict and leads to challenges to the stability of her professional identity.

Even within the profession, being a teacher theoretically poses an inherent contradiction for women. Women doctors are required to teach and women students are required to learn curriculum that makes women’s knowledge invisible (Wainer 2005). The key challenge is

that professions must create conditions such that ‘women are in a position where meaning is constructed not simply discovered’ (Alcoff 1989 in Jipson et al. 1995:5).

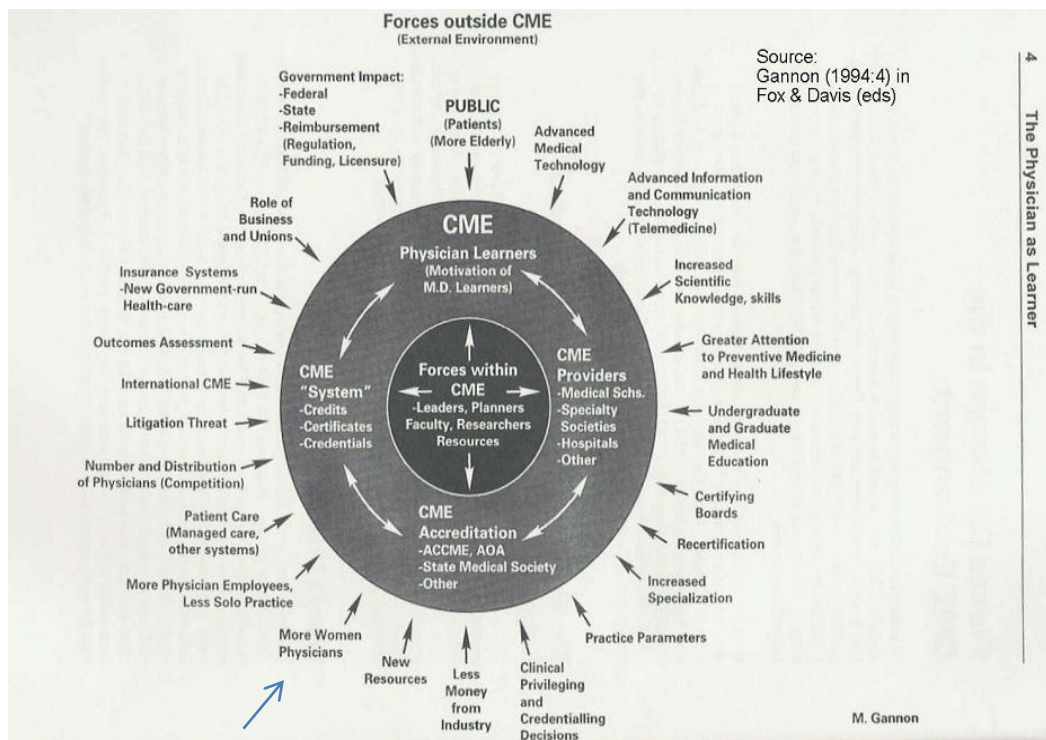
The extensive body of knowledge on the gender-culture intersect expands on this point about instability. In particular, women as teachers and supervisors of training face dilemmas in choosing whether to participate in curriculum traditions, academic leadership, and class struggles, which relate to social hierarchies at large.

Gender competence is part of the medical educational policy environment (WHO 2006; [www.who.int/gender/en/](http://www.who.int/gender/en/); [genderandhealth.ca](http://genderandhealth.ca); [www.gendermedicine.org](http://www.gendermedicine.org)). While a teaching curriculum in general ought to be critiqued with a gender lens, such criticism of the medical curriculum is particularly important because of its potential beneficial impact on health provider education on women’s and men’s health (Zelek, Phillips & Lefebvre 1997; Wainer & Nobelius 2002). Gender inequalities in eye health and eye health care might be addressed through a gender competent curriculum. The hidden curriculum can be conceptualised as a border zone, and gender is one aspect of the hidden curriculum.

Gender affects curriculum leadership, and curriculum leaders make wide-reaching decisions in medical colleges. It is noted that ‘the collegiate culture is to honour elder statesmen rather than to make demands on them’ (Gabb 1998:227), with no thought that those needing honouring might not be ‘statesmen’ or gentlemen.

Curriculum may be gendered in many other ways. This study explores some of the ways curriculum may be gendered to the disadvantage of both men and women, but in particular, ways that affect female ophthalmologists, female ophthalmologists who teach, female patients and female postgraduate ophthalmic trainees.

One question at issue in this research is how ophthalmic knowledge is created and taught by women ophthalmologists and trainees. Women’s place in medicine is still considered peripheral, as shown in Figure 2-9 below. In this Figure from Davis and Fox (1994:4), women are constructed as one of the forces that are outside continuing medical education. Women’s place in medical education may be even more marginalised. The item ‘more women physicians’ appears as part of the external environment of continuing medical education, rather than being treated as colleagues and teachers, insiders to the profession.



**Figure 2-9: 'More women physicians' constructed outside medical education**

Constructing women only as part of the external environment is in keeping with the tradition that women's very legitimacy as full members of communities of practice in paid work is problematic to organisational life in the professions. An extreme view is that women exist as an occasion for 'mediation, transaction, transition, transference between man and his fellow man, indeed between man and himself' (Gambrell 1997:194).

The question 'What would happen if women refused to go to 'market'?' can be asked in medicine, as it is asked elsewhere (Gambrell 1997). Change occurs when 'the sharply delineated limits of women's intellectual affiliations' of before, enlarge (Gambrell 1997:194). Women in medicine do demonstrate locally that women already make connections with one another as well as with mainstream medicine. While it is possible to practice feminist pedagogy within medicine, the lack of 'unfettered self-inventedness' (Gambrell 1997:194) is broadly featured in the history of women in education at large (Phillips, Zelek & Lefevre 1997; Wear 2007; Quadrio 2001; Wainer 2005; Wainer, Nobelius & Colville 2002). Fortunately, both women and men in education can practise feminist pedagogy (Quadrio 2001).

Although the view is questioned (Quadrio 2001; Pringle 1998; Lorber 1984; Saltman 1995), medicine's official view is that gender is not an issue in medical education or in medicine (Sinclair 1998). Silencing of difference, however, is known to occur where there are mismatches between professional identity and personal identity. What is not so researched is

the effect of such a mismatch in postgraduate training, where the apprenticeship model comes from a male-oriented historical frame. Pringle studied men and women doctors in Australia using in-depth interviews and found that women doctors described conflict between their personal identity and the proposed professional identity for them as doctors (Pringle 1998). Pringle's study concluded that professional identity was affected profoundly by gender, but that useful strategies were underused because of a denial of difference. There was under recognition of gender as a determinant in postgraduate training.

Pringle also found that young doctors actively pursued looking and acting the part of a young keen surgical registrar since this induced senior colleagues around them to teach them preparatory skills for entering surgery, and to encourage those who could play this part to pursue a surgical career. It is not known if this applies also to ophthalmology since, as Pringle points out, there are some cultural differences between mainstream surgery and ophthalmology that place ophthalmology as more 'physicianly' than surgical in some respects (Pringle 1998).

Because it is important that the workforce is trained in the most effective way and that all capable potential trainees are considered for selection into ophthalmology, it is also important to explore ophthalmologist training to characterise the criteria of effective teaching and learning exchange on both sides, that of trainee, and of trainer. The complex issues of gender and medicine are explored in this case study of ophthalmic education and training where they are relevant to curriculum form.

#### **2.5.4 Training time flexibility**

A third motive behind the introduction of CBT was to provide shorter and more flexible training. In medical work, flexible and shorter training may contribute to achieving the goals of the European directive for work hours, and the safe working hours, and the 'safe working hours' policies for doctors in Australia (Sutherland 2007; Long 2000).

Training programs in Australia currently tend to lengthen rather than shorten (or stay constant) in duration, so the situation known in education as academic inflation is a feature of Australian postgraduate medical education at large (Medical Training Review Panel 1997). This study investigates the problem of flexibility in relation to time-based training and gender.

## 2.6 Is change possible?

Careful change management is essential to the successful implementation of any curriculum change, including CBT. Research is needed into how to accomplish this and, particularly, how to do this when medical education is based around outpatient teaching. According to its originators CBT is no less than a 'paradigm shift' and therefore is in need of deliberate and case-specific change management strategies. Despite the best intentions of local medical educators, successful introduction of CBT into a postgraduate training body's existing program is said not to occur without an active change management program (Frank, Danoff & RCPSC 2007).

Can change occur? Change has occurred in the past, including the introduction of problem-based learning (PBL) in undergraduate medical education in Australia. The management of chronic disease was a weakness in previous educational models and an increased representation of chronic disease in the problems that are used to teach medical students in a problem-based learning curriculum has the potential to improve chronic disease skills in medical graduates (Nair & Finucane 2002). Complexity based strategies have demonstrated the capacity for change in medical education in medical schools (Bloom 1995; Roter 2000; Duffy 2006).

Patient centred care has been a focus of change in medical education also, but not in ophthalmology. The low prestige chronic conditions in ophthalmology tend to be less researched because they are not blinding conditions. They are nevertheless common, and a frequent reason why patients require health care long term.

Although activity theory based research into medical practice change around outpatient care delivery has been productive (Engeström 1999) it has not been applied specifically to any conditions except the specific instance of chronic illness in children. It is pointed out in the literature that Lave and Wenger's theory of apprenticeship largely fails to explain how change will occur (Fuller et al. 2005). How newcomers may alter the profession itself through bringing their own life experiences to the community of practice is also under theorised (Fuller et al. 2005), although examples are provided in the work done by Wainer (2005).

Flexner is credited with achieving a major change to modern medical education in 1910. Since then numerous innovations have been attempted, but the apprenticeship system persists to this day. It is under attack, but there is no adequate replacement proposed that has had the gravitas to displace apprenticeship. In order to ensure a future of good medical education, it is important to identify the strengths and weaknesses of current systems of training. Theoretical work on change proposes that it is contradictions felt by practitioners that is an important

driver for change (Engeström 1987). While this work has theoretical strengths, it is important to identify what specific contradictions are felt by practitioners in relation to medical education itself, and to identify how plausible it is that these contradictions might be the harbinger of important changes to medical education. There is theoretical work that would suggest that such medical education research would be sparse, and it is indeed rarely performed. Nevertheless it seems important to explore this because the present system is believed to be under threat (Paltridge 2006).

### **2.6.1 Expansive potential**

Tools to identify potentials for change exist in the realms of discourse analysis to identify contradictions and myths, which themselves can be drivers for change (Wodak 1996). The tools allow expansive potential and, thus, allow curriculum change (Engeström 1987; Engeström 1998).

Biomedicine's basis in decontextualising the disease from the patient may be both the fundamental driver of the teaching hospital (Foucault 1984) and the fundamental driver of biomedicine's limited effectiveness against population eye disease (Hak 1999:428). The practice-based nature of apprenticeship training may be the fundamental reason why changes in outcomes may be difficult to achieve (Lave & Wenger 1991). Replication of existing work practices is the focus of work-based learning. The learner is not the focus in apprenticeship-based training in the workplace. Apprenticeship learning fundamentally rests on stifling of critique among trainees. This has been named as the 'curriculum of deferral' (Lee 1996:223).

Acceptance of the authority of the master is a premise that underpins apprenticeship learning (Lee 1996). Change occurs in the workplace using affordances both material (Fenwick 2010; Vygotsky 1930) and conceptual, such as the conceptualisations of practice (Engeström 1999; Star 1998). Contradictions felt by practitioners are the harbingers of workplace change and, as such, have 'expansive potential'. Learning that arises from such contradictions can be institutional or individual (Engeström 1999). When change is occurring, and when further change is called for, it is imperative that contradictions recognised in existing settings are identified as a clue to possible change.

### **2.6.2 Change through contradiction**

Contradictions are clues to potential areas of organisational change. In some instances, contradictions can be identified in a medical culture in sufficient detail so as to enact change in teaching hospital practice, for example around chronic disease (Engeström 1991). Such identification is a step towards what he calls 'expansive' learning by an organisation:

***The internal contradictions of its given activity system in a given phase of its evolution can be more or less adequately identified, and any model for [the] future which does not address and solve those contradictions will eventually turn out to be non-expansive. (Engeström 1991a:14–15)***

Contradictions within an organisation are an important predictor of potential expansion, development and change in that organisation's functioning in the future. Engeström called the processes of such expansion, development and change, 'expansive cycles'. Internal contradictions are the precursors of expansive cycles. Although they cannot definitively predict the future, expansive cycles are not arbitrary.

***From the viewpoint of historicity, the key feature of expansive cycles is that they are definitely not predetermined courses of one-dimensional development. What is more advanced, 'which way is up', cannot be decided using externally given fixed yardsticks. Those decisions are made locally, within the expansive cycles themselves, under conditions of uncertainty and intensive search. Yet they are not arbitrary decisions. (Engeström 1991a:14–15)***

Ophthalmic training and practice satisfy Engeström's criteria for an activity system, a 'multi-voiced formation' (Engeström 1991). 'Internal contradictions' are manifestations internal to the organisation that demonstrate that the activity system is a multi-voiced formation. The history of medical education identifies the contradictions that come from the dilemmas involved in the reliance on the scientific method as the basis for clinical medicine, and the hospital setting as virtually precluding chronic and preventive health-care training (Hak 1999).

### **2.6.3 Tensions, myths and change**

Two important ideas about potential change are present in the literature. The first is the notion of 'felt tension' (Margetson 1991:43). The second is about myths and contradictions (Wodak 1996). Campbell is the best known writer in the Western tradition about the ways in which cultural myths provide clues to the ideological contradictions with which any culture is grappling (Campbell 1964).

According to Mann, it is the difference between theory and practice that will bring about change (Mann 2011). Trigwell et al. (1997) argue that changing teachers' conceptions of teaching is a place to start in changing practice since teachers' conceptions of teaching influence students' learning. Grounded locally in curriculum practices, curriculum is at the same time an enduring term, yet a contested zone, where the relations between theory and practice are important and fluid. Teachers develop professionally over their career and from time to time potentially major changes are experienced. The research may find that the movement to encourage ophthalmic teachers to think about CBT, for instance, may be inducing what Margetson calls 'felt tension':

***Teachers on the whole tend ... to employ their implicit conceptions...of training, therefore, when something challenges the conception, as 'problem-based learning (or any other educational innovation)***



*does, the conflict between implicit conception and an explicit alternative is experienced (more) as a 'felt tension' than as a clearly articulated set of ...reasoned considerations. (Margetson 1991:43)*

It is not known whether CBT or complexity based models will raise any felt tensions in ophthalmologists. However, it seems important to explore this possibility, as is done in this study, because of the relationship between felt tension and challenges to existing conceptions of learning and notions of retention and recruitment of ophthalmologist-teachers.

In relation to gender, this felt tension may be experienced as 'vague annoyances' by those trained in feminist thought. This felt tension leads to attempted self-examination, which can lead to further felt tension. As McGuire states:

*Feminism has taught me to pay attention to my vague annoyances. What is [participatory action] research suggesting we emancipate ourselves from and transform[ing] ourselves and structures into? Without an intentional space for a multiplicity of voices and visions explicitly including feminism/s, just what kinds of worlds would [participatory] research have us create? Put another way, can any [participatory] research effort and its advocates, real human beings, be considered emancipatory if leaving unchallenged and intact gender relations and the host of systems and structures that sustain them? (Maguire 1996)*

Wodak (1996) discusses how changes have occurred as a result of identifying myths in outpatients through discourse analysis of outpatients in Vienna. Myths are powerful and part of a hidden curriculum and Print (1994:14) notes that this hidden curriculum can be made more explicit through research and other strategies.

## 2.6.4 Teachers and change

Teacher training in medicine is inextricably bound to training for clinical practice in the workplace. As Haidet and Stein (2006) put it 'as we train doctors we are also training teachers'. In addition:

*Most medical students, at some time in their training, will be told about the parallel meanings of the words 'teacher' and 'physician'. In a sense, we teachers are participating in the formation of not only diagnosticians or problem-solvers, but educators as well. (Haidet & Stein 2006)*

It is not only as teachers of patients that doctors are training, it is also as teachers of one another. The medical curriculum is taught by medical teachers. In the case of ophthalmology, the teachers are experienced ophthalmic practitioners. While good clinical skills are considered a prerequisite to teaching, teachers are distinguished from good or experienced clinical practitioners by their training roles, such as a supervisor of training or a clinical tutor in a teaching hospital. It is acknowledged that there are those who teach special courses or take on some special roles in retirement outside these locations; however, for this research ophthalmologist-teachers are defined as those ophthalmologists on staff at teaching hospitals where 'eye registrars' are a part of their teaching.

It has been suggested that ophthalmologists do not consciously teach all the time, and yet, under the socio-cultural model and other models of workplace learning there is learning happening all the time, whether consciously or unwittingly. It is important to clarify how to construct the bridge between an old form of training and any new form of training, such as competency based training, and to take into account the non-obvious learning processes that occur.

Educational language itself would mean little to ophthalmologists in relation to the training with which they are involved at a teaching hospital. Even those medical educators who study education *per se* have difficulty making the translation from what they think is teaching and learning in wards, outpatients and operating theatre sites to a language that is in accord with curriculum derived from cognitive schools. Although cognitive-based educational theories appear (Schon 1983, 1987), there is little language provided in the medical literature for the tacit, informal learning in which they and their trainees participate for hours on end at work in the teaching hospital.

Any language that might be available from the socio-cultural schools of thought such as that of Lave and Wenger (1991) is, largely, yet to permeate into teaching hospitals. This is in part because it holds no theory of change (Unwin et al. 2007), but also because it fails to capture a sufficient number of the specifics of the situated learning that happens at teaching hospitals. For instance, it is quite difficult for doctors to make the connection between Liberian tailors cutting cloth (the subject of Lave and Wenger's study) and the delicate steps in teaching the use of a phacoemulsification machine in an operating theatre in Adelaide, Australia.

Nevertheless, theories of socio-cultural, activity theory and complexity theory appear richly informative to vocational contexts (Fenwick 2010). In addition recognition within the medical profession of any links between their lives and their vocational training seems to be low. Detailed contextualised studies of actual practice in teaching hospitals, such as this present study, could open the field to further scrutiny and refinement of training to improve its effectiveness.

Change management requires strategies for teacher development (Duffy 2006) yet teacher development is an under-theorised topic in medicine. Effective teacher development strategies are greatly assisted by a detailed knowledge of teacher's individual preferences in relation to curriculum form (Pratt et al. 2001). Asking about curriculum form in medicine, as is done in this thesis, is a way to ask about a model by which teacher development can happen. The curriculum form of complexity theory shows promise in assisting teacher development (Roter 2000; Cooper, Braye & Geyer 2004).

While policy-practice relations are always problematic, teachers have particular difficulty adapting their teaching in response to new forces that are perceived as coming from external sources (Jipson 1995). It is believed that only when teachers inwardly espouse new policy values do they alter their teaching practices according to policy pressures. Policy and practice are inseparable, and must be ‘thought together’ by vocational educators, rather than considered separately (Mulcahy 1998).

In conclusion, there is a lack of current research that critically explores empirical medical education data using the lens of vocational education theory. The key finding of this literature review is that as a branch of vocational education and training, medical education in the area of curriculum form appears under-theorised. Elite interviewing of medical specialists and discourse analysis is unusual in the medical research literature. The participants in this study could be particularly useful in informing the reader about what happens in a training system with sufficient resources in vocational education. There are arguments, for instance, that ophthalmology is simply upper-class plumbing, but with resources.

Socio-cultural theories of vocational education may be under-applied in postgraduate informal medical education. Theories that separate informal from formal learning are problematic because the two are inseparable and must be studied together. An apprenticeship curriculum may not be transparent and its details are not routinely described in the literature. Its features are not as readily accessible for scrutiny as might be expected, and it is a strength of this study that it might address this gap.

The available literature provides evidence that ophthalmologists are trained mainly in acute care in teaching hospitals, where significant obstacles exist to conducting the work of ophthalmic practice focusing on improved care of patients with chronic disease. Research that informs teaching in such circumstances is lacking. There is evidence that both competency based and apprenticeship based training influence ophthalmology, yet research on the need for change is rare. Theoretical predictions about the factors that enable change to occur, in work and in curriculum, appear to be limited in the current literature. Serious deficiencies of knowledge about the day-to-day meaning and about the manifestations of current medical education exist.

In Australia in 2011 it is essential to explore how surgical specialists in ophthalmology are trained. The next step needed in understanding the postgraduate education of ophthalmic surgeons is a case study focusing on how education is delivered and the opportunities for change. This study provides an in-depth exploration of how eye doctors are trained in Australia, examines the competing forms of medical education, identifies opportunities for

changes in curriculum structure, and explores ways forward in understanding this complex topic.

Chapter 3 is next. It describes the methodological literature for this study identified in the context of previous medical education research. The study focuses on providing a substantial expansion of data about the work base for ophthalmic practice from which to refine speculation about the issues identified as important in the above literature review.

# Chapter 3 Methods

This chapter describes the study's methodology, design and rationale, sampling procedures, ethical considerations, and the data analysis.

Methodology and methods can be thought about together. 'Methodology is a way of thinking about and studying social phenomena' whereas 'methods are techniques and procedures for gathering and analysing data' (Strauss & Corbin 2008:1). Methods constitute the operationalisation of the methodological principles.

## 3.1 Ontology and epistemology

In any study, there are three levels of conceptualisation about basic beliefs. They are called the 'metaphysics' of inquiry paradigms (Guba & Lincoln 1994:109). These levels are ontology, epistemology and methodology. Table 3-1 below summarises these conceptualisations for the purpose of this study.

The ontological position of the author of this dissertation is critical realism. Ophthalmic 'curriculum form', for instance, is an ontological device that legitimates ophthalmic knowledge and practice. The study methodology comprises discourse analysis, grounded theory, semiotic analysis and standpoint feminism.

Facts and findings are interpretations of reality. That the real world is knowable, yet at the same time is not precisely measurable, is an underpinning assumption of this research. This research is based on the belief that reality is observable and ascertainable to a partial, although not a full, extent. Reality is subject to interpretation, and findings can be labelled as 'probably' true (Guba & Lincoln 1994:110).

Such a viewpoint is described as taking a 'critical realist' position. This study can also be labelled as drawing on a postpositivist ontology because ideas and narrative that are open to interpretation make up its data (Guba & Lincoln 1994:110). Table 3-1 below outlines in more detail the approaches taken to the conduct of the study and the authors who have described the theory and methods used. Facts and findings are value-laden. They can never be neutral. It is this focus on power and value that warrants the word 'critical' to describe this study (Guba & Lincoln 1994:109).

As well as being a summary, Table 3-1 lists the approaches taken to the conduct of the study and their key authors. The epistemology on which the study rests is an interpretative one. It is

based in feminist theory, in a critical postpositivist tradition (Guba & Lincoln 1994:110). This research goes further than the belief that human beings perform actions and have thoughts that are based in symbolic interaction. Humans act with, and change, their surroundings in accord with the meanings that they attach to those surroundings (Guba & Lincoln 1994:108). As postpositivist work, the validity of this research rests on its persuasiveness and utility rather than on ‘proof’ (Guba & Lincoln 1994:108).

<b>Knowledge construction</b>	<b>This study’s conceptual location</b>	<b>Example</b>	<b>Theorists</b>
<b>Ontology and Epistemology</b>	Critical realism	Curriculum form is an ontological device to ‘realise’ what happens in any empiric example of teaching and learning	Denzin & Lincoln 1994
<b>Methodology</b>	Discourse analysis Grounded theory Standpoint feminism Semiotic analysis	Standpoint theory proposes that all inquiry comes from a position within the culture and there is no such thing as ‘objectivity’, which is an attempt to exert power	Harding 1991 Haraway 1991 Wodak 1996 Strauss & Corbin 2008 Kellehear 1993
<b>Methods / Study Design</b>	Qualitative, interpretative method Participant observation Document analysis In depth interviewing	Textual analysis that combined grounded theory, semiotic analysis and discourse analysis.	Denzin & Lincoln 1994 Neuman 1994 Minichiello et al. 1990
<b>Operationalisation</b>	Empirical case study	Post-graduate training of ophthalmologist in Australia and New Zealand	Yin 2003

**Table 3-1: Knowledge construction: The metaphysics of this study**

As well as being a summary, Table 3-1 lists the approaches taken to the conduct of the study and their key authors. The epistemology on which the study rests is an interpretative one. It is based in feminist theory, in a critical postpositivist tradition (Guba & Lincoln 1994:110). This research goes further than the belief that human beings perform actions and have thoughts that are based in symbolic interaction. Humans act with, and change, their surroundings in accord with the meanings that they attach to those surroundings (Guba & Lincoln 1994:108). As postpositivist work, the validity of this research rests on its persuasiveness and utility rather than on ‘proof’ (Guba & Lincoln 1994:108).

## 3.2 Methodology

This is a qualitative study, designed to discover what is really going on in the training of ophthalmologists, from the perspective of those involved in the training—the trainers and the trainees. Qualitative methodology is an appropriate way to conduct an exploratory investigation of phenomena of interest. It encompasses the methods necessary to study the lived experience of participants, and the social systems that participants inhabit (Miles & Huberman 1994).

A standpoint feminist approach is included in the research methodology (Harding 1991). The study combines standpoint with some elements of postmodernism (Haraway 1991; Olesen 1994:159). Standpoint theory proposes that the standpoint of anyone who is a member of the non-dominant group is always a particularly partial one. The point is not that the position is partial, but rather that partiality is true of all standpoints, including of course the standpoint of those who are traditionally dominant. Standpoint theory proposes further that social structures are seen more clearly by those lower in the social hierarchy than by those who are dominant because the experience of the non-dominant is at odds with the official tale about what is happening. This discordance makes people in non-dominant positions keen observers. They have to understand what is going on in order to survive, unlike people in dominant positions. Standpoint theory also makes clear that there can be no clear separation of researcher from the objects of research. What is seen and researched is always seen through the lens of the researcher and must inevitably be a result of the researcher's culture, values and ways of knowing the world. Objectivity, with this understanding, comes not from a spurious and unachievable distancing from the subject of research, but from transparency about the influence of the researcher's world view and the usefulness of the findings (Haraway 1991).

## 3.3 Study design

This study is a case study that draws on multiple qualitative data collection methods. The study was designed as an empirical case study using qualitative research based on data from participant observation, documents and interviews. The choice of ophthalmic curriculum was as an 'exemplifying case', and competency based training was treated as a new social technology.

***Much case study research takes place on what might be called the exemplifying case. Cases are often chosen not because they are extreme or unusual in some way but because they will provide a suitable context for certain research questions to be answered. As such they allow the researcher to examine key social processes. Thus, for example, a researcher may seek access to an organisation because it is known***

*to have implemented a new technology and wants to know what the impact of that new technology has been. The case ... provides an apt context. (Bryman 2004:51)*

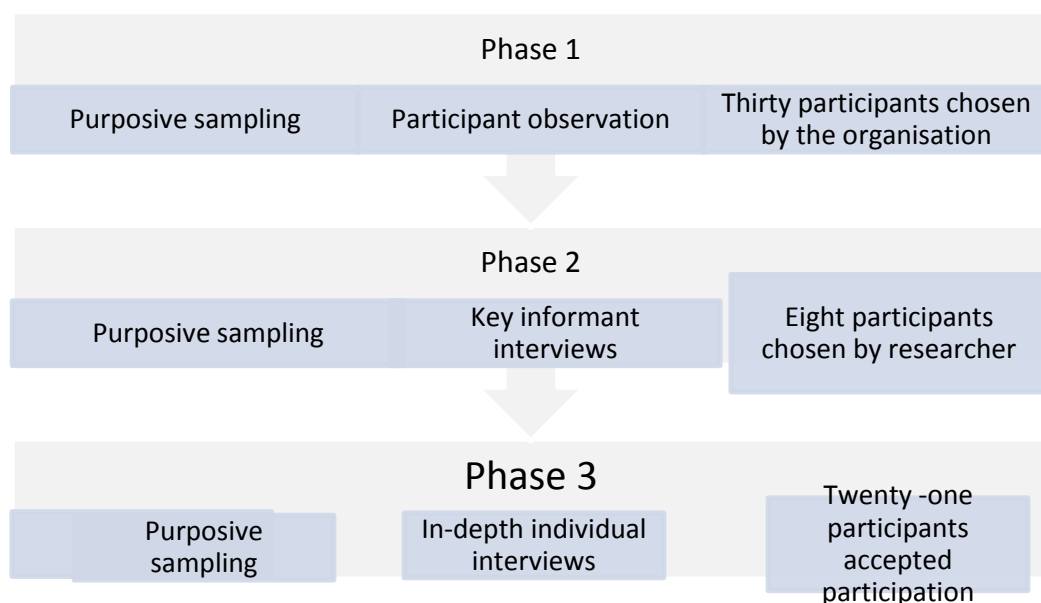
Data were analysed to identify ideology, epistemology of practice, and identity among ophthalmologist teachers and learners, as these factors related to curriculum form. The study was conducted in three phases, shown in overview below in Figure 3-1. The data were analysed using the qualitative methods of semiotic analysis, grounded theory and discourse analysis. These will be described in more detail below.

Each of the phases relies on different data collection strategies, iteratively derived. Each phase depended on the results of the previous phase. Methods of data analysis were a combination of grounded theory, semiotic analysis, and discourse analysis.

Participant observation was used in Phase 1 (Atkinson & Hammersley 1994:248). It was suitable because the data collection was of a naturally occurring event in the researcher's own organisation. The researcher was an invited participant at the curriculum review meeting as a College educator. Appendix 3-1 shows the letter of invitation sent to all participants by the College. Appendix 3-2 shows the covering letter sent to all intending participants at the curriculum review meeting. The advantage of using this design was that the researcher was able to use insider knowledge to check for gaps between the official view and the lived experience of curriculum. A disadvantage was that the researcher was an insider to the profession, subject to its group norms and peer pressures.

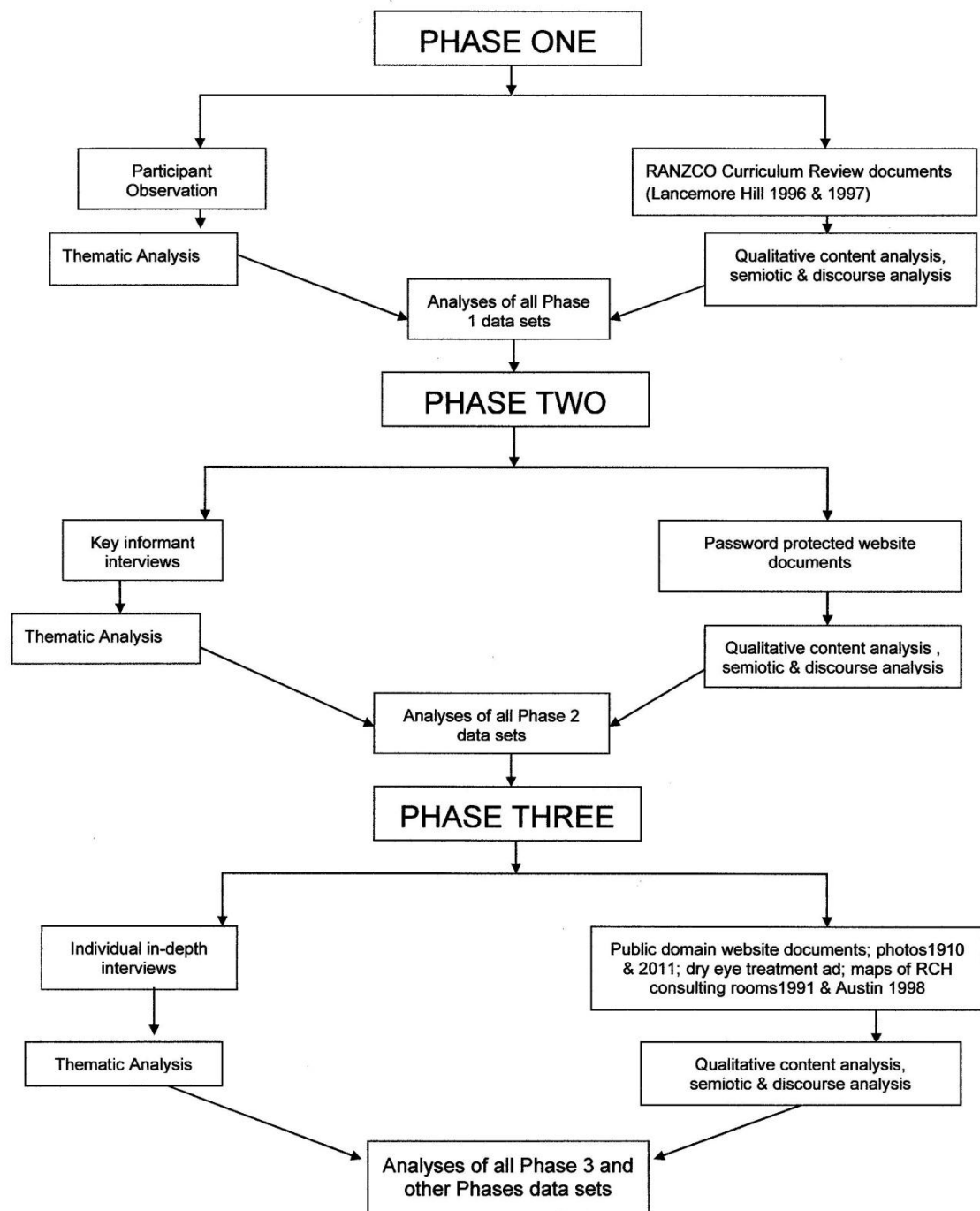
### 3.4 Sampling and recruitment

Figure 3-2 shows sampling and recruitment for each phase.



**Figure 3-1: Sampling and recruitment in the three phases**





**Figure 3-2: The study design**

All three phases used purposive sampling (Patton 1990:182). ‘The logic and power behind purposeful selection of informants is that the sample should be information rich’ (Morse 1994:229). Purposeful sampling is non-random and therefore not capable of statistical generalisation for the whole population. It enables the researcher to identify appropriate, information rich cases that will provide the desired characteristics to enable an in-depth,

comprehensive and sophisticated understanding and insight into the phenomenon being explored (Patton 1990; Minichiello et al. 2008). The purposes, rationales and outcomes of purposive sampling differed in the three Phases.

In Phase 1 the aim was to capture data from a naturally occurring event. This was a group discussion called a curriculum review meeting held by the organisation. The organisation was experiencing an educational problem with one of its examinations that required resolution through group discussion. The researcher was an examiner, and was invited to attend these two curriculum review meetings. Attendance at the first RACO curriculum review meeting in 1996 sparked the researcher's interest in researching competency based training in ophthalmology. She believed that the next meeting, booked for the following year was likely to provide a useful opportunity to obtain and record educational data. The researcher enrolled in the PhD and obtained Ethics Committee approval for data collection prior to the 1997 curriculum review meeting. The 1997 meeting was thus recorded for this research study.

The participants at that 1997 curriculum review meeting consisted of 30 members of the Royal Australian and New Zealand College of Ophthalmologists, including trainees. The participants came from both Australia and New Zealand, from rural and city training posts, and included male and female trainees. The participants were chosen by the College for their key roles in education in the College. This meeting was part of the College's evolution as an educational provider. It was a naturally occurring meeting that was a unique occasion for the College to review its curriculum. The vast majority of participants had held past or present roles as RANZCO examiners. The participant list was chosen by the College, not the researcher. Participants in this study were chosen on the basis that they were attendees at the College curriculum meeting. No other similar meetings occurred subsequently. Documents generated by the group were also collected as data.

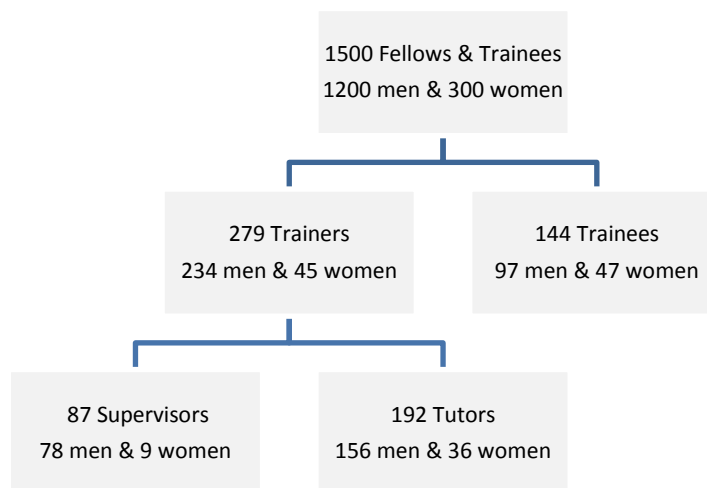
In Phase 2, eight key informants were chosen based on their enduring involvement in College training and for showing some interest in health advocacy during the curriculum review meetings. They agreed to participate in an in-depth individual interview. They were approached to participate because the researcher perceived them to be keen educators, with education seeming to be a primary engagement for them. The first interview was conducted with a participant from the 1996 meeting; the remaining seven were all present at the 1997 curriculum review meeting group discussion.

In Phase 3, 21 participants participated in an in-depth individual interview. These were all members of the ophthalmic community identified by the College as being either a trainer or a

trainee. The letter of invitation to potential participants is Appendix 3-3. Participants responding to the invitation were chosen simply by consecutive uptake. The participants included trainers and trainees, men and women, Australians and New Zealanders, and were from rural and city locations. Three male trainers selected for Phase 3 interviews had also participated in the curriculum review meeting in Phase 1.

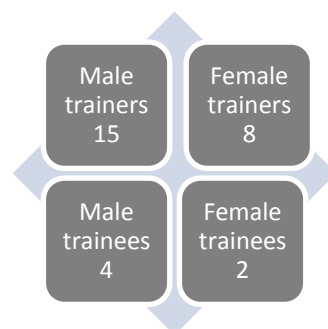
### 3.4.1 Sampling

The population pool, the recruitment strategy and the purposive sampling method are outlined here. In 2007, there were 1,500 members of the College of Ophthalmologists. Of these, there were 279 trainers and 144 trainees (Figure 3-3 below). In total, 20 per cent of all ophthalmologists and trainees combined are women. Fifteen per cent of trainers and 25 per cent of trainees are women. In the three phases in total, 48 members of the College participated in the study.



**Figure 3-3: Phase 3 Sampling frame**

Twenty-nine in-depth individual interviews were conducted. These comprised fifteen male trainers, four male trainees, eight female trainers and two female trainees. The individual interviews counts are shown in Figure 3-4 below.



**Figure 3-4: Phase 2 and 3: Twenty-nine in-depth interviews**

### 3.4.2 Recruitment

An individualised letter of invitation to participate in an interview in Phase 3 was distributed to 279 trainers and 144 trainees in Australia and New Zealand. The breakdown by country and sex was 284 Australian men, 83 Australian women, 47 New Zealand men, and nine New Zealand women. Table 3-2 below shows the breakdown of this mailing list by type of trainer and sex. Supervisors and tutors collectively comprise all trainers.

	<b>M</b>	<b>F</b>	<b>Totals</b>
<b>Supervisors</b>	78	9	87
<b>Tutors</b>	156	36	192
<b>Trainees</b>	97	47	144
<b>Totals</b>	331	92	423

**Table 3-2: Recruitment letter counts: Sex and career stage**

It seemed likely that ophthalmologists from each state and from New Zealand might be willing to participate because of sufficient numbers in each pool. Australia is a large country with a wide distribution of ophthalmologists. A note about the geographic span is relevant, as the participants were widely spread. This may surprise readers from the northern hemisphere so some detail is provided.

At the curriculum review meeting in Phase 1, there were participants from Perth, Queensland, Hobart and several cities in New Zealand, including Auckland. The distance from Perth, Australia to Auckland, New Zealand is more than 5,300 kilometres. By contrast, the distance from Melbourne, Australia to London, United Kingdom, is only 17,000 km.

The geographic spread of those delivering the curriculum is significant to this study because the social cohesion of the College overcomes considerable geographic challenges. Figure 3-5 below shows the comparative geography of Australia and New Zealand against the equivalent land mass of Europe. Each of France and Germany alone has 8,000 ophthalmologists, compared to the Australian and New Zealand's combined total of only 1500.

In Phase 3, ophthalmologists from most Australian states and both the North and South Islands of New Zealand contributed. The in-depth interviews included ophthalmologists from Perth, Brisbane, Melbourne in Australia and from as far from Perth as Auckland, New Zealand. These cities are spread across an area spanning more than 7,000 kilometres by 5,000 kilometres. This large spread of participants and the unfunded nature of the study

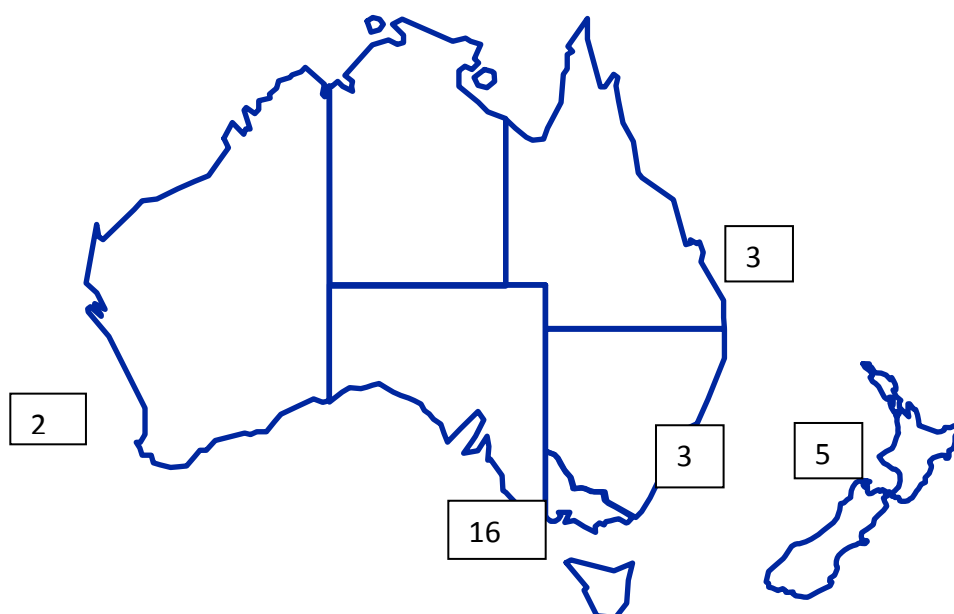
meant that telephone interviews were necessary to include participants from all states and New Zealand.



**Figure 3-5: Geographic size of Australia: Comparison with Europe**

In Phases 2 and 3 a combined total of 29 in-depth interviews were conducted. Above is a map of Australia and New Zealand participants' place of practice that shows the relevant numbers of study participants in Phases 2 and 3 combined in each Australian state, and in New Zealand (Figure 3-6). There were five participants from New Zealand and 24 from Australia. These included six trainees (two female and four male including one from New Zealand) and 23 trainers. Of the trainers, there were nine tutors and 14 supervisors. There were 19 men and ten women in total. There were seven female trainers, and 16 male trainers. Of the 14 supervisors, three were female. Despite significant numbers of female trainers in New Zealand, and that an interview with one New Zealand tutor was conducted, all the female supervisors in the study were Australian.

In Phase 3, Dillman's (2007:152) method was used to maximise the response rate to the recruitment letter. Dillman (2007) describes many manoeuvres that in their entirety significantly enhance response rates to any mail out seeking research participation. The approach is based on 'social exchange theory' (Dillman 2007:163) that predicts that an improved response rate will occur where the respondent feels they are being personally valued for their anticipated reply to the investigators.



**Figure 3-6: Phases 2 and 3 combined: Twenty-nine in-depth interview participants across Australia and New Zealand**

The eligibility criteria for trainers and trainees in Phase 3 are listed in Table 3-3 below.

The selection criteria included being able to take part in an interview face to face or by telephone.

---

**For trainers**

- Appointment to a teaching hospital in Australia as a consultant ophthalmologist, with a role in teaching registrars
- Available for interview
- Willing to undergo a semi-structured audio-taped telephone interview for one hour
- Willing to sign consent form

**For trainees**

- Appointed to the training program
  - Available for interview
  - Willing to undergo a semi-structured audio-taped interview for one hour
  - Willing to sign consent form
- 

**Table 3-3: Eligibility criteria for trainers and trainees**

Several related aspects of selection also applied. These are maximum variation sampling, theoretical sampling, oversampling of women, and sampling to theoretical saturation.

### 3.4.3 Response rates

In Phase 3 the response rate from a single mailing to each recipient was 30 per cent (150) over six months. One hundred potential interviewees responded by agreeing to participate in an interview and a further 50 replied and declined the invitation to participate. The returns

were classified into four groups: male trainers, female trainers, male trainees and female trainees.

The highest number and per cent of responses were from male trainees, the lowest number and per cent were from female trainees. While there are many possible explanations, the 'gender schema' theory (Bernstein 2007:39; Bem 1993) predicts differential rates of return depending on gender. Here, it seemed that the letter of invitation to participate spoke louder to male trainees than to female trainees. On reflection, the recruitment letter mentioned individual benefits explicitly, but contained only an implication of possible community benefit. Its exact wording was 'participating in this study will inform your own thinking about ophthalmic education'. Gender schema theory may explain the relatively lower return rate from females. 'Females will be persuaded by a community-oriented message, while males will be persuaded by a self-oriented message' (Bernstein 2007:39). It is predicted that women are more likely to respond if offered a chance that their personal efforts will benefit their community or group. Alternative strategies were then employed to recruit women into the study.

From those responders who replied offering to be contacted for an interview, the technique of maximum variation sampling was used. The primary factor influencing selection was variation rather than representativeness. This afforded a wider variety of views than would have emerged from proportional sampling. In other words the variation sought was with regard to being likely to voice contradictions about curriculum. This was because there is a theoretical justification for identifying contradictions, as these are clues to potential social change in curriculum. This was that instead of focusing on mainstream and established existing themes, the researcher focussed on gaining a sense of the themes at the margin of what counts as professional training. In keeping with the working definition of curriculum form in the research, the research question called for data about the implicit internal contradictions within curriculum, rather than overt mainstream themes of professional concern.

Twenty-one of the 100 ophthalmologists who provided positive replies to the single letter of invitation were interviewed. To the extent that the thesis was about gender, 'theoretical sampling' was used as a basis for the decision to obtain a representation of women trainers that was larger than their numerical proportion. Sampling to theoretical saturation was the main factor governing the sample size. Interviewing was carried out until the analysis

revealed the same themes repeatedly in the data and ended when a wide variety of views on the study themes had been obtained.

### **3.5 Ethics**

A full Human Research Ethics Committee review process was undertaken. Phase 1 and 2 were approved in combination on 31 July 1997 by the University of Melbourne Human Research Ethics Committee (Application number 97019, A and ED 3.81). The letter of approval for Phases 1 and 2 is attached as Appendix 3-4). Phase 3 was approved by Monash University under the title of 'Forms of Ophthalmic Curriculum' CF08/0304, 2008000109, dated 21 February 2007. The letter of approval is Appendix 3-5. The explanatory statement is appended (Appendix 3-6) and its associated attachment is Appendix 3-7. The consent forms are also appended. Appendix 3-8 is the consent form for Phases 1 and 2 from the University of Melbourne and Appendix 3-9 is the consent form for Phase 3 from Monash University. The College's approval to provide the contact details for the mail out for Phase 3 is also appended as Appendix 3-10.

For Phase 1 and 2, the study was classified as 'low risk'. For Phase 3, this study was classified as 'more than low risk'. Since the procedures for the two studies were little different, the different classifications appears to reflect a decade of maturation of the processes of the Ethics Committees, and possibly also the shift from one university to another.

Three reasons for this latter classification as 'more than low risk' are that potentially identifiable data were collected, the study involved in-depth interviews that can inadvertently cause distress or discomfort, and that the study involved a potentially vulnerable subgroup (trainees) within the professional community. Participation in an interview cannot simply be assumed to be harmless and both study phases involved interviews.

An ethical dilemma in Phase 3 study that involved recruitment and in-depth interviews with trainees was the matter of doubly vulnerable participants. The resolution of this dilemma is described here. Although participants all come from the same occupational community and they are all well-educated adults, the risk to trainees who participated seemed higher than the risk to trainers who participated. Trainees are dependent on the senior members of the profession for their ultimate graduation and livelihood and thus trainees thus constitute a vulnerable group. Potential risk to these trainees was minimised



by keeping their responses anonymous, as were all responses, in the presentation of the data.

In addition, trainees who might volunteer for the study could, theoretically, have been working with the researcher-as-trainer during the study. However, safeguards were in place because the researcher had ceased her role as supervisor by the time of this data collection. As a tutor-trainer, as distinct from a supervisor-trainer, the researcher was involved only as one of eight or more trainers at each of two hospital posts where she teaches.

### **3.6 Data collection**

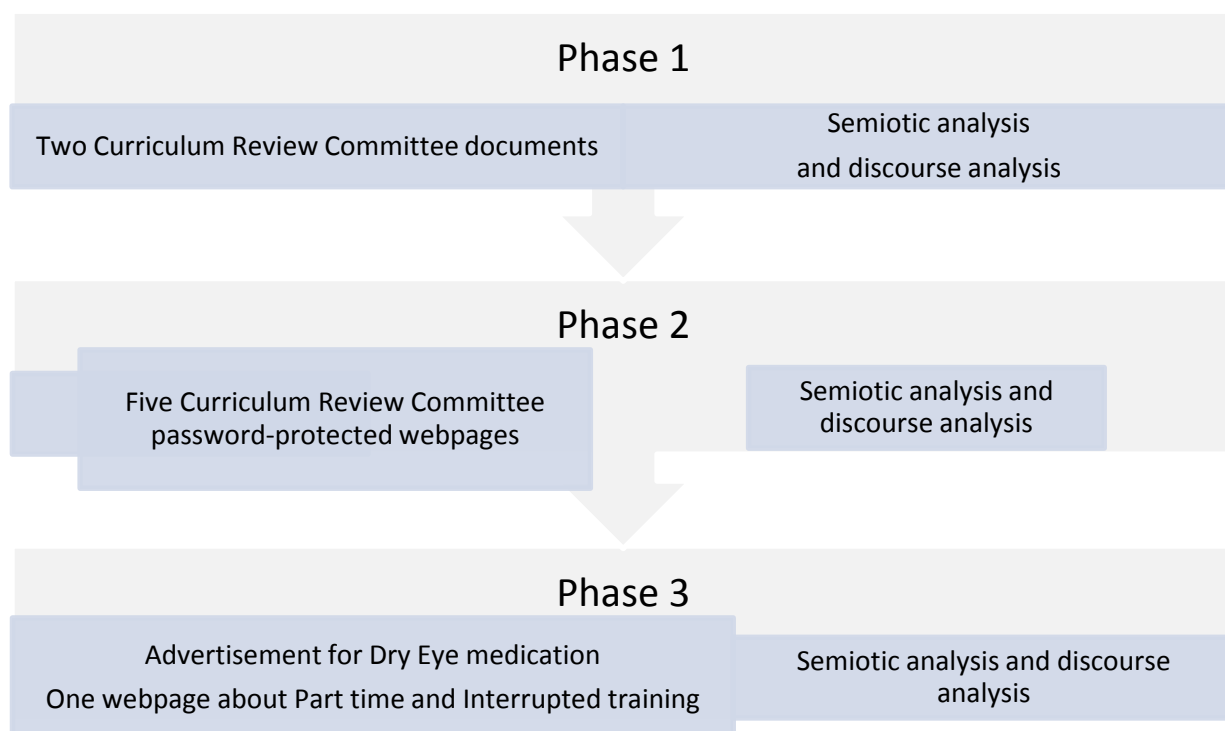
Data collection took place in each of the three phases of the study. Document analysis will be described here.

Documents cannot be regarded as providing objective accounts of any particular state of affairs. Rather, they require examination, and interrogation of other sources of data (Bryman 2004:388). In this instance they provide access to a group consensus reached on curriculum form. While the query of representativeness may be raised, it should be pointed out that these documents as official records of curriculum deliberations are accorded status on that basis. They form not only a historical record but also a plumb line for assessment of practice as meeting the laid out requirements of curriculum implementation and outcomes.

Examples are that in Phase 1, two Curriculum Review Committee documents were gathered and analysed. In Phase 2, five Curriculum Review Committee password-protected webpages were gathered and analysed. In Phase 3, a public domain webpage and an advertisement for dry eye medication in the College's journal were also collected and analysed, as shown in Figure 3-7 and Table 3-4 below.

All data were analysed using discourse analysis, and transcripts were analysed using thematic analysis and grounded theory. Document analysis used semiotic analysis. A summary of the documents analysed using semiotic analysis is found in Table 3-4.

The documents assembled for Phase 1 and 2 were two Curriculum Review Committee documents that were widely distributed, and five password-protected webpages from the RANZCO website that were only available to the Curriculum Review Committee, of which the researcher was a member. The curriculum review meeting was held at a place in Victoria, Australia called Lancemore Hill.



**Figure 3-7: Document analysis in the three Phases of the study**

Phase 1	Phase 2	Phase 3
Two Curriculum Review Committee documents, namely <ol style="list-style-type: none"> <li>1. Lancemore Hill 1996</li> <li>2. Lancemore Hill 1997</li> </ol>	Website x 5 pages password-protected downloads 2001	Competency Standards documents, for instance, Paediatric Ophthalmology Standards
		Social and Professional Responsibility Standards
		Public domain website downloads X 5
		Advertisement for dry eye medication
		Registrars' roster 2008 (personal communication)
		Age at graduation (personal communication)
		Webpage public domain AMA part time and interrupted training
		Photographs of clinical spaces. New RCH 2011, Austin Hospital, 1998, RCH 1991, Eye and Ear 1910. Floor maps
		Curriculum standards
		Log book

**Table 3-4: List of documents**

The two documents that were widely distributed among College members were called firstly the Lancemore Hill: 'Ophthalmologists for the New Millennium' Draft of 1996, and secondly the Lancemore Hill: 'Ophthalmologists for the New Millennium' Supplement to the Draft' of 1997, the latter containing the corresponding educational strategies to the 1996 document of competencies.

The documents assembled for Phase 3 were an advertisement for medication to treat dry eye contained in scientific journal of ophthalmology available in a hospital library and by subscription, and a public domain webpage belonging to the Australian Medical Association that compares part-time and interrupted postgraduate training between medical colleges. Further documents are listed with them in Table 3-4 above.

As is discussed in further detail later in this chapter, the form of thematic analysis used in this study known as grounded theory was performed on the transcript of the curriculum review and on the interview transcripts. Semiotic analysis was used only on documents. Discourse analysis was used on all the data forms.

In Phase 1 two forms of data collection were undertaken, participant observation at a curriculum review meeting and collection of official and internal College curriculum working party documents regarding the curriculum review meeting. In Phases 2 and 3 audio-recorded semi-structured in-depth interviews were conducted. The classic cyclical phases of reflective practice, namely Plan, Act, Observe and Reflect, were used iteratively to include documents in the study (Zuber-Skerritt 2001:15). Examples of the iterative data collection are summarised in Table 3-5 below.

### **3.6.1 Participant observation**

In order to investigate the participants' understandings of curriculum, in Phase 1 a group discussion was audio-recorded with the researcher present as participant observer.

The key principle was that the understandings of curriculum held by the individuals present in the group at the curriculum meeting were captured in context rather than reactively by the researcher. The group of informants was gathered together by the College to complete the specified task of curriculum review.

The difference between a group interview and a focus group session that occurred in this study was that the researcher was a bona fide member of the group and hence was able to act as a participant observer. This naturally arising example of formal institutional talk offered the opportunity to capture official institutional discourse about curriculum.

	DATA COLLECTED	RESEARCH METHOD	Plan	Act	Observe	Reflect
<b>Phase 1</b>	Transcript of audio-recorded curriculum review meeting discussion attended by 30 participants. Organisation's Curriculum Review Committee's Working Group documents.	Participant observation	<p>Researcher alerted to possibility of data collection opportunity through attending the 1996 curriculum review meeting. Enrolled in higher degree in education.</p> <p>Obtained Ethics Committee clearance for data collection prior to next curriculum review meeting to be held in 1997. Ethics approval granted for audio-recording of group discussion and for individual interviews.</p>	Data from 30 participants collected at the curriculum review meeting in 1997	<p>Data about competency based training ophthalmology was reviewed. A gap between the official and the lived experience was observed.</p> <p>Further data was required to complement the group discussion data.</p>	<p>Accepting the official view alone was unsatisfactory in explaining all the data.</p> <p>The interview schedule needed to focus participants' on both the official view and the lived experiences of doing health advocacy and teaching health advocacy.</p> <p>To explore the introduction of CBT as a new curriculum form, the status quo in curriculum needed to be understood better.</p>
<b>Phase 2</b>	Transcripts of 8 in-depth individual interviews.	Individual interviews	Interviews arranged.	Eight key informant interviews conducted in 2003	Opening an interview with public health themes did not elicit sufficient data about clinical practice or teaching of such practice to understand potential changes in ophthalmologists' curriculum.	Researcher recognised that the interview schedule needed to take into account talk about shared practice at work, and then teaching such practice. This might overcome barriers to discussing professional and educator roles.
<b>Phase 3</b>	Transcripts of 21 in-depth individual interviews.	Individual interviews	Ethics approval obtained. Interview schedule designed to take into account the primacy of talking about the work of clinical practice rather than talking primarily about teaching and learning.	Twenty-one interviews conducted in 2008	Competency based training is the official view, but traditions of apprenticeship training dominate.	<p>Barriers to discussing professional roles included in the results, in the chapter called 'Culture of no culture'.</p> <p>As is the way with qualitative research, the difficulties the researcher faced and overcame turned out, in themselves, to be valuable data for the study.</p> <p>Thesis produced.</p>

**Table 3-5: The iterative nature of the study**

The facilitator however was an external educator hired by the group to lead this engagement. During the course of the meeting, the facilitator casually reminded the participants that the researcher had a dual role at the meeting, that is, as both participant and researcher. Thus, the researcher was present as a contributor to the curriculum debates as a colleague and, at the same time, as a researcher. Audio recording the group's discussion provided textual data.

Participant observation skills, the capacity for insider research, and qualitative research interviewer skills, developed in tandem during the research.

### **3.6.2 Documents**

Three sets of documents formed the data available for analysis. In Phase 1, College documents were produced by participants from the first and second curriculum review transcripts that were not written by the researcher. These were analysed by the researcher as data in order to determine the official view of curriculum. Reactions to these documents elicited at interview were used to define the lived experience of curriculum.

Both these key documents resulted from the curriculum review deliberations. Also included in the data, in Phase 2, were several further documents, such as organisational diagrams created by a curriculum review committee. These were accessed and revised by participants from the curriculum review who were named the 'Curriculum Review Working Groups' by the College. The diagrams showed the modular structure that arose from the curriculum review deliberations (Curriculum Review Committee 1997–98:9–12). These documents were written over the two years following the curriculum review meeting in 1997 and were a result of the work carried out by the College's Curriculum Review Committee's Working Groups. These documents were analysed as data for manifestations of curriculum form. To seek more evidence about ophthalmic practice, an advertisement for dry eye treatment was included for document analysis in Phase 3.

### **3.6.3 Interviews**

In-depth interviews were conducted in Phases 2 and 3 and involved face-to-face or telephone encounters between researcher and informants. Individual in-depth interviews capture participants' own words and are directed towards understanding informant's perspectives on their 'lives, experiences or situations' (Minichiello et al 1990:68). This fitted the study's purpose of analysing participants' lived experiences of curriculum.

Typically, in-depth interviews are conducted by social scientists rather than natural scientists. Informants who are providing the data ‘answer back’, in this case with indications of the reality of the curriculum experience to that participant.

Curriculum form is a ‘social reality’, understood ontologically as such in this thesis as has been alluded to earlier in this chapter. Data obtained from an interview, unlike the data of natural science, is an indication of a social reality. Social reality is the observational field of the social scientist. It is what carries meaning for beings that are living, acting and thinking within it (Minichiello et al. 1990:68).

The pragmatics of the in-depth interview (Minichiello et al. 1990:61, 156) are important in their detail. In-depth interviews involve a number of decisions, most obviously about the choice of questions asked. Semi-structured interviews (Minichiello et al. 1990:68) involve both a structure and an opportunity to explore the personal views of the interviewee. The answers to the structured questions determine what happens next in the interview (Minichiello et al. 1990:65).

An interview schedule contains the list of initiating questions. Semi-structured interviews contain open-ended initiating questions with no pre-set response category. Such open-ended questions are useful in exploratory enquiry (Mitchell 1979:134). The participant is not restricted to a choice of pre-determined categories, but provides an answer of their own choosing. Semi-structured interview schedules also include some prompts for possible probing questions that explore the specific themes that emerge only during the interview in addition to the list of initiating questions. Although comparability of interviews within the study is reduced when a semi-structured form is used, semi-structured interviews carry the advantage of providing ‘a more valid explication of the informant’s perception of reality’ (Minichiello et al. 1990:65).

As the study was iterative, each Phase required a revised interview schedule which took account of the analyses of the data from the previous Phase. Appendix 3-11 shows the semi-structured interview schedule of Phase 2 of the study. The main questions in Phase 2’s interview schedule were about public health, teaching of public health, and teaching of the CanMEDS ‘Health advocate’ role, in that order.

In Phase 2, the researcher noticed that the participants disliked talking about public health except where clinical practice was introduced into the conversation prior. Once prompted about their own participation in any activities based around actual clinical practice, they provided ample data. The interview schedule of initiating questions for Phase 3, attached as Appendix 3-12, reflected this observation. Its initiating questions were predominantly about

practice. Additional questions about apprenticeship, curriculum, competency curriculum, as well as gender, demographic and the participant's own background, followed, in that order. This re-ordering worked. Ophthalmologists unsurprisingly found talking about clinical practice to be a much more comfortable interview topic than was public health.

The purpose of the interviews was to explore the scope and the breadth of the participants' understandings of curriculum form. Interviews were audiotaped, transcribed in detail, and analysed. The group discussion of 30 participants and 29 individual in-depth interviews comprise the major portion of the data in the entire study. The two data collection methods were complementary. The curriculum review group discussion presented the public, organisational face of the College's organised curriculum. By contrast, the individual in-depth interviews captured the more private understandings of curriculum, views held locally by practitioners and trainees.

### **3.6.4 Emerging interview skills**

Interview techniques build slowly and stepwise, interview experience by interview experience. The necessity to reflect upon each interview in building a picture of the curriculum form in this study highlights a key feature of in-depth interviews. The interviewer is the research instrument (Minichiello et al 2008). 'A good interviewer is an expert in the topic of the interview as well' (Kvale 1996). Two key considerations arise in qualitative research in relation to the interviewer. The first is recognising that the interviewer is the research instrument, and needs to be trained and practiced prior to entry into the field. The other is the need to distinguish between emic and etic approaches, otherwise known as the insider or outsider researchers' perspectives respectively.

Learning to ask better open-ended questions about curriculum proved a challenge for the researcher. This required making a transition from clinical interviewing with which the researcher was very familiar from more than three decades of experience as a practising clinician, to research interviewing with which the researcher had no prior experience.

Research interviewing required new skills. Refining this process took four months of fortnightly research interviews, audiotape review, supervisory meetings and transcription critique. The most successful achievement the researcher made in this context was the discovery and affirmation that asking about clinical practice was the key to eliciting comments about teaching from the participants. Once this point was taken into account, it proved successful time and time again in yielding useful information about the way in which participants perceived the ophthalmic curriculum. This point also raised a key element in the

thesis argument as to whether practice, rather than teaching, is the focus in the ophthalmic curriculum form.

### **3.7 Conducting the interview**

The conduct of the interviews was designed to emphasise professional collegiality while also taking advantage of a relaxed, informal tone that talking about education can provide.

Although sometimes the venue for an interview was formal, such as at a university's research department at a teaching hospital, most were conducted in places like private rooms, a quiet conference venue, or a cafe.

Detailed instructions from the participant about ensuring privacy and starting and finishing times requested by the interviewee were adhered to. When doing a face-to-face interview, the researcher dressed in accord with what was usually expected in the workplace.

Several ophthalmologists chose their own private consulting rooms as the venue for the interview and scheduled it at the end of their working day. A drink of tea or alcohol was offered to the researcher. This was symbolic of an implicit understanding between the researcher and the participant that having a drink of tea or alcohol was a common way of winding down from work before going home. It is a sign of a shared understanding that the interview process was not a patient care activity, but was nevertheless still a professional activity. The researcher was expected to accept the drink as a matter of course before beginning the interview. The researcher opted to consume alcohol out of politeness, but guardedly and only at the completion of the interview in order to maintain researcher professionalism.

The participants in this study interrupted the interviews frequently. Interruptions included mobile phone calls, a clinic staff member interrupting the doctor to ask a question, and a trainee at home being called away by his wife during the research interview by teleconference to read a bedtime story to his young children. One further interview was interrupted by a secretary clarifying booking details in order to make an interstate plane booking to attend a College education meeting interstate.

Every interview was disrupted in one way or another, even if only by a single phone call. These participants were people for whom an uninterrupted hour is unheard of in their work life, even out of routine working hours, and interviews conducted outside routine working hours were thus no exception. Although no participant requested it directly, to maintain privacy the researcher routinely ceased digital audio-recording during such interruptions, and



resumed this immediately afterwards until interview completion. The transcripts reflect these interruptions, with some loss of continuity.

### **3.7.1 Probing questions**

Probing questions are follow-up questions used after the initiating questions. Four types of probing questions—clarifying, hypothetical, nudging and mirror—were used in the study (Minichiello et al. 1990:89–92). Clarifying probes were used to explore what a participant meant. One instance was the use of the word ‘slave’ to describe life at work as a trainee. Simply repeating the single word ‘slave’ in a tone signalled that this was a topic of interest to the researcher. Hypothetical questions (Minichiello et al. 1990:90) were also helpful to elicit more detailed information. An example often used in the research was ‘Some people say that ophthalmic training is apprenticeship based. Does that sound right to you?’

Nudging probes (Minichiello et al. 1990:91) such as ‘How so?’ were also used. More specific nudging probes were also used on occasion. Finally, a reflective probe strategy, the ‘mirror (or summary) question’ (Minichiello 1990:92) was often useful. The researcher paraphrased the participant in asking a question of the participant. An example was ‘So you think there’s an argument for the universities taking over training?’

### **3.7.2 Listening analytically**

Interviewing is often referred to as an art, not a science. During interviews, the researcher paid active attention during the interview itself to themes that may lie below the surface. ‘The role of the interviewer is not simply to record and process responses but to participate in a conversation with the informant. Participation means more than just listening, nodding and note taking’ (Minichiello et al. 1990:101). The interviewer must concentrate on ‘answering, commenting and attending to conversation sensitively’ (Minichiello et al. 1990:101). This means thinking about how each verbal interaction has a theoretical, political and ethical direction; knowing when to probe for clarification or elaboration, and about when to sit quietly and acknowledge the silence of the informant and at the same time to sustain a critical inner dialogue (Minichiello et al. 1990:101).

### **3.7.3 Insider research**

Although it may seem easy to conduct an interview with colleagues, a problem with such talk is its ‘familiarity’. It is necessary to penetrate beyond the ordinariness of talk. To attribute ‘social categories, value judgments and other cultural features’ means that researchers must

separate their knowledge as a member of the culture from the talk being used by a fellow member of the culture (Minichiello 1990:101).

An additional process of ‘separating out’ continued during the further analysis of the transcripts, and a critical review of the literature about curriculum form, ideology, contradictions and myths. This process of separating out meant a shift in identity for the researcher. This shift in identity was from an insider to a more complex identity at the margin of the culture, one that includes both insider and outsider at the same time (Giroux 1992). A noteworthy part of the overall research journey for the researcher involved this process of ‘separating out’. The metaphor of the researcher as a ‘traveller’ during research involving interviews is apt here (Kvale 1996). The researcher worked to achieve the simple goal of developing a capacity for critical inner dialogue in relation to ophthalmic training. For the researcher, there is no single or ideal outcome of this process, as the process has a complex and emergent quality. On reflection, this was a difficult process, and was imperfectly accomplished.

#### **3.7.4 Closing with a ‘clearinghouse’ question**

A closing strategy was used. At the end of each interview, interviewees were encouraged to inform the researcher of any topics that might have been missed in the schedule (Dexter 2006). This ‘clearinghouse’ question was one that proved to be an extremely useful inclusion in the interview schedule. ‘Clearinghouse questions enable to the researcher to focus on areas which may not have been adequately covered up to that point’ (Minichiello 1990:96). In at least one-quarter of the in-depth interviews, significant new material of value to the study emerged at this point. A clearinghouse question was deliberately employed to indicate to the informant that the interview was coming to a close.

#### **3.7.5 Ready the data for thematic analysis using NVivo**

Transcripts of the audio-recorded interviews were typed within a few days after each interview. Detailed analytic notes took at least a month to prepare after each interview. Each interview transcript was analysed separately at first, then compared with the others. Their manifest and latent content were considered as part of the coding and categorising process.

Minichiello et al.’s (1990:218–219) side-by-side presentation of transcript, personal files and analytic files provided a useful schema for beginning the qualitative data analysis of individual interview transcripts. Attached as Appendix 3-13 is a simplified version of this arrangement. Briefly, it shows the transcript, analytic and personal files in three columns and resembles a medieval triptych. Within the transcript file, a further division into three columns

has been included, to provide a convenient way to better document each interview as it was occurring. This arrangement comprises a useful ‘three within three’ arrangement for data gathering during and after each interview. A sample of the ‘triptych’ for one interview is found in the appendix. This is derived from the researcher’s journal from an early individual interview (male trainee, P305) in Phase 3.

A within-case analysis for another interview is found in Appendix 3-14. This shows the development of coding, the inclusion of researchers’ comments on the transcript extracts, and makes plain how the thesis title ‘We need you to be able to do this operation’ came to epitomise one core element of the theory in the thesis, that is, whether apprenticeship is the dominant curriculum form despite the official rhetoric of CBT. A summary of the between-case analysis is Appendix 3-15. This shows how between-case latent content analysis detailed apprenticeship as the key curriculum form. The idea that practice, meaning ophthalmic work, was underestimated by insiders and outsiders, for instance, emerged from this analysis. The contradictions that this posed for insiders and outsiders who are educators was evident, as developed in the Chapter 9, entitled ‘A Culture of No Culture’.

### **3.7.6 Data management**

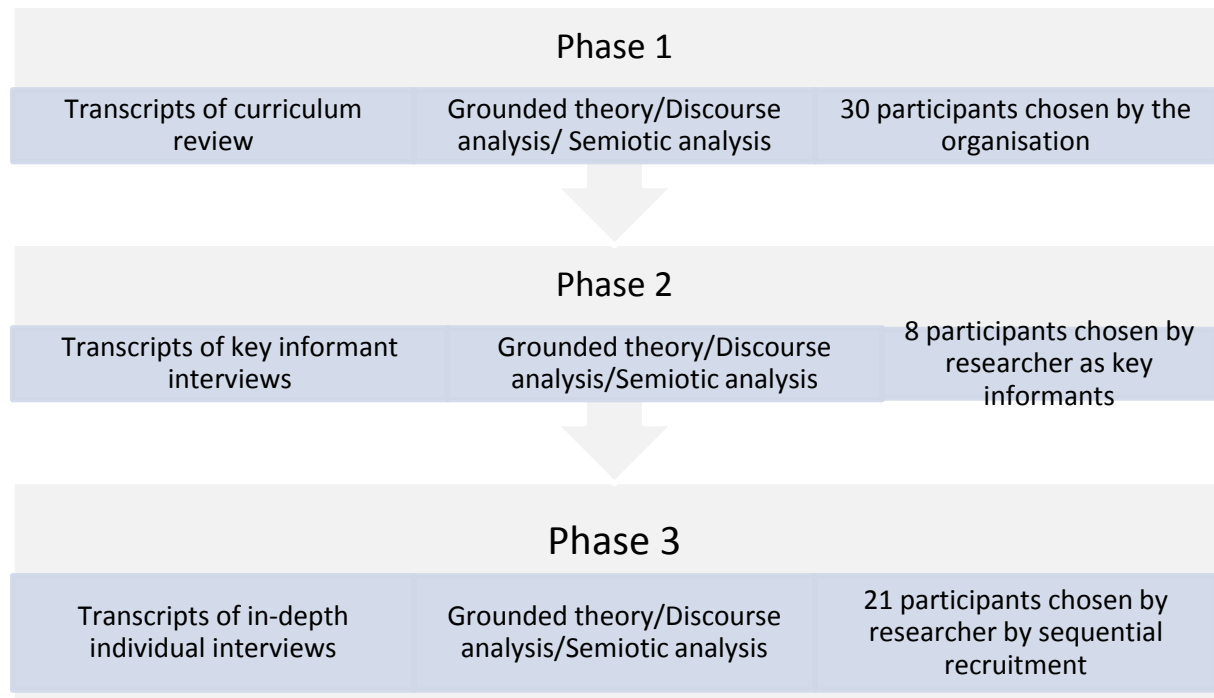
The task of coding a large quantity of qualitative data is a considerable one. It is both conceptually challenging and time-consuming. NVivo8 (QSR International Pty Ltd, Doncaster, Victoria, Australia) is a qualitative analysis software program developed for the social sciences to support analysis of textual material and was employed to assist with data management during the analyses of the data sets. The coding ‘nodes’ (collections of similar statements) were derived initially from the literature and then divergence from this template occurred as data were collected (Malterud 2003a; Malterud 1993a; Crabtree & Miller 1999).

The data were collated as a series of verbatim extracts into a single computer file about a particular theme, called ‘tree nodes’. Some initial ‘nodes’ were ‘apprenticeship’ and ‘complexity’ and ‘competency’; all the text relating to those themes was collected together under these codes. Codable memos were written about the nodes. The software’s strength was its efficiency in the process of coding, memo-ing and constant comparison of the data.

All transcripts were read verbatim a number of times. The coding categories were generated in an iterative and evolving way.

### 3.8 Data analysis

An overview of the data analysis is shown below as Figure 3-8. The data is shown in the left hand column, the method in the centre column, and the source of the data on the right hand column.



**Figure 3-8: Analytic methods**

The term ‘grounded theory’ was used ‘in a generic sense to denote theoretical constructs derived from qualitative analysis of data’ (Strauss & Corbin 2008:1). It is in this generic sense that the study rests on grounded theory. Grounded theory is ‘a specific methodology for the purpose of building theory from data’ (Strauss & Corbin 2008:1). The four stages of analysis in grounded theory are listed simply in Table 3-6 below, adapted from Strauss and Corbin 2008.

Grounded theory uses open coding and axial coding. Coding is ‘the process of analysing data’ (Strauss & Corbin 1990:61). Open coding is ‘the process of breaking down, examining, comparing, conceptualising and categorising data’ (Strauss and Corbin 1990:61). Axial coding is ‘a set of procedures whereby data are put back together in new ways after open coding, by making connections between categories’ (Strauss & Corbin 1990:96) .

<b>Step 4</b>	Theory	A collection of explanations that explain the subject of the research
<b>Step 3</b>	Categories	Broad groups of similar concepts that are used to generate a theory
<b>Step 2</b>	Concepts	Collections of codes of similar content that allows the data to be grouped. Clustering the open codes into groups, axial coding, is the next step.
<b>Step 1</b>	Codes	Identifying anchors that allow the key points of the data to be gathered. Open coding is the initial step.

**Table 3-6: Grounded theory has four steps**

The most descriptive are the lower levels of coding. The clustering of concepts into ‘categories’ is a higher level of abstraction. This latter higher abstraction is called ‘coding up’ or ‘thinking up’ (Glaser 2002). Semiotic analysis follows a similarly stepped pattern (Kellehear 1993).

Table 3-7 below illustrates the ‘coding up’ steps taken from coding to conceptual theory-making using the study data, foreshadowing the analysis contained in the data chapters. Section II of the thesis is about curriculum forms. From the ‘coding up’ process, it reports the experiences of competency based, and of apprenticeship based training. Section III reports higher level insights from participants about the contradictions experienced in relation to such issues as chronicity, androcentrism, what comes to be referred to in this study as ‘the culture of no culture’, and complexity based training.

### **3.8.1 Building theory from codes**

An important concept in analysing data is the notion of moving up a ladder of abstraction (Carney 1990, cited in Miles & Huberman 1994). This is represented diagrammatically in Figure 3-9, which shows that the lowest level consists of packaging the textual data to code, thereby creating a text to work on. Trying out some coding categories is next. The next step is of manifest and latent content analysis. In delineating the deep structure of the data, the next step is more focussed on latent content analysis. The highest level of abstraction, delineating the deep structure of the data, provides the study conclusions.

There are four levels of abstraction in this thesis. The lowest level is the coding categories that arise from the interview data, such as dry eye or the technical skills in learning surgery. Then there are concepts and themes, such as levels of priorities of skills in learning ophthalmology or the prestige of diseases such as dry eye. Higher still there are ideologies, such as the epistemology of the community of practice being oriented around the professional identity of the practitioner focussed on work, rather than around the worker, herself or himself.

	Grounded theory steps	Explanation of the step	Study analysis
Step 4	Theory	A collection of explanations	Change is necessary but there are barriers. One barrier is the ‘culture of no culture’, which provides stability: The community of practice, drawing on scientific biomedicine, denies the very fact of its own social practice. For newcomers, learning to belong to the community of practice means learning to close their choices for future practice and to silence their own capacity for critique.
Step 3	Categories	Broad groups of similar concepts to generate a theory	Complexity theory: Instantiated in ophthalmic training, though sparsely. Empiric exposition of pedagogic content knowledge held by teachers can be achieved. Culture of no culture evident in particular in relationship to teaching and education.
			Androcentrism: Power is enacted both by trainers and trainees, but it is exercised in ways dominated by androcentric discourse
			Chronic disease: The community of practice defines a scale of prestige of conditions. The scope of teaching approaches tried by trainers and trainees falls into line with this scale. Chronic disease such as dry eye falls lower down than acute disease on this scale.
			Apprenticeship dominates. The community of practice defines its own social practice and its own epistemology. This is achieved primarily through modelling. Modelling is expressed in the data as watching, as listening, and as mimicry of techniques, skills, attitudes and lifestyle of seniors by those lower in the hierarchy of professional relations. Two sites are important: ample evidence in operating theatre and outpatient department clinics. Room layout surprisingly important for apprenticeship.
			Official view is contradictory: Work is the focus of this community’s description of its practice. The discourse of competency based training is worker focussed. This discourse is subsumed into the dominant discourse of apprenticeship, which is work-based. The discourse of competency based training tends towards a curriculum of social reconstruction; this discourse is overshadowed by the discourse of apprenticeship which, instead, is technical. The technical curriculum places the highest value on the transfer of technical skills.
Step 2	Concepts	Collections of codes to be grouped	Apprenticeship: Master in control, excellent skills transfer, modelling, stifling of critique, cruel slavery, outmoded training
			Complexity theory: May apply—non-linear path to competency, critical mass of knowledge gives major alteration to patient and educational outcomes.
			Competency based training is of use, useless, aspirational, something useful to live up to, bureaucratic, obfuscating. It is inevitable, a ‘way of the future’
Step 1	Codes	Identifying anchors	Clinical practices, Teaching practices, Gender and the Interview experience Competency based training, Complexity based training, Apprenticeship

**Table 3-7: Abstraction from the data results to theory**

Table 3-7 above shows conceptually the relationship between the assembly of data for this study, the process of analysis and the increasing levels of abstraction of thought. The initial

trigger for the study, a curriculum meeting purportedly around CBT documents, is shown in the lowest rung of the ladder. CBT theory, however, failed to explain the data, so the thematic analysis extended for instance, finally, to complexity theory. The body of existing scholarship about apprenticeship theory was looked into as an effective explanatory theory on which to base the next level of analysis. This ladder of analytic abstraction thus provided the guiding principles for data collection and analysis through the whole study.

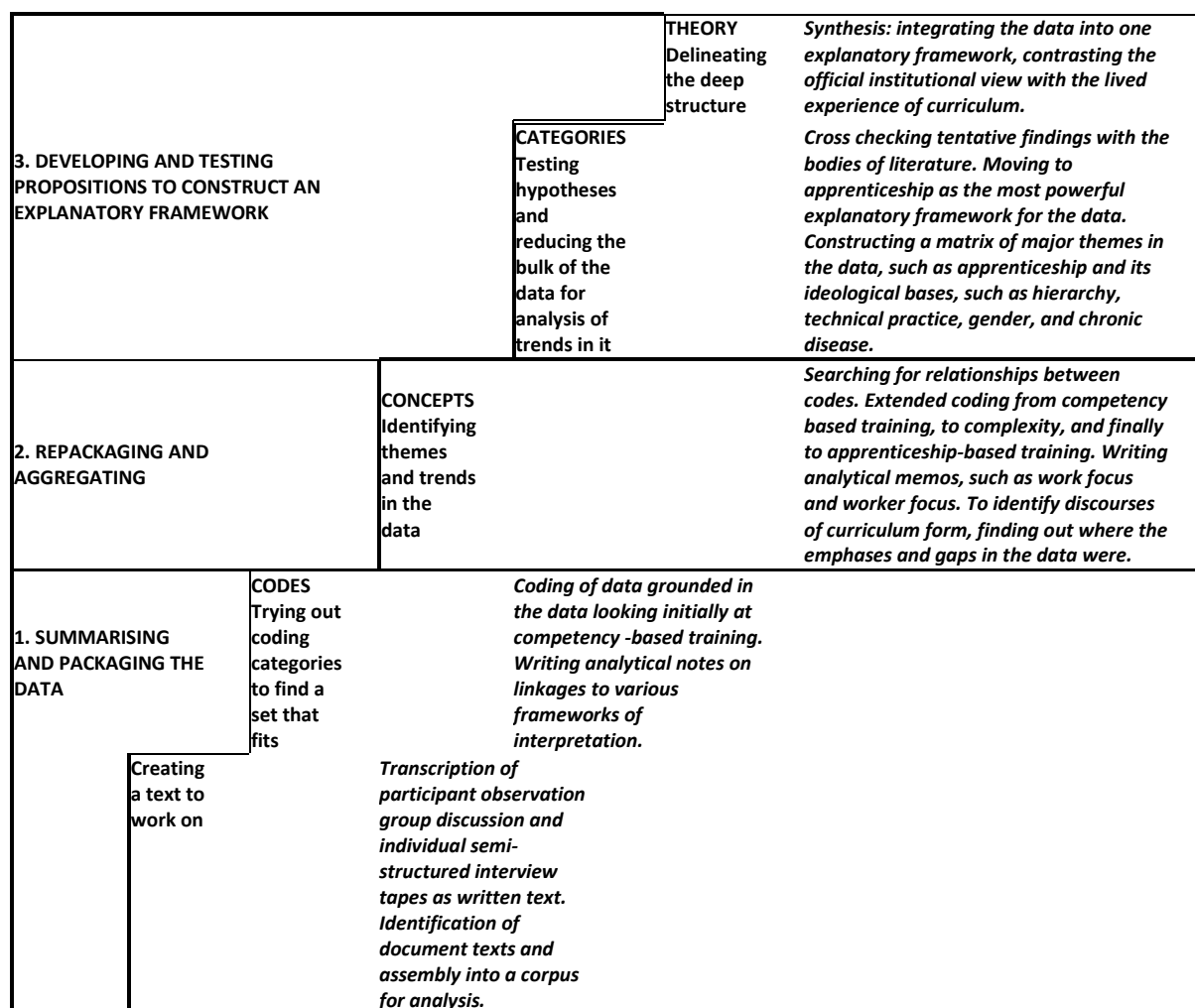
Thematic analysis or grounded theory combines iterative coding in the case of both manifest and latent analysis. A way to think of the theory generated from the data is as a storyline, with the data and themes constituting the items in the story board. The ladder of analytical abstraction in Figure 3—9 tells the story of the thesis, providing a summary of the iterative process of a qualitative analysis that was used.

### **3.8.2 Document analysis**

Manifest and latent content analysis is helpful in document analysis. The qualitative content analysis drew on Freud's (1953/1900) notion of manifest and latent analysis. In *The Interpretation of Dreams*, Freud (1953/1900) calls the dream that the analysand recalls its manifest content, and the deeper truth he called its latent content. This deeper truth is latent in the sense that it is concealed within the manifest content. Transformations and distortions mean that for all intents and purposes this content is invisible. It is the latent content that the analysis seeks to reveal (Buchanan 2010: 304).

The method of content analysis was applied to within-case and between-case analyses (Miles & Huberman 1994). The thematic analysis aimed to identify themes that were not immediately obvious yet represented ideologies and the epistemology governing ophthalmic practice and curriculum.

Analysis of texts began with manifest content analysis and then moved on to latent content analysis. Content analysis is a technique for 'gathering and analysing the content of text' (Neuman 1995:261–262). The content refers to 'words, meanings, pictures, symbols, ideas, themes, or any message that can be communicated' and text is 'anything written, visual, or spoken that serves as a medium for communication' (Neuman 1995:261–262). Manifest content analysis can be as simple as a word count, or as a count of ideas or events. Latent content analysis seeks a higher level of abstraction, such as curriculum form.

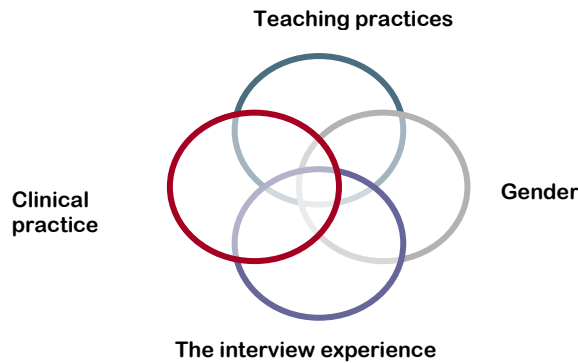


**Figure 3-9: Ladder of analytic abstraction used in this study**

Manifest coding within-case was done using the four main coding categories were clinical ophthalmic practice, learning and teaching, gender and contextual influences. Contextual influences include a diverse list of characteristics, such as age and stage of training of teachers and trainees, and whether they have an ophthalmologist in their family background. These were used to code the initiating questions of the interview schedule. Figure 3-10 below summarises the four coding categories in a Venn diagram. This diagram highlights their potential relatedness and areas of overlap.

Figure 3-10's four broad headings for the initiating questions structured the 21 in-depth interviews in Phase 3, headings which became the four main coding categories for the study as a whole. The semi-structured interview allows such topics to be revisited at the discretion of the interviewer or interviewee. In most interviews all, or almost all, of the initiating questions in the schedule were used. Interaction based around each participant's expressed thoughts was accomplished by subsequent probing questions.





**Figure 3-10: Manifest content analysis of interview transcripts**

The validity of latent content analysis can exceed that of manifest coding. ‘A researcher using latent coding looks for the underlying, implicit meaning in the content of a text. For example, a researcher reads an entire paragraph and decides its themes’ (Neuman 1995:264–265).

Latent coding depends on a coder’s knowledge of language and social meaning. Training, practice and written rules improve reliability, but still it is difficult to consistently identify themes. However, the validity of latent coding can exceed that of manifest coding because people communicate meaning in many implicit ways that depend on the context, not just in specific words (Neuman 1995: 264–265).

Curriculum form requires not only the inclusion of both the elements that make up a curriculum, but also the spaces between. As introduced in the literature review, a curriculum is an arrangement of elements, such as objectives or assessment. The gaps between these elements contribute to a curriculum form. These are found in latent content (Eraut 1976). Importantly, this definition of curriculum form allows the arrangement, or ordering, of curriculum elements to become data, and makes latent content analysis crucial in its analysis.

Data were analysed firstly using manifest coding and then using latent coding. Examples of manifest coding in relation to curriculum form of apprenticeship were master-apprentice relations, ways of teaching and learning, use of role modelling, and evidence for a community of practice such as a hierarchy of workplace relations. Gender and curriculum was an initial open code. Repackaging and aggregating this data further up the ladder of abstraction led to coding of data under the node of androcentrism. The latent content, for instance, androcentrism, thus was able to become data about curriculum form.

### **3.8.3 Discourse analysis and semiotic analysis**

Discourse analysis and semiotic analysis were used on documents and participant observation of the curriculum review meeting discussion. During the course of the initial analysis, it

became apparent that the data were richly informative about the observation that the community of practice that is the focus of the case study can be considered as a ‘discourse community’ (Swales 1990). An additional analytic method, critical discourse analysis, was needed to make the most of this understanding, and proved to be a powerful analytic tool.

A discourse is ‘a connected series of utterances’ (Australian Pocket Oxford Dictionary 1996). Discourse analysis provides a way of moving between a close analysis of texts and social analyses (Fairclough 2001).

In order to focus beyond manifest codes alone, but also on inexplicit themes that are latent in the data, Fairclough’s (1992) step-by-step list of procedures for Critical Discourse Analysis (CDA) was used. As well as what was said explicitly, what was not said was also sought from the analysis. Examples of inexplicit themes are the ideologies of a ‘culture of no culture’, for which see Chapter 9.

A discourse analytic approach to identifying the ideologies (which by definition are hidden) around professional identity formation contributed the insight that identifying what is ‘not allowed’ is helpful in educational research. The key point is that curriculum form can be revealed by a latent content analysis. Latent content here comprises what the researcher identifies as being disallowed as manifestly ‘sayable’. The purpose of such an analysis was to be able, ultimately, to tell a more complete and multi-faceted story about curriculum form and gender.

Latent content analysis is important because text-based discourse analysis could lack the capacity for addressing the fact that much may be omitted in the written word. For the critical discourse analyst, the emphasis is often what is not stated explicitly, but rather what can be inferred from what is not said.

Semiotic analysis was applied to the documents in this study, and the results for example are found in detail in Chapter 4, The Official View, which demonstrates how the arrangement of textual items on website pages provides useful data that ambiguity is created about curriculum form. Semiotic analysis is ‘the study of signs and symbols and their use, especially in language’ (Australian Pocket Oxford Dictionary 1996).

### **3.9 Rigour**

It is recommended that ‘maximising transparency’ is important in reporting qualitative research to improve validity (Bringer et al. 2004). The use of computerised assistance for coding is a case in point. In line with this, a snapshot of the coding used in an in-depth

interview is provided for the reader as an appendix. Appendix 3-16 shows an NVivo8 software screen snapshot. It demonstrates the use of coding stripes provided by coding software to assist with the analysis of an interview transcript.

The software highlighted the codes using coloured stripes. The source, node, and query options are located in the menu bar on the side. Coding density can also be seen visually, alongside the coding stripes, indicating the number of themes addressed by a particular part of the text. Manifest coding stripes such as ‘patient care’, and ‘apprenticeship’ were used. The analysis here has moved from manifest to latent content analysis. To raise the issue of data attained at the local level, situated meanings are significantly different from abstract meanings (Kellehear 1993:57).

It would be impossible to draw out the latent content without the context and without looking at the between-case pattern. As an example, between-case analysis with further interviews then confirmed dry eye to be viewed as a low prestige condition.

In conclusion, critical realism provided an epistemological basis for the study. Purposive sampling was used in all three Phases of the study. Analysis of participant observation data from an official meeting, document analysis, and in-depth interview transcript analyses were the key aspects of this case study’s methods. Grounded theory, semiotic analysis and discourse analysis were used to analyse the data.

The next two sections of the thesis are the data chapters. The next chapter, Chapter 4 is the first of these; and it begins Section II of the thesis. Chapter 4 presents the official view of curriculum form, revealing evidence of both competency based training form and apprenticeship based training. These two forms are thus not dichotomous within the ophthalmic curriculum as they are present together in the data.



## **Section II: Curriculum Forms**

Section I provided the study background. It explained the conceptual frameworks from the substantive literature, the methodology and the methods literature on which the study draws.

This section, Section II, presents the results of the analysis of the data about curriculum forms in ophthalmology training, found to be competency based training and apprenticeship. It provides an analysis of the data from all Phases of the study, namely the curriculum review meeting, internal College website document analysis, key informant interviews and in-depth interviews with trainers and trainees, as well as recent websites in the public domain.

Both competency based training and apprenticeship are evident as functioning curricula in this data analysis. The first chapter deals with the official documents at both deep and superficial levels. The second two chapters present discussion of the evidence of apprenticeship as the functioning curriculum form, firstly in the operating theatre of the teaching hospital, secondly in its outpatients department.

This section raises questions about contradictions, myths and change in the practice of ophthalmic work and curriculum as implemented that are then analysed in more detail in Section III to follow.



## Chapter 4 The Official View

This chapter discusses the official view of training. It lays out the evidence that the official view of RANZCO is that CBT is the prevailing training method and articulates the finding that despite this, on closer inspection apprenticeship is far more influential even in official documentation.

This chapter also provides a clear example of the usefulness of manifest and latent content analysis in this study. In summary, manifest content analysis suggests that the ophthalmic surgical curriculum is based on the competency based form, while latent content analysis indicates that the apprenticeship curriculum form remains firmly embedded in actual teaching (Minichiello et al. 1990).

The official view is reflected in RANZCO's official timeline of educational activities. The official timeline for changes to the curriculum, emerging from the Curriculum Review Committee Working Groups (WG) that relate to the curriculum review meeting, is shown in Table 4-1 below. The changes that resulted from the curriculum review meeting in August 1997 were to go to the Qualifications and Education Committee (QEC) of RANZCO in May 1999, to the Council for ratification in 1999 and into the training handbook for the year 2000. The changes were to be incorporated into the new five-year training program for the first year in-take selected in 1999 to commence in February 2000.

### 4.1 The official view is competency based training

Since the three basic tenets of CBT are exhibited in ophthalmic training documentation, the official view is that it is competency based program. These tenets are, briefly, that it contains specific objectives, has an outcomes focus and makes a comparison with industry standards rather than with peers (Smith 1999:62–63). The most obvious indication that the official view is CBT is the use of Australian industry-standard CBT layout in the College's official curriculum documentation, shown in Figures 4-3 and Figure 4-4 below, and elaborated later in this chapter.

The seven roles are noted in the document shown in Table 4-2 above. Its phrases such as 'Ophthalmic expert and clinical decision maker, 'the ophthalmologist must be able to' and 'practice ophthalmology that is ethically consistent with the obligations of a medical practitioner' support the label of CBT for RANZCO 's curriculum documentation.





	<b>Feb 1999</b>	Mar 1999	<b>Apr 1999</b>	<b>May 1999</b>	<b>Jun 1999</b>	<b>Jul 1999</b>	<b>Aug 1999</b>	<b>Sep 1999</b>	<b>Jan 2000</b>
<b>Curriculum Review Committee (CRC)</b>	28/2 Receive 1 <sup>st</sup> drafts from Working Groups (WGs)	Discussions with hospitals, etc. 1 <sup>st</sup> draft report	14/4 Qualification and Education Committee (QEC) QEC papers out. 24/4 QEC meeting	QEC reports to Council	Negotiations with hospitals, etc.	Publish year 2000 training handbook			
<b>Curriculum Content</b>	28/2 Submit 1 <sup>st</sup> draft to Curriculum Review Committee	Discussions with Boards of Examiners	QEC sign off on Curriculum Content	Council sign off					
<b>Education Strategies</b>	28/2 Submit 1 <sup>st</sup> draft to CRC	Discussions with Boards of Examiners	QEC sign off on educational strategies	Council sign off					
<b>Assessment</b>	28/2 Submit 1 <sup>st</sup> draft to CRC	Discussions with Boards of Examiners	Boards of Examiners plan 2000 dates. QEC sign off on assessment for year 2000	Council sign off. Input to hospitals' 'Selection Criteria' Advertisements Selection Panels Training Panels					
<b>Selection</b>	28/2 Submit 1 <sup>st</sup> draft to CRC	Discussions with Hospitals and State NZ QECs	QEC sign off on selection for year 2000	Council sign off	Hospitals advertise for 1 <sup>st</sup> year trainees Panel training	First hospital interviews for 1 <sup>st</sup> year selection	Hospital selection interviews	NOMP process	1 <sup>st</sup> year trainees commence in training posts
<b>Supervision</b>	28/2 Submit 1 <sup>st</sup> draft to CRC	Discussions with Supervisors. Changes Implementation Training Timetable	QEC sign off on supervision for year 2000		Training needs of supervisors	Develop training packages for supervisors	Training of Supervisors	Training of Supervisors	

**Table 4-1: The timeline for actions<sup>2</sup>**

<sup>2</sup>Source of Table 4-1 RANZCO (1988:12) Curriculum Review Committee Project- Curriculum Review Version 7, December 17th

<b>Roles</b>	<b>Key competencies</b>
	The ophthalmologist must be able to:
Ophthalmic Expert and Clinical Decision Maker	Demonstrate diagnostic and therapeutic skills for ethical and effective patient care Access and apply information relevant to the clinical practice of ophthalmology Demonstrate effective consultation services with respect to patient care, education and legal opinions
Communicator	Establish therapeutic relationship with patients, families Obtain and synthesise relevant history from patients, families, communities Listen effectively Discuss appropriate information with patients, families and health-care team members
Scholar	Develop, implement and monitor a personal continuing education strategy Critically appraise sources of medical information Facilitate learning of patients, house staff, students and other health professionals Contribute to development of new knowledge
Collaborator	Consult effectively with other medical practitioners and health-care professionals Contribute to interdisciplinary team activities
Manager	Use resources to balance patient care, learning needs, and outside activities Allocate finite health-care resources wisely Work effectively and efficiently in a health-care organisation Use information technology to optimise patient care and lifelong learning
Health advocate	Identify the important determinants of health affecting patients Contribute to improved health of patients and communities Respond to those issues where advocacy is appropriate
Professional	Deliver the highest quality care with integrity, honesty and compassion Exhibit proper personal and interpersonal professional behaviours Practise ophthalmology that is ethically consistent with the obligations of a medical practitioner

**Table 4-2: Essential roles and key competencies of ophthalmologists<sup>3</sup>**

The above 1996 document was converted to the work tasks of ophthalmology in the 1997 document, an extract of which, its Preamble, is provided in Figure 4-1 below, extracted from Appendix 4-1). The seven roles are reiterated in the preamble. The College documentation shows commitment to competency based training ‘that will help future ophthalmologists’, and indicates that the defined roles ‘have been accepted’ by the College. It acknowledges too its roots in the CanMEDS documents.

<sup>3</sup> Source of Table 4-2 Extract from RANZCO (1996) Lancemore Hill: ‘Ophthalmologists for the New Millennium Draft 1’



**Figure 4-1: The preamble to the ‘Supplement to Draft 1’**

### **4.1.1 Specific objectives lists**

There are three competency lists in use in the study data of official College documents. The first is a base list of the seven competencies of CanMEDS. The second is an extended list of CanMEDS competencies, comprising a specifically ophthalmic version of the original seven, which includes a list of specific learning objectives and assessments thereof. The third is the College’s clinical and professional standards documents. These were all written by College staff using the language of CBT, including the terms ‘units’, ‘standards’, ‘learning objectives and outcomes’. The documents consist of several hundred pages of text that are found in printed version at

each ophthalmic teaching post. They comprise the Clinical Standards, and the Professional Standards documents. Their format is precisely aligned with the Australian National Training Authority (ANTA) format, in keeping with CBT. The most detailed competency list produced by RANZCO includes specific objectives and assessments for each of the seven CanMEDS roles. To exemplify this, Figure 4-2 below shows an extract from two roles which carry on the CBT convention of imperatives:

<i>OPHTHALMIC EXPERT &amp; CLINICAL DECISION MAKER</i>
<i>Competencies—Specific Objectives</i>
<i>Elicit a history that is relevant and accurate</i>
<i>Perform an examination that is appropriate</i>
<i>MANAGER</i>
<i>Competencies—Specific Objectives</i>
<i>Make decisions and judgments based on sound evidence for the benefit of patients and the population served. This allows for an advocacy role based on both societal needs and the individual when monitoring and allocating resources.</i>

**Figure 4-2: Specific objectives for two of the competencies<sup>4</sup>**

Figure 4-3 and 4-4 appear in all the College Standards documents. They closely resemble a traditional ANTA formatted competency based document from industry. Accordingly, the RANZCO Clinical Standards documents acknowledge the ANTA package Development Handbook. Its key features are unit number, unit title, unit elements and performance standards, all of which appear repeatedly in the documentation of clinical standards by the College. The unit title in Figure 4-3, for instance, is ‘To Characterize Glaucoma’, which is a measurable, defined, specific objective of training.

Performance standards are expressed in imperatives, as is conventional in CBT documentation (Mulcahy 1997a). Examples of the language of imperatives used in ophthalmology documentation are ‘demonstrate’, ‘establish’, ‘consult’, ‘deliver’ and ‘exhibit’ (RANZCO Lancemore Hill: ‘Supplement to the Draft 1’ 1997). An element such as ‘Perform a differential diagnosis’ is a defined objective that serves as one element that contributes logically to the unit title. The unit is designed as a module. It can stand alone. The unit is labelled a unit of ‘competency’ (Figure 4-3 below). The ANTA framework provides the shape of ophthalmic competencies. The elements

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<sup>4</sup> Source of Figure 4-2 is an extract from RANZCO (1997) Lancemore Hill: ‘Ophthalmologists for the New Millennium Supplement to Draft 1’

describe actions or outcomes that are demonstrable and assessable. Reference is made also to an evidence guide.

Competency lists allow ‘compartmentalisation’ of the curriculum (male trainer, P206). Learning objectives must be specific and separable from those in other units.

#### **4.1.2 Modules**

A result of the curriculum review was a list of RANZCO modules. These are shown in Figure 4-5 below. Although the competencies and the modules were not originally structured to be dichotomous, they appear that way. In the diagram, the seven competencies are separate from the 14 modules. However, a split seems to have occurred between 1997–98 and 2004 when the individual modules were published. The CanMEDS roles and their educational strategies seem not to have been taken forward together into the curriculum development process.

Structural change was needed to achieve a modular system. Moving all the exams so they took place within the training itself, instead of making them a pre-requisite for selection into training, showed that training was converting to CBT. The decision to do this was made during the 1997 Curriculum Review meeting (CR). Participants of that Curriculum Review meeting believed that such a move opened the way to modularisation of the curriculum.

*What has actually come out is that the module system needs to be looked at in detail as a realistic way of both examining and teaching. What has also come out is that the Part I exam is not fulfilling its purpose as a help to the selection committees. [male trainer, CR transcript 1997] I think that like it or not, we at this weekend have come forward with very definite recommendations and we should put them forward as a discussion document for College consideration. I do not think we can continue to hum and hah around whether the Part I [exam] has gone or not gone. This meeting has decided that it has. [male trainer, CR]*

Creating the system of modules was seen as an outcome of the meeting. The initial discussion about defining the outcomes of what it means to be an ophthalmologist turned into the generation of modules or competencies:

*In terms of the modules [that] the small groups have worked through this weekend, I think this weekend will be a waste of time if we don't formulate an outcome from this weekend and put it forward, [meaning a statement that] this is what we decided: ... We have come up with a definitive document of recommendation as to what will be the ophthalmologists for the new millennium. This is what has come out as a part of this [curriculum review] working party. [male trainer, CR]*

## Sample Curriculum Performance Standard

*Unit Number**Unit Title*

GL 4

Characterise Glaucoma

*Description**Description*

This standard covers the classification of types of glaucoma, and making a working and differential diagnosis. Work is to be performed with total autonomy.

*Elements**Performance Standards*

Elements		Performance Standards	
GL 4.1	Characterise risk factors for glaucoma	GL 4.1.1	Identify and prioritise risk factors including ocular hypertension and distinguish these from glaucoma.
GL 4.2	Characterise primary glaucoma	GL 4.2.1	Identify primary open and closed angle glaucomas.
GL 4.3	Characterise secondary glaucoma	GL 4.3.1	Identify the causes and varieties of secondary glaucoma.
GL 4.4	Characterise congenital and developmental glaucoma	GL 4.4.1	Identify congenital glaucoma
		GL 4.4.2	Identify glaucoma associated with developmental disorders
GL 4.5	Perform a differential diagnosis	GL 4.5.1	Differentiate between glaucoma and other conditions causing visual field loss or optic nerve abnormalities including congenital anomalies.

**Figure 4-3: Sample curriculum document imitates the ANTA format<sup>5</sup>**

<sup>5</sup>Source of Figure 4-3 is RANZCO (2004:6) Curriculum Standards, Paediatrics Standard.  
<http://www.ranzco.edu/training/6-curriculum-standards/clinical-standards/AAA%20PDF%20Paediatrics%20Standard%20August%202004.pdf>

## HOW TO READ AND USE THE CLINICAL CURRICULUM PERFORMANCE STANDARDS

### What Are Clinical Curriculum Performance Standards?

*Clinical Curriculum Performance Standards* are a written statement of the competencies required for effective performance in the workplace. A competency specifies the knowledge, skills, and behaviours required for ophthalmology, and the application of these at the standard required in the clinical or hospital setting.

### Format and Style of Clinical Curriculum Performance Standards

Clinical curriculum performance standards use a particular format and style of language. This document will assist you to understand the various terms used in the documents.

RANZCO has used the following format to document its standards:

Item	What is it?	Example from Glaucoma Standards (see following page where these items have been labelled on a sample standard)
Unit Title	A unit title refers to a competency that can logically stand alone when applied in the work setting.	Characterise Glaucoma
Unit Number	The number of the unit of competency	GL 4
Unit Description	The unit description expands on the information provided in the unit title.	Description: This standard covers the classification of types of glaucoma, and making a working and differential diagnosis. Work is to be performed with total autonomy.
Elements	Elements of competency provide more information about the key purpose of the unit. They describe actions or outcomes that are demonstrable and assessable.	GL 4.1 Characterise risk factors for glaucoma.
Performance Standards	Performance standards specify what is assessed and the required level of performance. They specify the activities, skills, knowledge and understanding that provide the evidence of competent performance.	GL 4.1.1 Identify and prioritise risk factors including ocular hypertension and distinguish these from glaucoma.
Range of Variables	The Range of Variables specifies the range of contexts and conditions to which the performance criteria apply.	See back section of Glaucoma standards.
Evidence Guide	The evidence guide guides assessment of the unit of competency. It relates directly to the performance standards and range statement.	See back section of Glaucoma standards.

Reference: Information in the table above is based on the Australian National Training Authority's *Training Package Development Handbook*.

**Figure 4-4: ANTA framework explains the shape of ophthalmic competencies<sup>6</sup>**

<sup>6</sup> Source of Figure 4-4 is RANZCO (2004:5) Curriculum Standards, Paediatrics Standard. <http://www.ranzco.edu/training/6-curriculum-standards/clinical-standards/AAA%20PDF%20Paediatrics%20Standard%20August%202004.pdf>

The modules list was compiled at the same meeting at which the seven competencies were committed to. This is shown in detail in Figure 4-5 below. The 'Educational Strategies' specifically name the seven key competencies as their focus.

Modules with specific objectives are a feature of the curriculum promoted by the official view articulated by the College. The modular curriculum uses units and performance standards. A separation of curriculum elements is evident in this conceptualisation of curriculum. To create a modular curriculum, the curriculum content is divided off from the educational strategies. Evaluation is also separated. This is in keeping with a reductionist tendency that underpins competency based training.

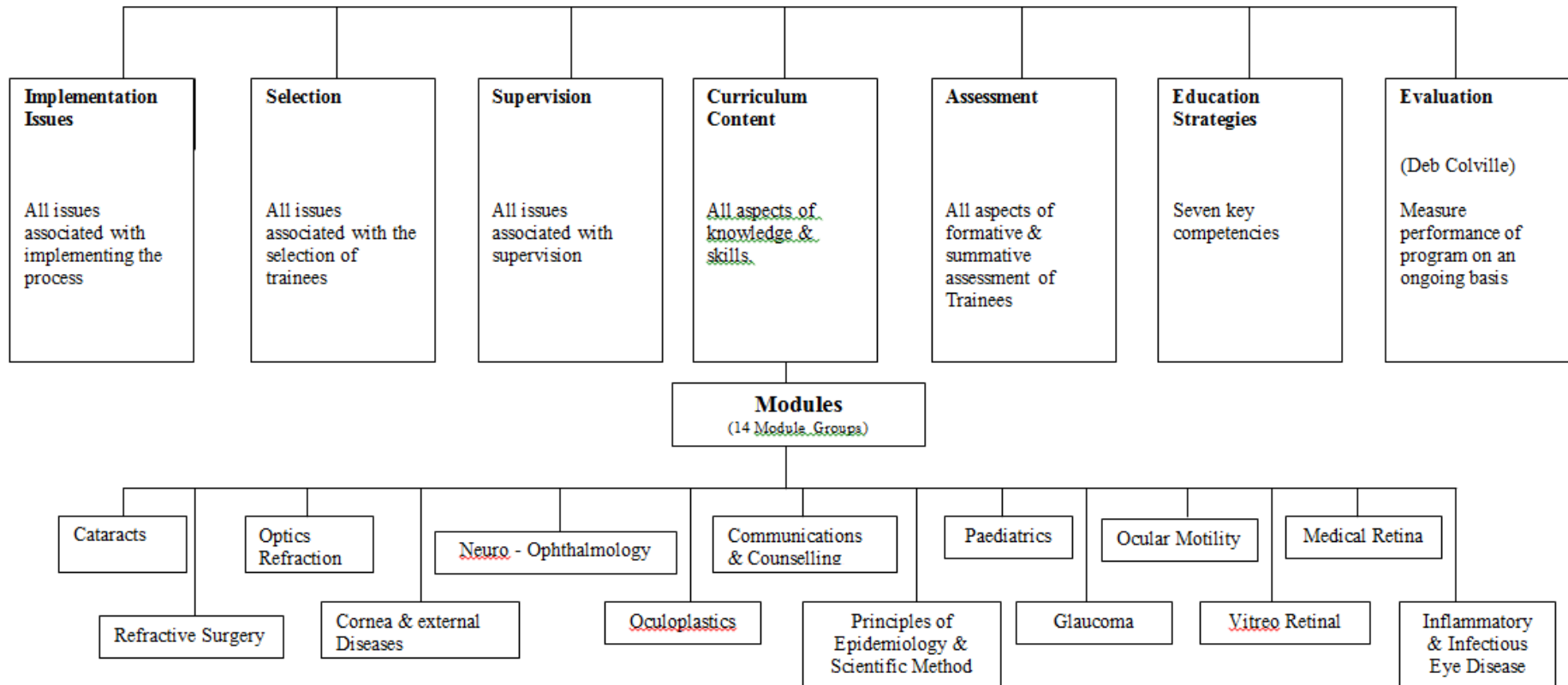
The College's commitment to a modular curriculum structure is consistent with CBT. The document 'Ophthalmologists of the New Millennium Draft 1' and 'Supplement to Draft 1' were written by ophthalmologists immediately prior to the 1997 meeting. Several documents from a prior review were tabled at the 1997 curriculum review meeting.

*You should be looking at your own two documents first, that is 'Ophthalmologists for the New Millennium [Draft 1]', and the 'Supplement to Draft 1' rather than any reliance on the Canadian document, but that's there for reference. [educational facilitator, CR]*

The 'Canadian document' referred to here means the journal article by the Societal Needs Working Party (1996). These three documents were circulated to meeting participants prior to the meeting so as to be read in preparation for the group discussion, audio taped for this research, in 1997. In this way, the College committed itself to a competency framework as being the way of the future. The outcomes of training were to be the seven CanMEDS roles, each of which carries with it some specific objectives. The College at that time emphasised that the outcome of the training needs to serve societal needs. The document also contains a table of the CanMEDS roles converted for ophthalmic use (Table 4-2) by a group of ophthalmologists, for participants at the curriculum review meeting to discuss.

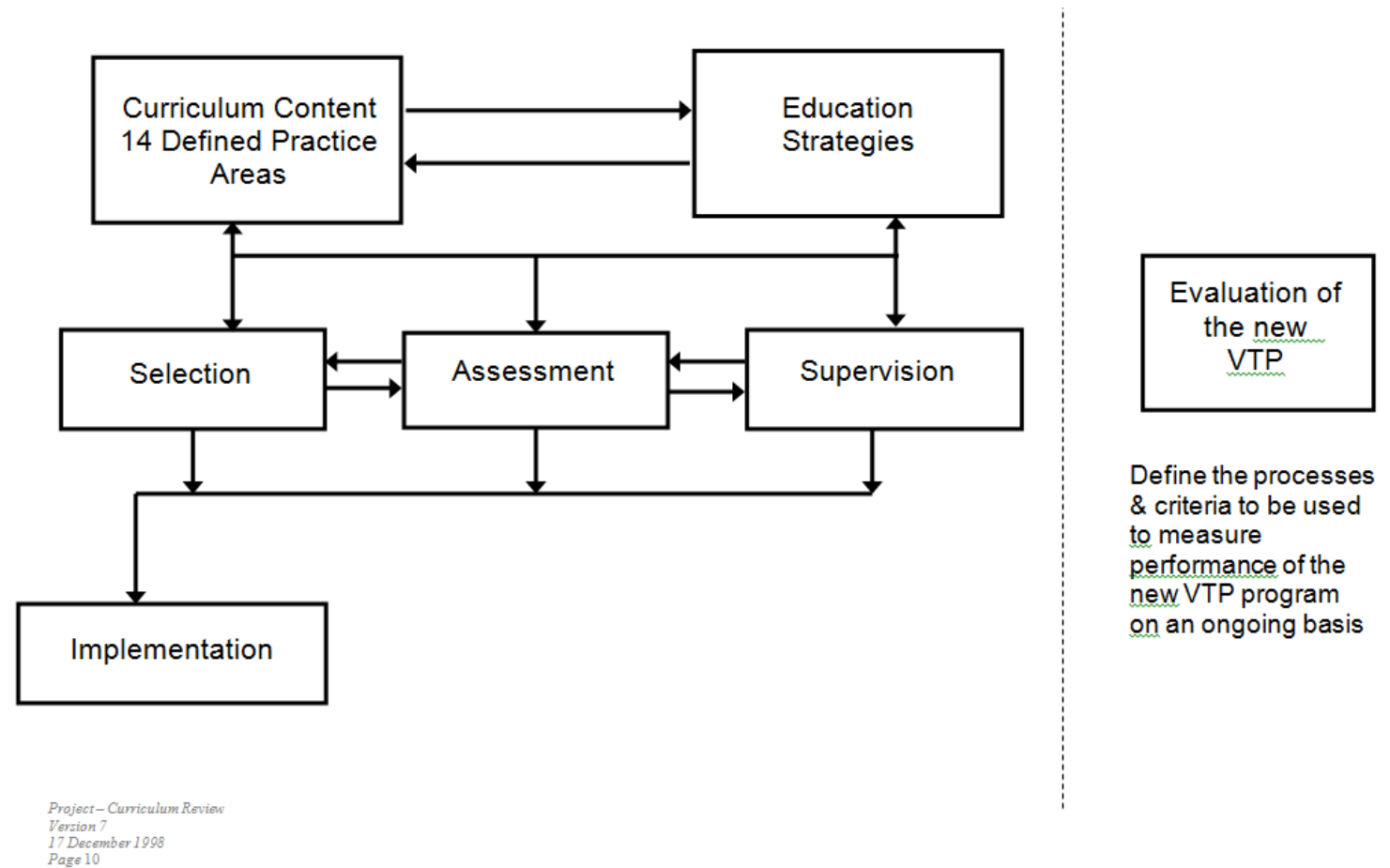


## Coordination of the Curriculum Review Process



**Figure 4-5: Coordination of the Curriculum Review Committee Process, the modules<sup>7</sup>**

<sup>7</sup>Source of Figure 4 –5 is RANZCO (1998:9) Curriculum Review Committee Version 7, December 17th



**Figure 4-6: The working relationships map<sup>8</sup>**

<sup>8</sup>Source for Figure 4 6 The working relationships map (RANZCO 1998:10) Project-Curriculum Review Version 7, December 17th

That the education strategies comprise the seven key competencies shows acceptance of CBT in the official view. Figure 4-6 above shows a representation of education in the College in the form of a working relationships map of the components of the Curriculum Review Committee. Although evaluation is separated, the institution wished to present a simultaneously both modular, and integrated, curriculum.

The label ‘specific objectives’ carries the suggestion that the course is laid out for trainees to see, turning the teacher into a facilitator of learning. Further evidence that the official view is that RANZCO training is CBT can be seen in Table 4.3 below showing individual interview data. There is the suggestion that CBT governs ophthalmic training through the existence of specific objectives. An example is ‘It’s an advantage having that label to put on things and (to be able) to analyse (them)’ (male trainer, P302). Saying that ‘people learn different things at different rates’ (P302, again from Table 4-3) fits with CBT’s feature of offering flexibility for the worker. In summary, further evidence that the official view is competency based training is found in the participants’ approval, at large, of the existence of specific objectives.

### 4.1.3 Outcomes focus

The College has ‘the improvement of eye care in Australia and New Zealand through (the) education and training of ophthalmologists as its highest goal’ (RACO 1998: 91). The College’s role is the furtherance ‘of the strategic goal to develop a world class education system, with a systems approach, an outward orientation, and an openness to review’ (RANZCO 2002–2003:14). This emphasises a systematic focus on outcomes for the general population and, as such, is in keeping with CBT as the curriculum form for training ophthalmologists. Outcomes of training are crucial to the population’s eye health:

*Within Australia, some 5% of the population have some form of vision impairment, equating to around 400,000 people, so eye disease is a major health issue for the Australian community... The incidence of eye disease is expected to double in the next 20 years as the population ages, on the basis of no further interventions ...Three quarters of eye disease is preventable. Blindness is the most feared medical condition after cancer. (Wooldridge 2000)*

In the quote above an Australian Government Minister for Health casts his description of ophthalmic identity in outcomes terms, in response to societal needs. He continues:

*(T)he ability to see and the ability to assist people to see means ophthalmologists, optometrists and other eye health professionals hold a very special place in the modern sciences and arts involved in human healing. The power to restore or improve sight is truly a piece of magic. It is not for the faint-hearted either. With the eye being one of the more fragile structures in the human body it necessarily demands the most sophisticated equipment and most dexterous of surgeons if intervention is to be successful. (Wooldridge 2000)*

Education is RANZCO's official mission. The College professes its dedication to the outcome of satisfying societal needs: 'Development, implementation and assessment' of the curriculum are its principal stated functions (RANZCO 1998; RANZCO 2002-2003:14).

#### 4.1.4 Industry standards

The College takes charge of its own training but compares itself with other medical colleges. It positions itself within the industry of medical training. This is consistent with competency based training. The College's stated mission is to 'to establish and conduct courses of study and training'. It 'ensures the fitness of those desirous of qualifying for membership of the College' (RANZCO 1998:91; RANZCO 2002-2003:14). The College self-identifies as a higher educational body, and its curriculum is the bedrock of professional identity formation as an ophthalmologist. These tenets can fit with competency based training.

Other colleges perform complex educational roles too, and use modules. Organising training around the modular system was seen as an exercise in industry-standard educational organisation. AMC accreditation was foreshadowed:

*There are things coming through the AMC, and so on, which will impact upon what any college decides. So you've got to then become aware of those and fit them in to the jigsaw. [educational facilitator, CR]*

The RANZCO program needed to be comparable with those of other colleges. The appointment of a paid educator with experience in the vocational education and training sector, and experience with the ANTA language of educational modules was seen as one facet of the College's adoption of CBT.

*[We talked about] the whole concept of curriculum development and that led then to the last Lancemore Hill meetings where rather than just the first part, basic sciences Board of Examiners getting together, which is what we started with, we then started bringing in the clinical examiners as well and look at the entire vocational training programme. And that's when we appointed a Director of Education, a full time RANZCO officer. The whole process started to ramp up in terms of quality and quantity. [male trainer, P321]*

This move enabled the College documentation to be converted to CBT and to shift from the expectation of locally set standards based on inexplicit traditional knowledge to a more coordinated competency based system. It was believed that other colleges were taking similar steps in their documentation and definition of specific objectives.

<b>Specific objectives</b>	<i>It is very good to have a list of skills.[male trainee, P305]</i>
	<i>[I use them] in formulating how somebody went during their term or discussing it with them. I wouldn't have [always] used them. <b>It's an advantage having that label to put on things and [to be able] to analyse [them].</b> It's an advantage. Things like manager. Often people, it seem[s] to me, have trouble scoring [that] but to me manager means whether this trainee can fix things in a functional system, that they can manage them [the dysfunctional clinics]. [male trainer, P302, emphasis added]</i>
	<i>I think in principle it is very good to have a list of skills that you expect your trainees to have of knowledge and skills that you expect your trainees to have by the end of their training. I mean I think you have to have that, I totally agree. But I think the idea of just saying well let's just work on this and tick it off, I don't reckon that's [useful]. I think the reason why it's there is to really say are we adequately training our students when we look at this list and we look at where they're at, are they a long way off? [male trainer, P302]</i>
	<i>I guess it's good to think formally about these issues because we all use them day to day but you don't actually compartmentalise them as health promotion/public health issues. If you didn't give much thought [to it] you could say well maybe we are not involved with health promotion at all but in fact we are. [male trainer, P306]</i>
	<i>I think having these competencies, these roles, in front of you [helps] to analyse how the trainee is going without rounding it up to an A or a B. It lets you analyse what areas they need further [training in]. Everybody has different rates of learning and they will learn these different roles at different times. And you can't necessarily say by the end of year two they should all be whatever. <b>People learn different things at different rates</b> and they can still be very good at the end. All [of these are] basically essential for the end product but it is a very important recognition from grade school up that people have different competencies. [male trainer, P302, emphasis added]</i>
	<i>I really think that's a pretty good idea because it puts pressure on the trainers. You see if I had to do say ten points and just out of sheer bad luck I'd done four and I was getting through [to the end of] my training. I would be aware of that and I would tell my trainers and say I've got to get six more points during my time. So there'd be a massive finding and helping, whereas at the moment there's nothing. So for example I've managed to do five trabeculectomies: some of my colleagues have done [far fewer] in my same level of training. Whereas if we had a number that we have to get to, which is hard to do, it does put the pressure on. It may not—I don't think you should necessarily stop—you wouldn't stop a trainee from qualifying because they've only done four and not five of a certain procedure, but it would create that level of anxiety necessary to get everybody going 'well let's get this guy some cases. He needs them.' Whereas at the moment that can just go completely unannounced. I can see the limitations of that because the training isn't uniform around the country. I can see the limitations but at least it would mean that for one of my friends who hasn't done anything, he could actually say to them 'Look the College is expecting me to have done six, how are we going to do this?' [male trainee, P305]</i>

**Table 4-3: Specific objectives are evidence that the official view is competency based training**

Forging links between the fundamentals of education on the one hand and specific objectives on the other was considered an important feature of a cohesive educational package for the College:

*At Lancemore Hill we were asking some very fundamental questions. What was the College trying to achieve? What was the end result we wanted? How could we measure that we were achieving this? How could the assessment process, both continuous and summative, formative and summative, fit together and how did they fit in with the teaching at the various hospitals we were providing? [male trainer, P321]*

Large geographic spread, along with individual pride in local area variations, posed challenges to the College of how to coordinate policy to satisfy external accreditation and industry comparison:

*And of course there was a complete miscellany of approaches across the country and New Zealand, as you would imagine. Where there had been very little central guidance and resource availability, very few resources made available by the central office and everyone's kind of been left to do the teaching on their own and just did it the way they've been taught. We didn't want to impose things on people. We weren't trying to impose a central view. What we were trying to do was provide opportunities for people to question what was happening and for people to work out their own answers that they were comfortable with but at the same time were compatible with a universally acceptable standard. And that was the key, to try to make sure that people were reaching a standard and were doing it in appropriate way so they were answerable and yet they had local autonomy. [male trainer P321]*

The College is one of fifteen specialist postgraduate medical colleges in Australia and New Zealand. Australian postgraduate medical colleges are accredited by the Australian Medical Council. RANZCO was accredited by the AMC in 2006. At least six of these closely related medical colleges are, like RANZCO, bi-national; that is, they include both Australia and New Zealand. These include the Royal Australasian College of Surgeons (RACS), the Royal Australian and New Zealand College of Physicians (RANZCP), Australian and New Zealand College of Anaesthetists (ANZCA), the Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG), the Royal Australasian College of Medical Administrators (RACMA) and, finally, the Royal College of Pathologists of Australasia (RCPA). These other colleges also have the challenge of training sufficiently uniform graduates to comply with external accreditation requirements despite enormous geographic spread of training posts.

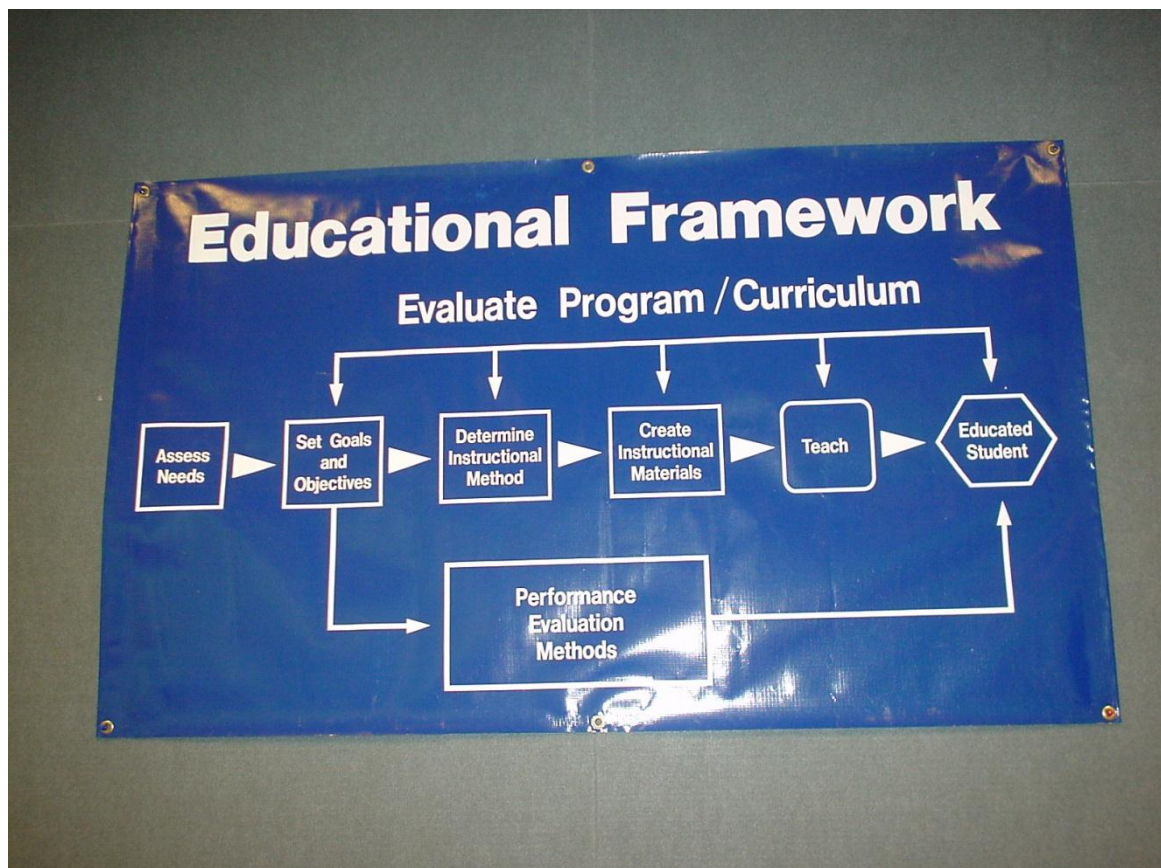
The most closely related college to RANZCO, the Royal Australasian College of Surgeons (RACS)<sup>9</sup>, had also undertaken a curriculum reform. Its banner about training is of interest (Figure 4-7 below). It shows that setting goals and objectives are a part of RACS fundamental educational framework. The explicit reference 'Set Goals and Objectives' is in keeping with CBT (Surgeons as Educators Course 2001).

Another move towards keeping to an industry standard was the timeline for implementation of CBT (Table 4-1 above). The Curriculum Review Committee of RANZCO was charged with implementing the CBT program that had been developed and agreed to at the curriculum review meetings. Each qualification and education committee (QEC) would need to negotiate implementing CBT into their hospital training program. This is a further example of industry-specific standards being the direction that change would take.

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<sup>9</sup>Australasian means Australia and New Zealand

The items relating to the industrial environment that appear in the data and show comparison with other colleges are as follows: the College of Surgeons has educators, a course, and supervisor training at each hospital; the Australian Competition and Consumer Council (ACCC) watches over anti-competitive behaviours by professionals; the Anaesthetists College produces a list of objectives in anaesthesia training; the dermatologists adapted the CanMEDS document for their own use; RACS, which also has a five-year program, examined the closer articulation of its basic, against its advanced, training in surgery.



**Figure 4-7: Industry standards: The Royal Australasian College of Surgeons sets ‘objectives’<sup>10</sup>**

*Some of you would probably have read that document that has been circulated to you recently as a discussion document from the College of Surgeons, which refers to selection, and [it also] looks at the relationship between Part I and Part II [exams]. [male trainer, CR]*

Such comparison with other colleges contributed to discussion among participants at the curriculum review meeting about how specific the RANZCO objectives needed to be, and how broad a discussion was necessary to be consistent with other colleges. This matter of specifying objectives (and learning strategies) in detail is a particularly poignant theoretical point in the culture of medicine, where ‘the ideology of indeterminacy’ is strong, as

<sup>10</sup>Source for Figure 4-7: Surgeons as Educators Course, Royal Australasian College of Surgeons 2001

mentioned in Chapter 2, the Literature Review (Willis 1989). What this means is that it can be predicted that professionals will resist attempts to specify their occupational skills.

*That's the statement of their objectives in anaesthesia, being what is now the College of Anaesthetics. I don't want you to go overboard in keeping on redefining and extending objectives, as I've said to a couple of people yesterday, I think the ultimate in insanity in the definition of objectives is in Indonesia, where the undergraduate course objectives are written in two volumes that takes over 1650 pages, and it's written in English. I think it would take most of the medical students in Indonesia six years to read the objectives, by which time they should probably be qualified anyhow. [male trainer, CR]*

The facilitator notes the dilemmas he faces in encouraging the right balance of specific and generic objectives. The College must remain in line with other colleges in the level of detail spelled out in curriculum documents. The degree of transparency of College processes is a contested political matter. Industry comparison and industry surveillance by government and bodies charged with abolishing anti-competitive behaviour by colleges are relevant. The facilitator can only hint at the professional issues involved in anti-competitive behaviours in selection and training:

*You should be coming back to your own [document], not relying too much on the external ones. But there is a lot happening out there, there are things which are happening within let's say, the College of Surgeons, there are things which are happening, within the political context, especially in New Zealand, which we have to be aware of. There are issues, for example, [for] my uncle, Alan Fels.<sup>11</sup> There are issues based around selection of trainees. Some of you, I think, would probably have read that document that has been circulated to you recently (um) as a discussion document from the College of Surgeons. [educational facilitator, CR]*

The level of educational expertise is also an issue of comparison between colleges. All are under pressure to understate their educational standards. This is because exposure of these is understood as an erosion of the collective power of the medical colleges. The facilitator notes that the specification for the entry-level practitioner is the same as the specification of practicing professionals within that area.

*I think again, as it is implied, that [with] most of these curriculum type documents within the postgraduate medical arena, they're not only a specification of what only is desirable for trainees, I think they are also a statement of the minimal level of competence of practicing professionals within that area. [educational facilitator, CR]*

Finally, the length of college training programs is more an individual matter for each college, but is also subject to inter-college rivalry. The longer the training, the greater the relative value of the professional services. The timing of the extension of RANZCO's training in ophthalmology to five years coincided within two years with RACS' extension of the training in surgery to five years.

Technical skills teaching tends to equate with a focus on process not outcomes, both in the theoretical literature (Mulcahy 2000) and in this study's data. It is therefore of interest that when asked to name an advantage of CBT from their experience as a trainer, trainers

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<sup>11</sup>Alan Fels chaired the Australian Competition and Consumer Commission between 1995 and 2003.



surprisingly often pointed to educational process rather than to outcome. The ability of CBT to develop an outcomes focus for curriculum is called into question in theoretical work, as it is in this study's data.

In conclusion, the official view, as presented by the College externally is that the College's training is CBT. The next section of this chapter is a closer look at the curriculum documents using an apprenticeship lens.

## 4.2 The official view is apprenticeship

In contrast with the above, there are a number of aspects of apprenticeship, rather than of CBT, found in the official view. While aligning with CBT as a training form serves the political purpose of complying with external regulation, it is far too simple to say that the official view is CBT alone. A closer inspection of the official documents using the lens of apprenticeship leads, rather, to the conclusion that two forms compete for dominance, apprenticeship and CBT.

The most distinct example of fitting CBT into the existing curriculum form of apprenticeship appears to be one from the document called Lancemore Hill 1997 'Ophthalmologists for the New Millennium Supplement to the Draft 1' that was tabled at the curriculum review meeting. This document spelled out the 'educational strategy' for the specific objectives:

*Taking a thorough medical history is taught to all medical practitioners from undergraduate level upwards. Eliciting a history tuned to the needs of an ophthalmological expert is learned by mimicking histories taken by senior colleagues. Both mentor and self-directed learning should refine the trainee's ability to take a history and supervised clinical practice is required to assist in this. Self-directed learning would include accessing literature and information technology as well as communicating with colleagues at all levels of training. [RANZCO (1997) Lancemore Hill: 'Ophthalmologists for the New Millennium Supplement to the Draft']<sup>12</sup>*

The supplement is heavily permeated with the concept of learning from role modelling and traditions of the community of practice, and indicates that learning to elicit a history will be through 'mimicking histories taken by senior colleagues'. Moreover, learning with a mentor should refine the trainee's ability to take a history. Supervised clinical practice assists in this and self-directed learning includes communicating with colleagues at all levels of training. This fits far better with an apprenticeship based training form in which there is a master-apprenticeship relationship than it does with self-directed learning in CBT which is led by the trainee himself or herself.

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<sup>12</sup> Source of data quote is RANZCO (1997) Lancemore Hill 'Ophthalmologists for the New Millennium Supplement to the Draft 1'. A longer extract of this document's account of the ophthalmic expert and clinical decision maker is found in Appendix 4-1

### 4.2.1 Mimicry of practice is mentioned in College documents

‘Mimicry of senior colleagues’ suggests apprenticeship rather than CBT. It acknowledges that ophthalmic training involves a considerable degree of tacit knowledge that simply cannot be described as specific objectives. Figure 4-9 below, ‘The ophthalmic expert and clinical decision maker’ comprises Section 1-2 of the document known as ‘Ophthalmologists for the New Millennium Supplement to Draft 1’ shows this. There is high importance placed on demonstration by ophthalmologists in the practice setting. References to this include the following phrases: ‘mimicking histories taken by senior colleagues’, ‘supervised clinical practice’, ‘communicating with colleagues’, ‘assessment by an allocated mentor’ and ‘supervisors’ reports’.

Once the time comes for the competencies of ‘Manager’ and ‘Health advocate’ to be considered, it is as if apprenticeship has already been named as such, ‘the apprenticeship model is again appropriate’, although up until then the word ‘apprenticeship’ had not been used as a label for training in that same document. This is also shown in Figure 4-8 below, ‘The manager’, which is a later piece, Section 4, of the same document. In other words, the curriculum form is only explicitly named as apprenticeship for the first time very late in the document Lancemore Hill 1997 ‘Ophthalmologists for the New Millennium Supplement to Draft 1’ although its implications are reiterated prior to this through explicitly referring to the related educational strategies of apprenticeship.

**MANAGER**  
**Competencies - Specific Objectives**  
*4. Make decisions and judgments based on sound evidence for the benefit of patients and the population served. This allows for an advocacy role based on both societal needs and the individual when monitoring and allocating resources.*  
***(a) Educational Strategy: The apprenticeship model is again appropriate.** Good day-to-day teaching on the correct management of patients best serve[s] this specific objective. The trainee should be aware of the increasing emphasis on outcomes assessment, and of the need to justify treatment protocols with reference to clinical trials. In many areas of ophthalmology, for example, diabetic retinopathy, there has been a systematic approach to this by the medical community and there are many valid statistically sound trials which can point the way to the appropriate management of a patient. This should never be a substitute for a clinical judgment, however, it does provide statistical support in defending particular treatments where appropriate and arguing their cause in terms of health care funding.*

Figure 4-8: The manager<sup>13</sup>

<sup>13</sup> Source of Figure 4-8 Extract from RANZCO (1997) Lancemore Hill ‘Ophthalmologists for the New Millennium, Supplement to the Draft 1’. Emphasis added.

This document demonstrates that some parts of the official view hold the existing training model to be ‘the apprenticeship model’. Further, since it is stated within the context of educational strategies for the seven CanMEDS competencies, the document implies that this model, apprenticeship, will prevail rather than CBT. These reiterations are found in a further extract in Appendix 4-1. ‘The apprenticeship model is again appropriate’ as the basis of the educational objective under ‘The manager’ to ‘make decisions and judgment based on sound evidence for the benefit of patients and the populations served’ (Figure 4-8 above). The corresponding educational strategy is that ‘good day-to-day teaching on the correct management of patients will best serve this specific objective’. This phrase summarises the dilemma for the College in using any specific objectives.

There are thus significant contradictions in this official view as to what precisely the curriculum form is. There is no mention of a teaching critique about societal change that might be expected in relation to identifying outcomes. There is no mention of any change signalled by the process of articulating the competencies for ophthalmologists. There are, therefore, mismatches between the educational goals, educational intent and the specific educational strategy being promoted. There is a paradox. The ‘systems’ capability implied in the notion of monitoring and allocating resources runs counter to the notion of the usual skills associated with usual ophthalmic practice. The contradiction is that, later, the same document implies that a conservative training form, apprenticeship, can teach new skills.

### **4.2.2 Community of practice**

One of the supervisors voiced concerns about the implications for their skill level in stating that existing teachers with existing knowledge can teach the competencies:

*We believe ophthalmologists should be able to do all those, we do not all know [every] one of those and we may need to lift our skills in all those areas, specifically, and then generally acquire the skills to be able to teach and train effectively. [male trainer, CR]*

The implication of the above quote is that knowledge is evenly distributed, that the CanMEDS competencies are held by all ophthalmologists and that trainees all have access to this distributed knowledge. This view is in accord with the view that ophthalmology training simply comprises an apprenticeship to a craft group.

However, the competency list is not used subsequently in curriculum documents intended for supervisors. The curriculum content is the most detailed area of the official curriculum, Figure 4-5. The CanMEDS competencies do not appear at all. Integration between the two systems, competencies and disciplinary, is not apparent in the diagrams that were published after the curriculum review meeting.

<p style="text-align: center;">LANCEMORE HILL 1997</p> <p style="text-align: center;">‘OPHTHALMOLOGISTS FOR THE NEW MILLENNIUM SUPPLEMENT to DRAFT 1’</p> <p style="text-align: center;"><b>OPHTHALMIC EXPERT &amp; CLINICAL DECISION-MAKER</b></p> <p style="text-align: center;"><b>Competencies—Specific Objectives</b></p> <p><i>1 Elicit a history that is relevant and accurate</i></p> <p><i>(a) Educational Strategy: Taking a thorough medical history is taught to all medical practitioners from undergraduate level upwards. Eliciting a history tuned to the needs of an ophthalmological expert is learned by mimicking histories taken by senior colleagues. Both mentor and self-directed learning should refine the trainee's ability to take a history and supervised clinical practice is required to assist in this. Self-directed learning would include accessing literature and information technology as well as communicating with colleagues at all levels of training.</i></p> <p><i>(b) Assessment: An allocated mentor can assess a Trainee's ability to take a history during supervised clinical practice.</i></p> <p><i>(c) Evaluation of Assessment: This can be assessed using a long case, OSCE and supplementing them with supervisors' reports.</i></p> <p><i>2 Perform an examination that is appropriate</i></p> <p><i>(a) Educational Strategy: The ability to perform a general examination, assess visual acuity, perform a refraction, assess extra-ocular muscle activity, colour vision, pupillary reaction; to perform slit-lamp biomicroscopy, keratometry, retinoscopy, direct and in-direct ophthalmoscopy, exophthalmometry and visual fields are skills which can only be acquired through supervised clinical practice. This can be supplemented through self-directed learning using available literature and information technology as well as mentor tuition.</i></p> <p><i>(b) Assessment: this skill can be assessed through long cases, OSCE, mentor evaluation and supervisors' reports.</i></p> <p><i>(c) Evaluation of Assessment: Assessment methods can be evaluated by monitoring supervisors' reports and surveying both supervisors and trainees from year to year.</i></p>
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**Figure 4-9: The ophthalmic expert and clinical decision maker<sup>14</sup>**

Rather than using CanMEDS headings, the module titles in Figure 4-5 above (the Co-ordination diagram) are taken from the technical disciplines of ophthalmology, such as refractive surgery, and neuro-ophthalmology. The technical disciplines are found separately too from any mention of competencies in the lists that appear on the current RANZCO website, such as the diseases of cataract and glaucoma (Figure 4-10).

The existence of modules is a manifestation of CBT. Naming specific aspects of practice as a part of the curriculum is in keeping with CBT, and is out of keeping with professional indeterminacy. This is an example of the partial adoption of CBT principles into the RANZCO curriculum, with reversion to apprenticeship when detail is called for. The timeline for the curriculum review project (Table 4-1) shows that the Council of the College was involved, that there was a natural lag between the adoption of policies and their

<sup>14</sup>Source of Figure 4-9 Extract from RANZCO (1997) Lancemore Hill: ‘Ophthalmologists for the New Millennium Supplement to Draft 1’

implementation and that the trainees must be informed in advance. As well as the College's Council, other stakeholders in the shift to modularisation are mentioned as the College's Boards of Examiners, its Qualification and Education committees (both local and federal), the teaching hospitals, and the local selection panels for the RANZCO National Ophthalmic Matching System (NOMP). The reification of these changes appears in the 2000 training handbook (RANZCO 2000). Training packages for supervisors is included in the timeline (Table 4-1 above).

Selection is the area that comes to fruition in a short time, whereas the other areas are slower, and some absent. The reversion to apprenticeship is not simply a shift back to defining the curriculum by the clinical areas covered. In the original version, Figure 4-5 above, the modules included communication and counselling, but these no longer appear, and this absence received comment in the AMC accreditation report a few years later (AMC 2006). This omission shows a reversion back to more technical areas of the curriculum. With the dropping of Communication and Counselling by year 2011 (Figure 4-10), there appears to be less endurance of the commitment by RANZCO educators to the non-technical areas of the competency based curriculum than was the commitment by RANZCO at the time of the Curriculum Review Committee back in 1998 (Figure 4-5 above).

It has been pointed out that separation is evident between 'curriculum content' and 'education strategies' (Figure 4-5). Rather than the modules serving the seven roles, they are instead labelled 'curriculum content', being 'all aspects of knowledge and skills' (Figure 4-5). The current 'Advanced training (years 3 and 4)' webpage (Figure 4-11) affirms that the seven key roles merely underpin 'selection, training and assessment' rather than specifying these, as would be expected under CBT. The headings of the modules are based nowadays in the ophthalmic disciplines, not in the CanMEDS competencies (Figure 4-11).

In fact, the seven CanMEDS competencies are given far less prominence than the disciplinary modules, such as cataract and glaucoma, are on the same page. The sentence 'Training is underpinned by the non-medical competencies outlined in the social and professional responsibilities curriculum standard' (Figure 4-11) is all that appears.

These competencies are divided off from the clinical modules list by being termed 'non-medical', and appear in slightly finer print. The Social and Professional Standards also appear on a separate page (Figure 4-12) from the list of disciplines for 'Advanced training' (Figure 4-11).



**Figure 4-10: List of clinical standards omits epidemiology, scientific standards, and social responsibility<sup>15</sup>**

No examples of actual learning experiences are included. This suggests that the notion of educational strategies based on the seven roles is not consistent with the existing culture. Instead, the learning strategies suggested largely relate to mimicry of seniors. Specific learning strategies that might empower the learner to self-directed learning are also absent from the specifications. Instead, heavy reliance on demonstration by seniors and near-peers is evident. The community of practice itself defines the details of what counts as disciplinary knowledge. Although the objectives may be called specific at times, the learning is largely tacit, through mimicry. This is reflected in the specifications that ophthalmology is learnt by ‘communicating with colleagues at all levels of training’.

<sup>15</sup> Source of Figure 4-10 is RANZCO website <http://www.ranzco.edu/training/6-curriculum-standards/clinical-standards/> Accessed June 26<sup>th</sup> 2011, Public access website



# RANZCO

The Royal Australian and New Zealand College of Ophthalmologists



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## Advanced Training (Years 3 and 4)

Having been selected into advanced training, the trainee in years three and four must demonstrate integrated clinical and surgical skills and knowledge in each of the following clinical practice areas, as indicated in the curriculum standards:

- cataract and lens
- clinical refraction
- cornea and external eye
- glaucoma
- neuro-ophthalmology
- ocular inflammation
- ocular motility
- oculoplastics
- paediatric
- refractive surgery
- vitreo retinal

The training is underpinned by the six non-medical competencies outlined in the social and professional responsibilities curriculum standard.

Formal assessment comprises on-job assessments, the Advanced Pathology Examination (in Year 3) and the RANZCO Advanced Clinical Examination (RACE) (in Year 4).

A trainee requires three years of satisfactory training progress (supported by term supervisors' reports for all terms, and records of surgical experience), and must demonstrate mature self-understanding of his or her specialist and professional development, to be considered fit to sit the RACE.

### Quickjumps



THE RANZCO EYE FOUNDATION



THE OPHTHALMIC RESEARCH INSTITUTE OF AUSTRALIA



COLLEGE SCIENTIFIC JOURNAL



PUBLIC EYECARE INFORMATION



RANZCO CONGRESS

Figure 4-11: Advanced training<sup>16</sup>

<sup>16</sup> Source of Figure 4-11 <http://www.ranzco.edu/training/3-overview-of-vtp/advanced-training/advanced-training-years-3-and-4/> Accessed June 26<sup>th</sup> 2011, Public access website

'Medical expert' (Figure 2-2 in Chapter 2) is technical, the other competencies are considered to be non-medical or non-technical. These include the social and professional competencies module. 'Functional areas' are demarcated from competencies. These functional areas, or disciplines within ophthalmology, take precedence: they are turned into headings for the modules and the seven roles are dropped. The map of the 14 modules (Figure 4-13 below) shows that only three of the competencies are served, not all seven. The clinical and the professional standards are separated. 'Medical expert's technical learning occupies by far the most space both on the website and in the curriculum documentation.

Specific objectives relate to the 'expert' competency alone, and this applies only to the highest levels of classification of the unit. At lower levels, the specifications are only general, not specific, as would have fitted with CBT. The evidence guides mentioned in the unit called 'Characterise glaucoma', for instance, include a generic requirement for basic sciences knowledge, such as 'Knowledge of the anatomy and physiology of the eye', without mentioning glaucoma-specific anatomy.

The relative lack of specificity about education outcomes, a seeming reversion to the status quo of 'indeterminism' (Willis 1988) that is known to pose difficulties for all higher education in converting to CBT (Gonzci et al. 1990). The official view is not only that the College is dedicated to education, but that it draws prestige from this. It also describes itself as a 'leading' institution. This tacitly places the College within the university sector, distancing it from what, in Australia, is called the Technical and Further Education (TAFE) sector of vocational education. There is a class stance here since, in Australia at least, higher education has a higher status than TAFE.

### **4.2.3 Technical skills are dominant**

The different treatment by RANZCO of two of the original fourteen modules subsequent to the curriculum review meeting deliberations is of considerable interest to the matter of curriculum form. A competency based curriculum breaks the student learning into modules. The apprenticeship based curriculum does not. Figure 4-14 shows that twelve modules, called 'functional areas', were included in the original 'Ophthalmic expert and decision maker' role. The other two 'functional areas' were in separate roles. Their separateness appears indicative of their instability within the core notion of ophthalmic experts being technical experts in the key disciplines of ophthalmology. The communications and counselling module appears in the organisational view in an early planning document (Figure 4-5), however, this module



does not appear again until 2000 (Figure 4-16). It then reappears as the ‘Social and Professional Responsibilities Standards’. Rather than being stable, their separateness foreshadows their instability, manifested as disappearance and reappearance rather than constancy.

There are a number of points to make on these changes. The Social and Professional Responsibilities Standards are not included in the clinical standards list on the RANZCO website; instead they are listed alongside this list. The standards document itself does not list the ophthalmologist-authors in its contents and, unlike the clinical standards documents, it references CanMEDS explicitly. As with the other standards, there are no learning experiences mentioned or suggested.

The adoption of the seven roles of CanMEDS is critiqued here also as it is a part of the discourse of CBT in ophthalmology. Through the layout of the ‘petals’ around a central competency, the technical, medical expert is promoted by this figure as being more centrally important than the non-technical competencies. It is an assumption of this study that the order in which ophthalmologists arrange the items on this list of seven roles in their minds, called the order of discourse, will reflect the relative importance that each role is accorded in ophthalmology (Foucault 1984). The flower discursively and pictorially ‘constructs’ the role of the medical expert as being central. The order of discourse in the CanMEDS flower (Figure 2-2 in Chapter 2, above) has a meaning that performs discursive work by manifesting but one possible ordering out of many orderings of these roles.

The difficulty that the ‘module’ called ‘Professional and Social Responsibilities’ (listed in Figure 4-12 below, and extracted for Figure 4-14 below) poses for the professional identity of the ophthalmologist of the new millennium is also reflected in its different institutional treatment. The document contains an oath about the covenant with which medicine is linked to society. This oath is read aloud at each annual RANZCO graduation ceremony, a public ceremony that demonstrates the College’s adherence to professionalism. The question remains how such public adherence matches adherence in actual practice.

The other non-expert competency, ‘Epidemiology’, also has an interesting and unstable history. It appeared as an examinable module for approximately seven years, but became a web-based examination rather than a formal College exam between 2007 and 2010. Since 2010 it has been dropped from the examinable module list entirely and will no longer be examinable material. It will revert to the previous entity of a lesser defined ‘Research requirement’ that must be satisfied prior to graduation.

It would appear that this requirement may be satisfied by something that is less onerous than a specific exam, such as submitting a poster abstract to a RANZCO Annual General Meeting. The competency's related document has two iterations, an earlier epidemiology module that includes the names of many ophthalmologists who reviewed the document, and a later version called the Evidence-Based Ophthalmology Practice module with no ophthalmologists listed as authors. The long list of ophthalmologist reviewers that is present in other ophthalmic expert standards is absent in this one.

The inference from this study's data appears to be that these two topics firstly, social responsibility and secondly, systems thinking and critique (EBOP), appear to be marginalised since they relate to non-technical competences. This state of affairs in 2011 is foreshadowed in Figure 4-13 which shows a list of 14 module groups from 1998. It shows how the modules serve only three competencies, and by far in the main serve the single CanMEDS competency of 'Medical expert'.

The apprenticeship model of training comes first too in the ophthalmologists' own definition of their curriculum when they are asked to define it in more detail. 'Medical expert' is seen simply as learning technical processes, not professional outcomes. The curriculum review documents affirm the primacy of the technical in the curriculum. A number of CRC documents were used to flag how the competencies might be dealt with subsequently by the ophthalmologists as an organised group:

*We're at the stage now where we have the draft of one of the curriculum review process last year which was circulated to every Fellow in the College by a separate mail out, for notations and feedback. We have the ongoing work of the sub-groups that did work after the weekend and [ophthalmologist's name] very generously and kindly put all of that together. And that came out, and was distributed to you as a Supplement to that Draft. So you've all had a chance to read both the Draft and Supplement, as well as the original Canadian [journal article] statement on which that was based. [male trainer, CR]*

The AMC recognises that practical graduated experience is essential to the postgraduate training of a doctor and admits that practical training is emphasised:

***Supervised practical training in accredited training programs ...emphasise graduated practical experience and development of a knowledge base in the science and practice of the relevant specialty. (AMC 2006: 5)***

The Australian Medical Council accreditation committee praised RANZCO for its use of CBT when formatting its curriculum documents, but noted, as does the researcher here, that these were not based in the CanMEDS competencies list (AMC 2006). The accreditation body has a conflict here. It is aware that 'supervised practical training' is the hallmark of learning this specialty and, at the same time, it demands recognition that the CanMEDS framework is being implemented.

The format of these documents is explained in new official vocational education competencies language, but details a conventional ordering that is based around the old disciplinary subspecialties. An example can be found in the group of diseases classed as ‘glaucoma’, Figure 4-13 above. In large teaching hospitals where trainees are taught there is often a glaucoma unit with its own Glaucoma Clinic and its own set of subspecialists with whom trainees rotate.

The organisation of the professional work as presented in the College’s ‘Clinical standards’ thus matches such clinical division into subspecialties. This does not match the CanMEDS list of seven competencies, and is an example of a failure of CBT to ‘stick’ in the ophthalmic curriculum.

A distinction between ‘Clinical standards’ and ‘Curriculum standards’ is present in the RANZCO website presentation about education, shown in Figure 4-12 above. The notion that ‘Medical expert’ is central has been reproduced by RANZCO in separating its ‘Clinical standards’, in the centre of the CanMEDS flower, from the less essential ‘Curriculum standards’, which are the non-technical, non-medical, non-central petals of the flower.

#### **4.2.4 The technical–non-technical divide**

Apprenticeship based training holds that training is primarily technical (Guile & Young 1999). This means the sharing of the craft between practitioners in the community of practice. It is thus to be expected that an explicit display of social skills or attributes would not be adopted because this is not a traditional aspect of the culture of apprenticeship.

Unlike the CBT tradition, which specifies the precise conditions in which the competency would be tested, the ophthalmic competencies are rather specified as ‘work is to be achieved with total autonomy’, in Figure 4-3 above. This would suggest that, notwithstanding desire, apprenticeship training is trumpeted clearly within a CBT structure. Where the competencies standards relate to subspecialties, the specifications are defined, similarly although less strictly, such that that ‘the practitioner is to perform this work with a high degree of autonomy and responsibility for accuracy and completeness’ (Paediatrics Standards RANZCO 2004:12)<sup>17</sup>. Either way, there are no other specific conditions or criteria, and this makes it an example of an unformed CBT curriculum.

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<sup>17</sup> Source: <http://www.ranzco.edu/training/6-curriculum-standards/clinical-standards/AAA%20PDF%20Paediatrics%20Standard%20August%202004.pdf> Accessed June 26th 2011

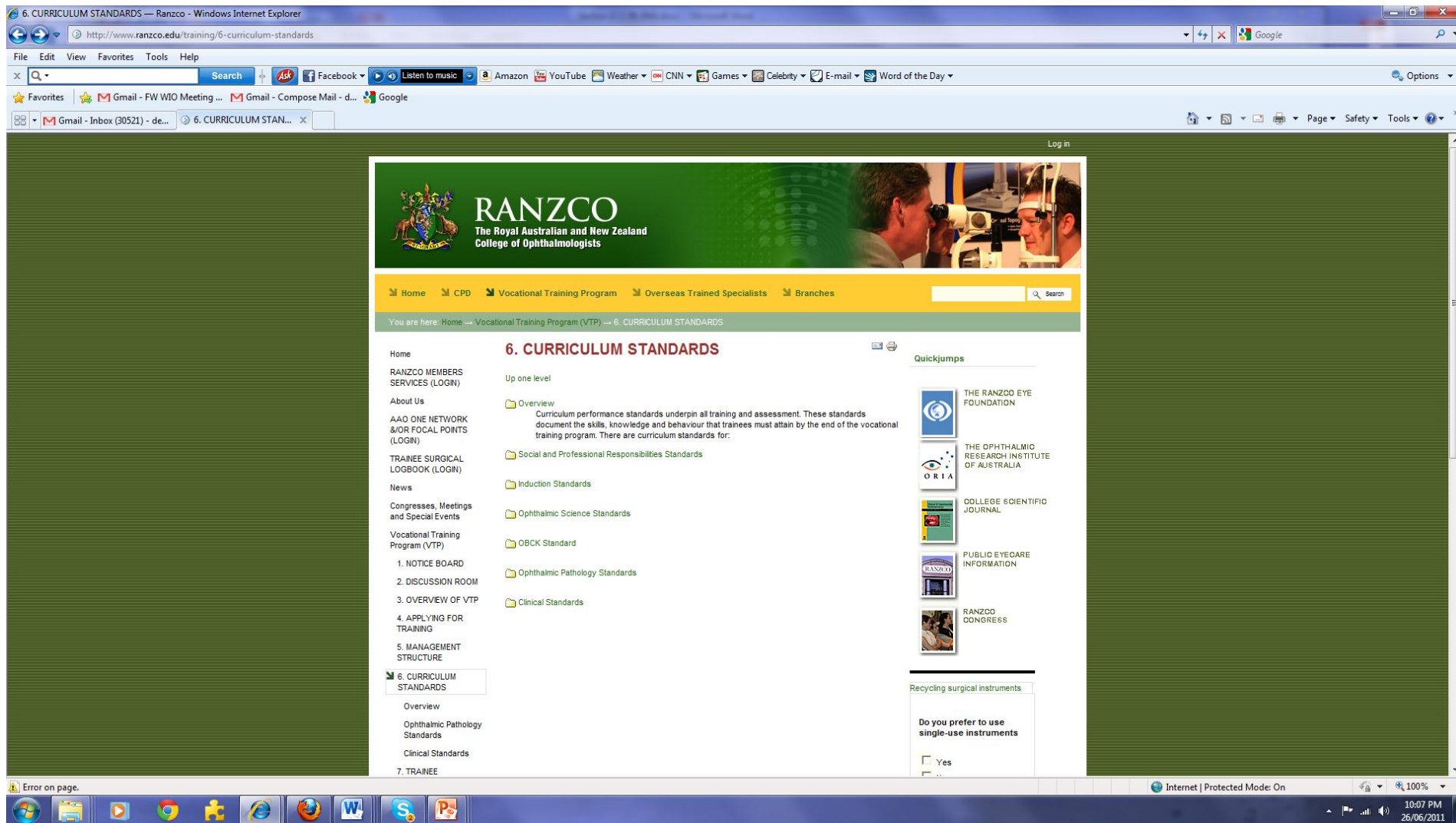


Figure 4-12: The ‘Social and Professional Standards’ are separate from the ‘Clinical Standards’<sup>18</sup>

<sup>18</sup> Source of Figure 4-12 <http://www.ranzco.edu/training/6-curriculum-standards/clinical-standards/> Accessed June 26<sup>th</sup> 2011, Public access website

**RESOURCES**  
RANZCO Curriculum Review  
Email Leader

**DRAFT**

**CURRICULUM REVIEW  
CURRICULUM CONTENT WORKING GROUP  
TERMS OF REFERENCE**

**Structure of this working group**  
This working group comprises the convenors of the module groups preparing material on each of 14 functional areas.

The following 12 functional areas relate primarily to the role of the ophthalmologist as *Ophthalmic Expert and Decision-maker*:

- → Cataracts
- → Refractive surgery
- → Optics refraction
- → Cornea & external diseases
- → Neuro-ophthalmology
- → Oculoplastics
- → Paediatrics
- → Glaucoma
- → Ocular motility
- → Vitreo retinal
- → Medical retina
- → Inflammatory & infectious eye disease

The functional area

- → Communication & counselling relates primarily to the role as *Communicator*.

The functional area

- → Principles of epidemiology & scientific method relates primarily to the roles of *Scholar and Health Advocate*.

**Figure 4-13: Fourteen RANZCO modules resulted from the curriculum review meeting in 1997<sup>19</sup>**

The facilitator too is complicit in favouring processes over outcomes, supporting the ophthalmologists to conceptualise their curriculum as apprenticeship. He admits that an outcomes focus goes against the culture, advising the group to ‘start laterally but bring it back to reality’ (educational facilitator, CR). Explicit discussion of the contradictions between CBT and apprenticeship was also entirely absent in the curriculum review meetings.

<sup>19</sup> Source of Figure 4-13 RANZCO (1998) Working Group Curriculum Review Committee 1998

The official view is that the ‘work of an ophthalmologist requires the mastery of a complex body of knowledge and skills’ (Figure 4-14, below). This involves ‘more than clinical competence’ (Figure 4-14, again). The work of the ophthalmologist in actual practice clearly incorporates a range of roles beyond that of ‘Medical expert’. The social contract requires these six other roles. It is significant that they are represented as extending ‘beyond’ that of medical expertise rather than represented as subsumed within it. In this way, there is a ‘culture of no culture’ evident here. Taylor (2003) notes that such a representation fosters static conceptions of ‘culture’ as applied to patients. Also, students may be forgiven for

***failing to take these very seriously as long as they perceive that they are quite distinct from the real competence that they need to acquire. (Taylor 2003)***

The non-medical competencies would appear to be the ones that take a patient in a context, rather than as a part of the ophthalmic system of knowledge. It would seem, then, that the ophthalmic curriculum sets itself up as open to the critique that its official view of curriculum is that of training a decontextualised medical expert. The official view also posits the ‘Ophthalmologist of the new millennium’ as being something different from an academic scholar. It makes no pretence of social reconstruction, which might be intended by some of those attempting to introduce the seven CanMEDS competencies. It emphasises modelling this for others, rather than any framework of social reconstruction whereby senior ophthalmologists critique their own practice. Such a move might have created the professional identity of social reconstructive agent, a social reformer, for the ophthalmologist.

**SOCIAL AND PROFESSIONAL RESPONSIBILITIES CURRICULUM STANDARDS**

***Purpose: The work of an ophthalmologist requires the mastery of a complex body of knowledge and skills. An integral part of being a good ophthalmologist is the acknowledgment that it involves more than clinical competence in diagnosis and treatment of eye disease. Central to the work of an ophthalmologist is the incorporation of a range of roles, beyond that of a medical expert: a communicator, a collaborator, a manager, a health advocate, a scholar, and a professional. The attitudes and behaviours, that each of these roles entail, form the basis of the social contract between the medical practitioner and society. Society, in return, grants profession-led regulation with the understanding that its members are accountable to those it serves. The purpose of this curriculum standard is to outline the six roles that extend beyond that of medical expertise. Learning outcomes and performance criteria underpin the work-based training experiences that trainees encounter throughout the Vocational Training Program. Underpinning the Social and Professional Responsibilities standard are the values encapsulated in the College Oath with its emphasis on the practice of medicine as an ophthalmologist being both an ‘art’ as well as a ‘science’. (RANZCO 2007)***

**Figure 4-14: Extract from RANZCO Social and Professional Responsibilities Curriculum Standard<sup>20</sup>**

<sup>20</sup> Source of Figure 4-14 RANZCO (2007) <http://www.ranzco.edu/training/6-curriculum-standards/social-and-professional-responsibilities/Social%20Professional%20standard%20Final.pdf> Accessed June 26<sup>th</sup> 2011, Public access website. Emphasis added.

In summary, the non-technical competencies are found separate from the technical competencies expected of ophthalmic trainees. The Social and Professional Responsibilities Standards are in a different format than that of each clinical standard. Moreover, they contain no *imprimatur* from ophthalmologists as found in the list of respected ophthalmologists present in the clinical standards. This non-technical module tends to be subtly created as of a less mainstream kind of module. Instead, the Social and Professional Responsibilities Standards document is in an alternative format, which further marks it as separate.

#### **4.2.5 Practice—specificity of objectives is lacking, irrelevant or anathema**

In apprenticeship, processes, specifically the processes of shared work practice rather than outcomes, are the focus of training (Guile & Young 1999). There is significant evidence in the data for this study that the lived experience of training is closer to apprenticeship than to CBT. It is as if the documentation that uses CBT language serves to prove to outsiders that RANZCO is good at training rather than driving a real change in education. Listing the competencies required of an ophthalmologist makes it appear that an industry standard exists, and that this is being followed in the curriculum for trainers or trainees.

However, the data from this study (Table 4-4 below) demonstrate that participants do not conceptualise the College competencies as being related to outcomes, or to an industry standard. Participants believed that the competencies were implemented only patchily in other colleges and that the language of competencies is being internally composed and publically used to fend off external scrutiny, to deflect both criticism and any political moves that might, for instance, see universities take over training. Accountability to an external standard is given by study participants as the major explanation for the competencies' existence, rather than their value in training. The College can 'tick all the boxes' (P304) so that it appears that teaching has been done according to an agreed external standard, although the CanMEDS roles do not appear in detail in the present-day curriculum documents. Specificity of curriculum objectives is lacking, irrelevant or anathema to the study participants (Table 4-4).

<p><b>Lacking: Trainees have only a general idea, not a specific idea, of training outcomes through the existence of competency lists</b></p>	<p><i>So what I was thinking was that with all the competencies I have a feeling that the College is trying to prove to the government that they're good at training people because they can tick all the boxes, when it's not necessarily good for the trainees. Whereas if you have a body like the university which is actually there to teach, and knows about teaching, then maybe those boxes won't need to be ticked, to make it, to keep the College in control, and then the education of trainees will be better. <b>So the College is arguing that they are good at training people because they can tick all the boxes.</b> So that's why I wonder if it would be better if the universities took over training and had training programmes that were aimed at improving the trainees in their many competencies, or education whatever, because they're not having to prove that they're as good as the universities, to teach. It has crossed my mind that the universities might be better than colleges, to teach. [female trainer, P304, emphasis added]</i></p>
	<p><i>It's a framework that you can sort of try and work around to. [male trainee, P303]</i></p>
	<p><i>To be honest I wouldn't say that it was [on my mind for the exam]. It's not as though that list is in the back of my mind as I approach being an ophthalmologist. It is more subtle than that, it's a more subliminal thing. You know I am aware of what it is to be a doctor in our community and I am aware of what the requirements are to be a doctor and I think that is how I sort of frame my learning and my practice rather than having this checklist that I think I need to apply. But I mean, you know, definitely I think that it is important to have those attributes and I am not saying that they are not important. To be honest, they are very important but it's probably a more subtle way of attaining them that we go about. [female trainee, P306]</i></p>
	<p><i>[There's a list of seven competencies. How much do you think you use it? Do your trainers use it? Can you give me examples of where you've looked at this?] Not since I've prepared for the interview. [male trainee, P307]</i></p>
	<p><i>You don't have the experience of being out long enough and knowing exactly what this means. [male trainee, P303]</i></p>
	<p><i>I think we sort of strive for these things and subconsciously you think about it in a less structured role. I think we're sort of striving to become a medical expert and that's the vast majority of our things. But you're also quite conscious that you need to be able to deal with the patients and [that] communicating is important. And ophthalmology, because it's such a sub-specialised area, there is a lot of collaboration between doctors within different departments and that's important. Less so than with allied health and other things. [male trainee, P307]</i></p>
<p><b>Irrelevant: CBT framework is an external, bureaucratic imposition with no relevance to teaching ophthalmic practice</b></p>	<p><i>Well who are we doing this for? Are we doing this for external auditors, which we are in part and they need to know that, but are they actually able to measure the competency or whatever is at the other end? That's the issue because the writing on the paper helps you spread out what is required, to actually measure you have to work out other ways of saying 'Is that all?' [male trainer, P204]</i></p>
	<p><i>Some of those things are far more glaring when you lay it out but some of them don't make any difference. I don't think the glaucoma curriculum is going to make any difference, I don't think the cataract curriculum is going to make any difference because in the long run it's experiential learning about how to handle this person in front of me. [male trainer, P204]</i></p>
	<p><i>What I want to know is 'Are we going to be any different from what we were before?' And, much of the areas that have been deal[ing] with are what we've done before. It's the new areas, the ethics and the others, that are going to make a curriculum a better process or the people at the end of it hopefully will be better products, if I can use that sort of word, because we've</i></p>



	<p><i>then attempted to articulate, for example, ethics. They were doing that before, they weren't doing it an articulated conscious form. They were doing it all the time, as we all were. So in a sense I could say there are going to be good things coming out of this because it actually following that what it is that we require or we think a good ophthalmologist should ever be. So I see positives in that and if that's what it's about that okay, that's fine. But are we doing it by being driven by an external process? To me that means we've failed in the first place, why weren't we doing this before that? So it's a little bit hollow that we have to be driven by the threat by the year 2006 I think it is, or 2004, that we have to have everything in place? How sad. Why didn't we do that [already]? Why didn't we own the issue before that? [And do you think we are owning it sufficiently now?] No, I don't think we are. I think there [is] still enough cynicism amid the trainees that they've got to get the end point and they will just go for the quickest way ... because they believe they will learn out there in the job which is back to the apprenticeship model. So we'll wait and see. [male trainer, P204]</i></p> <p><i>I guess that's hard, to kind of consider yourself a medical expert, when you are still training, to be honest. [male trainee, P303]</i></p>
<p><b>Anathema to apprenticeship: Specific objectives are lacking because they are anathema to the professional ethos of practice based clinical teaching</b></p>	<p><i>We need to look at selection of supervisors. That assumes there's a great abundance of them from which to select, but it is still an issue that needs to be looked at, and with that their training. To a large extent we are asking the supervisors to supervise the competencies that we've set out in the curriculum. We believe ophthalmologists should be able to do all those, we do not all know one of those and we may need to lift our skills in all those areas, specifically, and then generally acquire the skills to be able to teach and train effectively. [male trainer, CR]</i></p> <p><i>[Is the competency based training framework helpful?] Which framework? [male trainer, P312]</i></p> <p><i>I think it is hard to quantify them though, and I don't think I've ever met anyone who is equally balanced in all areas, although that would be ideal, a true renaissance ophthalmologist. [male trainee, P303.]</i></p> <p><i>So, is the body of knowledge at the end of it any different from what the body of knowledge was before? Well we could argue here by looking at the curriculum that we have in past ignored such things as public health or advocacy or politics or whatever. [male trainer, P204]</i></p> <p><i>[Can you tell me about the standards that the College has produced?] I like reading through those before a term and getting a bit of feeling from them. I've got them all in a folder. [How have they helped?] You know it's just that often I'll go to the boss at the beginning of the term and say look this is the sort of thing the College has given us. We'd like to get educated in [these things written here] and they'll look at it and say 'Well, some of these things are extraordinarily rare and if we see them we see them but we can at least talk about them'. [male trainee, P305]</i></p> <p><i>[Do you know what I mean by the list of the CanMEDS seven competencies? Like expert, collaborator, communicator, health advocate?] Health advocate and all those? Basically what comes to mind is the application process to get into ophthalmology where you are required to demonstrate our competencies in all of these key areas. And then from that then stems this review process that we have with a clinical supervisor for each unit that we do each rotation [with] and we are judged according to those seven key areas. And, look, I think it is a very difficult process. You have these assessments face to face with your tutors which I think is appropriate. You need to have the one-on-one feedback but also ... the flip side to that is it is very difficult for someone to be very honest with you if they have a particular area where they think you are weak in. So I think that is quite a difficult process. But overall, I think that it is important [in] what we are striving for as ophthalmologists and as</i></p>

	<i>doctors but whether they actually bear out is a different thing again. [female trainee, P306]</i>
	<i>But my boss doesn't say 'Great'. You are really are a patient advocate there and you have managed them really well and you've communicated quite well to the patient so let's collaborate together and laser them. [Laughs] I mean conceptually this is the theory of what I do but it is not explicit. [male trainee, P303]</i>
	<i>[Later on in training] you do more things—you interact with your bosses, go to conferences and you are able to understand what they mean together. [male trainee, P303]</i>
	<i>Last time we were talking in general terms about outcomes, and that enabled us to be very general. Do you just want it to be as broad as possible and ignore the practicalities of implementation to a degree? [male trainer, CR]</i>
	<i>She certainly thinks about it and says 'What five can we tick off this week from that list, from the curriculum standards?' [Competency curriculum standards, in what area?] It might be doing, say, evaluation [of] diabetic retinopathy, [where] she'll say 'Let's focus on that this week'. So she'll grab patients or ask you to share her patients. [How will she use the framework?] I guess it's just that she's used that to guide her to do those things in a structured way, rather than just making it ad hoc. We just see patients together in the clinic with that issue and talk about [them]. She says 'How would you grade it and how would you manage it?' And you answer that and she puts her input in. [Do you have the framework in front of you or has she read beforehand too?] She knows it and we have it there [in clinic]. [Do any other consultants use it?] No, not much. [Is that usual?] It's unusual [to use them] I don't reckon that those [other trainers] have [much use of the documents]. I mean in my humble opinion I don't reckon that they probably change the training massively, maybe they have, maybe they have. I don't know. [male trainee, P305]</i>

**Table 4-4: Study data show that specificity of objectives are lacking, irrelevant or anathema to the apprenticeship culture**

## 4.3 Colonisation of competency based training by apprenticeship

The literature on competencies as a social technology predicts that apprenticeship would subsume CBT as a form of medical dominance (Willis 1989). The term medical dominance refers to the phenomenon whereby doctors' interests tend to overshadow those of other workers in the health care workplace (Willis 1988, 1989). The term 'colonisation' refers to the coexistence of two competing discourses or cultures where both discourses inhabit the same terrain (Willis 1989).

Theories of competing discourses and medical dominance predict that competencies, as a novel possibility in education, will be drawn into the existing culture and adapted into it according to the dictates of the existing social system—in this case, apprenticeship.

In the data for this study, CBT appears subsumed within the dominant discourse of apprenticeship, as predicted. In the case of present-day ophthalmology in Australia and New

Zealand, the apprenticeship based training discourse is more powerful than the discourse about the outcome of serving 'societal needs'. This is most clearly illustrated in the suggestion within the data the CBT curriculum which suggests that trainees, paradoxically, should follow existing role models in learning skills that are new to the profession. It is also illustrated by the distancing of CBT into an administrative, external discourse or as being so aspirational that its outcomes are unachievable. CBT is constructed as impossibly simplistic and inconsistent with the serious profession of eye surgery.

In conclusion, in this Chapter, Chapter 4, The Official View, CBT prevails as the basis of ophthalmic training. However, there are contradictions presented even within this official view. Closer inspection of official documents, supported by the interpretation provided by research participant interviews, strongly suggests that the apprenticeship form of training is dominant, even within the official view. The lived experiences of training might tell a different story again. The next chapter, Chapter 5, entitled Apprenticeship in the Operating Theatre, provides a more detailed examination of the lived experiences of training, teaching and learning.



## Chapter 5 Apprenticeship in the Operating Theatre

The study's aim overall was to identify in what ways what is known about curriculum forms match the data in this study of ophthalmology. The hallmark of the apprenticeship based curriculum form is learning through shared work in a community of practice (Guile & Young 1999). This study finds that learning in ophthalmology occurs in a community. The particular finding presented in this chapter is that ophthalmology displays the apprenticeship based form since much data were found about learning in such a community.

When one participant in this study was asked his views and experiences of competencies in his work, he gave a short reply. His first and most emphasised competency by far was 'medical expert', which in ophthalmology means doing operations:

*I tell the registrars that **we need you to be able to do this operation** and that operation. [male trainer, P308, emphasis added]*

This quote epitomises the core finding of the research, that technical skills learnt through apprenticeship and within a community of practice are by far the most important aspect of education in ophthalmology. This quote is extracted from the interview data displayed in Appendix 3-13.

What is spoken about first is given the highest priority by the culture. When talking curriculum, teaching technical aspects of surgery comes first, invariably (Swanwick 2005). Cognitive learning about the technical aspects of the craft is held to be of the highest priority in the culture of this community of practice. To ophthalmologists, it would be unthinkable to reverse this ordering. Next in priority come the other competencies. In the literature these are called the non-technical competencies. They are always mentioned second (if at all), always after the technical competencies, not before.

Trainers and trainees share skills and experiences working together in the operating theatre, processes that inspire members to participate in the activities of the community. In the operating theatre, trainees learn about the core of being an ophthalmologist. Consultants themselves learn more about surgery through the act of teaching someone how to perform it. The community needs a registrar to be able to do operations, so technical skills need to be learnt well in the operating theatre. As an example, cataract surgery is a much sought after

service. Cataract operations are frequently performed and thus are iconic of the domain of ophthalmology. Shared work together on patients with cataracts is the basis of learning between masters and apprentices in the ophthalmic curriculum. Trainees develop common ground with their consultants and a shared sense of identity as together they share the domain of ophthalmic surgery.

Competency based training gives teachers a language for making previously tacit teaching points more explicit. This form of training, CBT, is becoming a teaching and learning tool. This trainer sees the competency lists as a useful way of expanding talking about practice. It is not only teaching surgery that is important, although this comes first, but it is also important also to reiterate that communication and relationships are relevant to training too.

*[Do you use any list of competencies?] Yes I do. I mean even if I can't list them for you because I don't have them in front of me to coincide with the College competencies, basically yes. I mean I tell the registrars that **we need you to be able to do this operation** and that operation. We also need you to be able to communicate information; be able to communicate to the patient; be able to establish rapport show compassion and so on; be able to do searches; be able to put information together; be able to keep accurate records and so on. These are all competencies. [male trainer, P308, emphasis added]*

Using latent content analysis and discourse analysis rather than manifest content analysis alone sets this quote in a broader context and answers the research question in more detail. The manifest content is that the trainer's priority is that of the community of practice, he needs to ensure that the trainee is capable of doing a cataract operation. Latent content analysis reveals that there is a message to the trainee that the heroic identity of the technical expert is to be the curriculum's priority for their training. The shared work of the cataract operation *is* the curriculum (Minichiello et al. 1995; Lave & Wenger 1991).

Critical discourse analysis reveals some myths of the ophthalmic workplace (Wodak 1996). It is a myth that the ophthalmologist is focussed both on the technical *and* the social as CBT might otherwise have suggested (Frank & Danoff 2007). The community of practice insists that the trainee perpetuate the practice. The focus of training is not the outcomes; it is the need for the community to replace itself. The community of practice must ensure its own succession, and this is the prime purpose of training. There are some implications of this remark. One is that the trainee's self-development is not the community's priority: its priority, rather, is its shared work. Its shared work ensures that community of practice reproduces itself. Given the high expectations of the trainee, the exactitude of the match of trainee skills and consultant skills appears likely to be high. This makes for powerful and effective training. It also makes for powerful control of the trainee by the community of

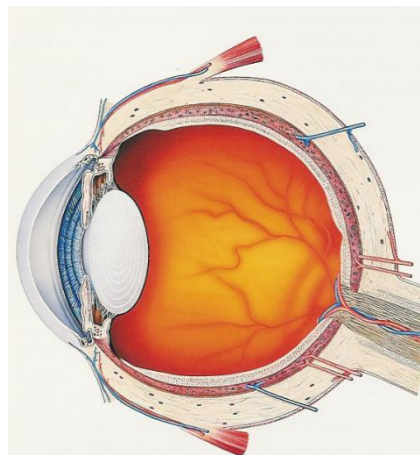
practice, and for curbing of critique. Mastery learning requires the apprentice to surrender to the master if learning is to happen (Rikowski 1999).

## 5.1 The operating theatre

No amount of academic training can prepare trainees for learning the core of ophthalmology, its technical skills. A trainer asserts that ‘learning skills mainly through exposure in the job out in the field’ is his definition of ophthalmic apprenticeship:

*[Some researchers say that ophthalmic education is predominantly master-apprenticeship, does this sound right to you?] Yes it does. If we define apprenticeship as **learning skills mainly through exposure in the job out in the field**, yes I do [agree]. I think that’s the way tradesmen become qualified, they serve apprenticeships. They go to ‘tech’. They do a little bit of theory, but most of the skills that they learn really are the practical skills that you pick up on the job. So I think that’s a fairly good description really, just on a higher level obviously because all these boys and girls have got degrees in medicine so they’ve done quite a lot of academic work to prepare themselves for [eye] training and continue to do so. But really, most of it is practical. [male trainer, P308, emphasis added]*

Trainees learn practical cataract surgery in phases, with the master and others in the hierarchy of the community of practice in control of the learning process. The trainees learn anatomy and physiology of the eye early in their training or in some cases, before. In this simple anatomical sketch of an eye with cataract, the lens is white. When this happens, the patient's vision becomes impaired and the lens may need removal to clear the sight.



**Figure 5-1: Simple sketch of an eye with cataract**

Furthermore, the master decides when the trainee is ready to move on to the next phase of learning. The trainees are introduced to the scope of what the procedure involves as a whole

by passively observing and assisting in theatre. The trainers simply say, ‘Hey, watch what I do’ (P316).

To prepare for more complex shared work in surgical care, trainees then learn manual skills in the ‘wet lab’, and subsequently return to theatre to actively learn more. Before their return to theatre, according to a senior trainer, they must master ‘the basic items’ in the wet lab, such as ‘creating a wound and inflating an eye’, two crucial steps in the procedure of cataract extraction:

*[I say to them that the] first thing we do is we’re going to go to a wet lab and you don’t get out of the wet lab until you have mastered these basic items. And those items might be creating a wound and inflating an eye and then doing some [other] things. They might have to do four sessions in the wet lab and we have a six-bench wet lab set-up all the time so there is always space for that, and usually at least one consultant around to teach. So we do that first. [male trainer, P316]*

Wet lab experiences also prepare the trainee for theatre. Trainees learn that there are a series of steps to be undertaken in performing the procedure of cataract extraction. Trainees practice these steps in isolation, first preparing themselves to perform the procedure of cataract extraction as a whole. In some programs this happens strictly *before* they are allowed into theatre, as one trainer explains:

*The skills are highly technical and sophisticated. Before starting on live human eyes, operative surgery is best initially practiced in a wet lab on an animal eye. [male trainer, P316]*

After the wet lab the next phase of training is to perform authentic cataract surgery in theatre on a live patient. Teaching is broken into named steps, labelled according to the technical breakdown of steps within the procedure. Registrars often start with the safer, final steps of the procedure of cataract surgery because of patient safety concerns. The final few steps are technically known as irrigation/aspiration of the cortical lens material, then intraocular lens insertion, and finally aspiration of the visco-elastic, after which the wound is checked to ensure it is watertight.

These three steps are often taught in reverse order by the trainer quoted below. Like Lave’s tailors, who ensure that the very last step apprentices take in learning tailoring is to cut expensive cloth, the most risky step for the group’s productivity, to minimise risk to the patient this trainer starts with the steps that occur at the end of the ‘complete operation’ (Lave & Wenger 1991:72). One trainer calls this educational strategy a ‘reverse chain’:

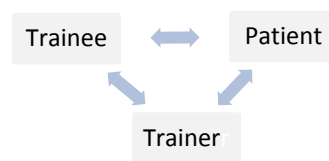
*And then when they go to theatre again. Rather than saying, ‘Hey, watch what I do’, we say, ‘You are going to master the specific part and this may be the only bit you master for the next two or three weeks’. And that part might be making an incision, and that is all they do, and they just master the incision. I say we actually mainly do **reverse chain**, because you obviously do less harm if you start at the end. So typically what we do is [to] get them, first thing, [to] actually aspirate the visco-elastic and then maybe insert the lens at the end and then maybe do a bit of the I/A [irrigation/aspiration] at the end. So we actually go from [the initial steps of the] complete operation [back] to the beginning of the operation over about six months. [male trainer, P316, emphasis added]*



The unarticulated pedagogical phases here are modelling and coaching. Modelling comes first, then coaching. Coaching involves getting the trainees to act outside their usual capacity. Through supervision they learn to ‘surpass themselves’ (Bereiter & Scardamalia 1993).

## 5.2 Expansive learning, activity theory and the zone of proximal development

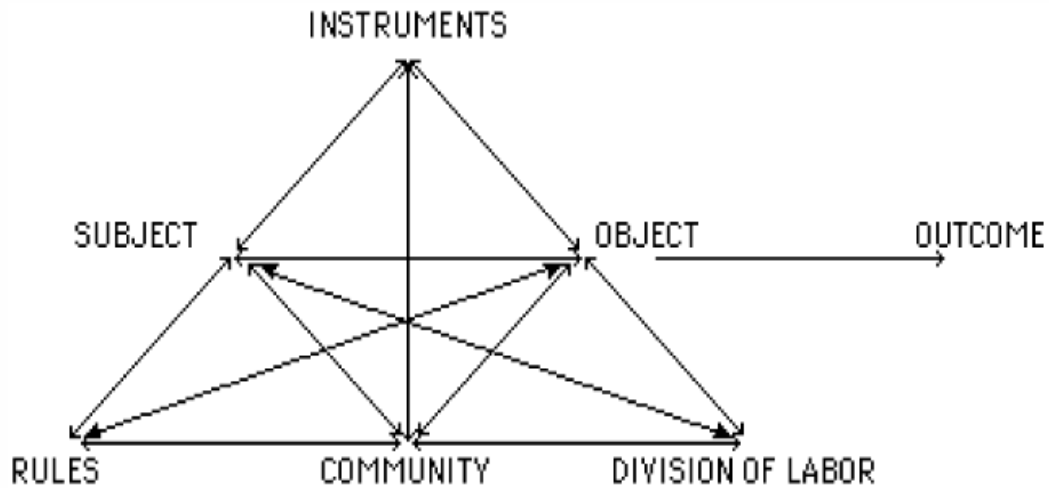
According to activity theory, as they learn, trainees move to what is called the ‘zone of proximal development’ (Vygotsky 1978:86; Bereiter & Scardamalia 1993). According to Vygotsky’s (1978) classic description of what happens in skills training under supervision, the difference between the novice and later is called the zone of proximal development, ‘the distance between the actual level and the level of potential development as determined in collaboration with more capable peers’ (Engeström 1999:86). In the ophthalmology training activity system, the subject would be the trainee, and the object would be the patient. The trainer too is part of the community that influences both trainer and patient. The figure below is a very simple preliminary illustration of ophthalmic training.



**Figure 5-2: A simple representation of ophthalmic training**

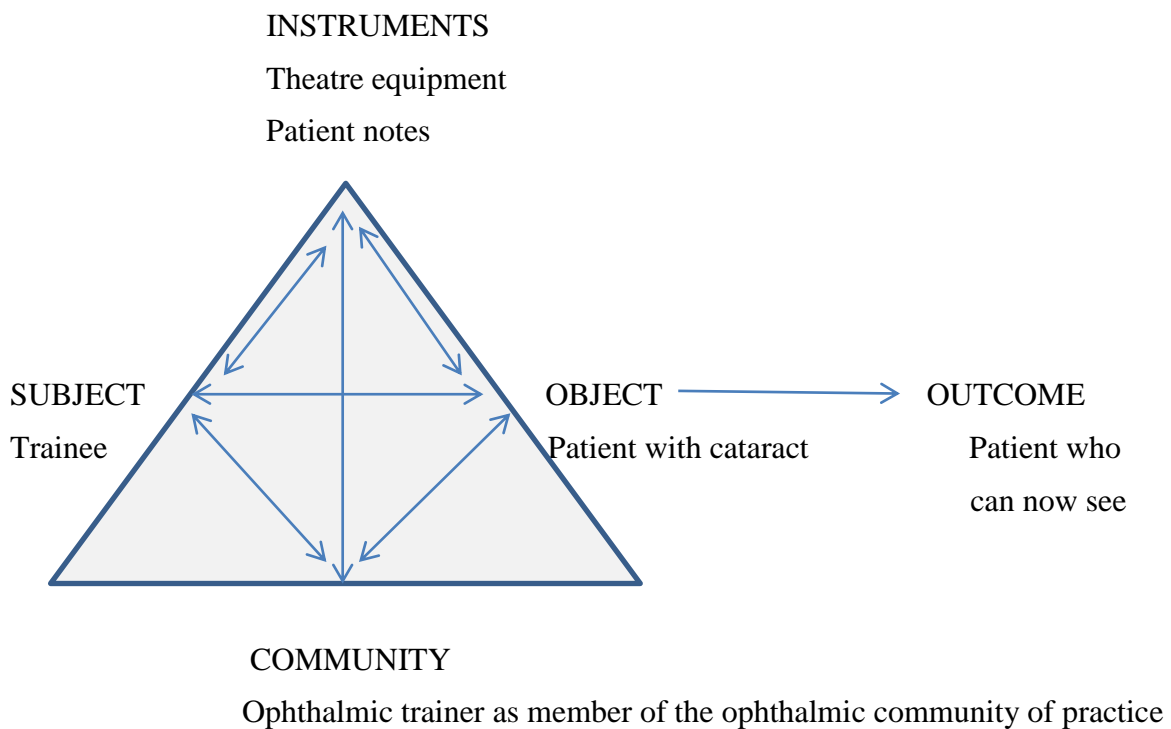
An activity system is shown in Figure 5-3. The Figure shows a schematic activity system in more detail (Engeström 1987:78; from Engeström 1999:66). The activity system is a mediated structure, since each item interacts with all the others (Engeström 1999:6).

An ophthalmic version of an activity system was created for this study and is shown in Figure 5-4 below. The structure of any activity system (Figure 5-3) translates into ophthalmology (Figure 5-4) as follows. The zone of proximal development is the potential new capability of the registrar to perform expanded activity due to the presence and influences of the ophthalmologist as trainer.



**Figure 5-3: The structure of an activity system**

Figure 5-4, an activity theory representation of ophthalmic training, shows the trainee, the patient with cataract and the trainer, but also has scope to include other factors such as the materialities of theatre equipment and the patient's notes (Fenwick 2010). That this activity theory representation of ophthalmology is possible supports the notion that ophthalmic training is apprenticeship based.

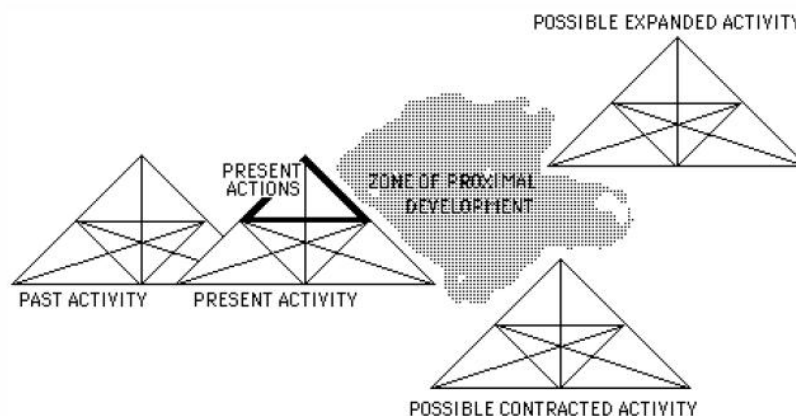


**Figure 5-4: An activity theory representation of ophthalmic training**

The advantage of the activity theory approach is that the totality of training can begin to be conceptualised in terms of changes in both activity systems and individuals. For instance, the ‘domain’ of ophthalmology can be understood to include the rules and the division of labour of the mediational structure of its activity system, both of which can be represented conceptually as changing over time. Since this is a multi-mediational system, changes in one item affect the entire activity system. Successive updates of an empirical activity system can be made pictorially and flexibly.

To represent change, the picture of past activity and present activity and the successive expansion of the trainee’s capacity through zones of proximal development as seen in Figure 5-5 below. Together they represent the various phases described in this chapter. This could be done for a single operation, for the training of an individual trainee, and for the program as a whole over time, using the comparative headings of past activity and present activity, as shown.

The advantage of the zone of proximal development conceptually is that it makes useful links between ophthalmic training and activity theory. Activity theory explains how change can happen in health care organisations and in individuals through training. The trainee is understood to move from present activity to possible expanded activity via the zone of proximal development.



**Figure 5-5: The zone of proximal development**

Once the registrar has confidently solidified his or her zone of proximal development, the next step of development is to do operative surgery relatively independently. Fading, the next phase, then can occur. Coaching and scaffolding decrease, while close supervision is initially

maintained but then gradually withdrawn. In ophthalmology, supervision is maintained until the consultants are sure that the trainee is safe and proficient.

Operating is not simply the key domain of ophthalmology. Even more significantly, the operating theatre can be considered, in general, to be the central domain of the modern teaching hospital. The work learnt in theatre is the core of ophthalmology and is also considered by ophthalmologists themselves, though by no means all medical practitioners such as general practitioners, to be the very core of clinical medicine.

Through learning shared knowledge in the operating theatre, trainees learn primarily how to become a technical expert. The trainee knows that learning in theatre includes a large component of manual skill acquisition, and it is on this that they need to concentrate. To use the CanMEDS language of competencies for doctors, in learning how to be a technical expert, the trainee becomes a medical expert. The logic seems to follow that technical skills are learnt in theatre, theatre is the centre of the teaching hospital, and technical skills come to occupy the core focus of teaching hospital clinical care.

### **5.2.1 Situated learning in the operating theatre**

Before describing learning in theatre here and learning in with outpatients in the next chapter, it is useful to point out that the teamwork performed by an ophthalmic unit occurs mainly in two places: the operating theatre and outpatients. It is the team members of the same unit who belong to the community of practice that is ophthalmology who serve as the educational link between theatre and outpatients.

Learning through shared work is considered to be a higher priority than more formal learning. A master-apprentice type of personal relationship supports the informal aspects of learning. What happens through this informal learning together is that many skills apart from surgery become internalised.

*People learn a lot more, not just in terms of factual knowledge and practical experience in how to do operations and things, but the other important parts of patient care—how to communicate bad news to a patient, and how to deal with other family members. [male trainer, P206]*

This type of learning is considered more important than formal events such as ‘tutorials, lecture, and clinical teaching sessions’ (male trainer, P206). The point here is that the consultant has the team with him and they are all working alongside one another to learn surgical and non-surgical ophthalmology.

*It occurs at many levels of course; there is the day to day, almost master-apprentice type relationship which goes on all the time in the public hospital system because you have your registrar and Fellow with you. [male trainer, P206, head of unit]*

The public hospital system supports a master–apprentice type of collegial relations. Some trainees also were emphatic that the whole of medicine is a master–apprenticeship based form of training. One registrar describes learning manual dexterity with the more experienced practitioner:

*[Some researchers say that ophthalmic education is predominantly master-apprenticeship based. Does that sound right to you?] Yes, I think medicine is [on] a master-apprenticeship base [for] any surgical specialty. It's manual, and I think that you learn techniques from people who are better than you and you try [to] replicate them. The benefit of being in a place like this [big city teaching hospital] is there are lots of different people who you can learn different techniques from. [male trainee, P303]*

The reproduction-transmission aspect of craft apprenticeship is also highlighted by this registrar when he says, ‘and you try to replicate it’ (male trainee, P303). He points out that ‘once you get your skills to a certain level’ then ‘you can put your own twist on them’ (P303), which is also consistent with learning a craft.

However, he also notes that the process of changing a technique or trying a new one risks causing a complication, particularly when that trainee is already confident that a particular mastered technique is not likely to do so. The trainee may be conflicted, since causing a complication is a both a source of distress and simultaneously a source of learning.

The trainee is pointing out here that a balance must be struck. The balance is among practicing an emergent but already confident surgical skill or technique, learning any new skill or technique, the personal opprobrium and distress for the doctor involved in making any error, and patient safety. The trainee was aware of the implications for patient safety and appears to have felt safe in using a particular example, saying that in this case ‘the patient did very well’ (P303). The trainee also notes that there are ‘lots of different people who you can learn different techniques from’ (P303).

Some interviewees pointed out the possible challenge to an upper-class professional identity that using words such as ‘master’ and ‘apprentice’ carry. For example, one trainee referred to the class contradiction that calling ophthalmology a ‘manual trade’ seems to him incompatible with, at the same time, calling what he was doing ‘professional training’. Further evidence of contradictions involving class is present in the study data. For example, see the Ethics section in Chapter 3 Methods. Learning surgery through apprenticeship will now be dealt with in detail.

## 5.3 The phases: Learning the technical skills of surgery

There are five phases in learning surgery through apprenticeship: I focusing and explaining, II Scaffolding and Coaching, III Fading, IV Internalisation, and V Generalising (Pedowitz et al. 2002). In pedagogical language, scaffolding and then fading are achieved once the trainer is confident in the trainee's capacity. Scaffolding involves allowing a trainee to expand his or her knowledge and skills with the help of the presence of others nearby if something unplanned were to happen during the operation. Fading involves withdrawal of such help once the trainee is sufficiently skilled. Scaffolding and fading are features of workplace learning, such as apprenticeship.

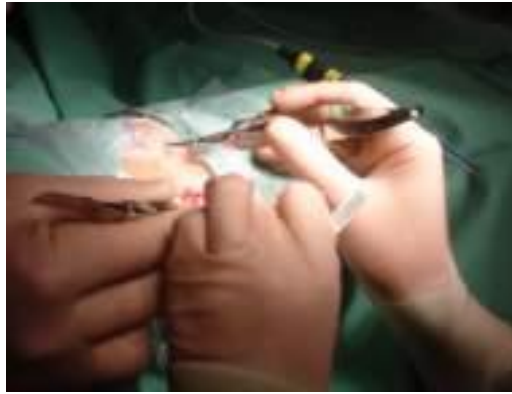
The data about learning in the operating theatre, particularly about technical skills, was analysed in the study using these phases. In pedagogical language, scaffolding and then fading are achieved once the trainer is confident in the trainee's capacity. Scaffolding involves allowing a trainee to expand his or her knowledge and skills with the presence of others nearby who are able to help if something unplanned happens during the operation. Fading involves withdrawal of such help once the trainee is sufficiently skilled. Scaffolding and fading are features of ophthalmic workplace learning, supporting the label of apprenticeship.

### 5.3.1 Phase I Focussed and explaining: 'You only get as good as you see from your bosses'

Focussed learning occurs through observing the performance of the skills and developing schema for each operation with explanation given by a consultant. This is the first phase (Pedowitz et al. 2002). All participants portrayed the operating theatre as the key learning site. Much of the registrars' time from early in training is spent in the operating theatre performing operations together with multiple consultants. Learning by observing many different ophthalmologists performing cataract surgery was considered essential. Manual dexterity was considered a vital skill in ophthalmology. As a trainee said:

*You only get as good as you see from your bosses. You have got to have lots of different [experiences]. You've got to be flexible, and I think that [you are] learning a manual trade. Not that I am comparing surgery to carpentry or anything, but it's a manual trade, it's a dexterity effect. [male trainee, P303]*

Figure 5-6 shows three hands. The trainee's hand assists the consultant's hands in performing strabismus surgery. During the procedure, the consultant explains the steps involved and the trainee observes and learns through assisting in some steps.



**Figure 5-6: Focussed and explaining**

Trainees learn by observing real performance. Before performing the operation themselves in steps, they develop mental models of the entire manual procedure (Lave & Wenger 1991).

*Later on when you are by yourself, you might be able to refine the techniques into your own. I think right now I am just a mirror. I reflect what I see from the bosses because you get your skills to a certain level and then you can put your own twist on them or your own adaptations [on them]. I think that is true with any ophthalmic surgery, plus it [needs] micro-precision movements [male trainee, P303]*

They talk with their consultants about the pitfalls and tricks of the procedure (Pedowitz et al. 2002).

### **5.3.2.1 Phase II Scaffolding and coaching in technical competencies: ‘I’ll try and replicate you’**

The operating surgery team is a feature of theatre life. In the operating theatre, the registrar forms part of this team. The consultant, the trainee, the remainder of the theatre team and the patient are there. The theatre team in a teaching hospital also includes an anaesthetist and nurses, usually both a scrubbed and an unscrubbed theatre nurse. Additionally, for major surgery, a theatre or anaesthetic technician are included, or both for even more major.

The operating theatre contains a great deal of technical equipment. Usually for cataract surgery this includes an operating microscope, a phaco-emulsifying machine and adjustable bright lighting. A table set close to the scrub sinks is draped by a sterile cloth on which lie sterile gowns and gloves. The operating theatre trays contain numerous delicate microsurgical instruments and a packaged flexible intraocular lens ready for insertion to replace the pathologically opaque anatomical lens during the procedure. A drip stand of fluid to bathe the eye and its exposed structures during the procedure lies close to the patient on the operating table. Everyone is dressed in a pair of pyjamas; these are of the same material and come in only a few standard sizes. Head bonnets cover everyone’s hair. Beepers are frowned upon, and the theatre suite is isolated from outside telephone contact.

Trainees learn skills in theatre that they can learn nowhere else. These skills are not only technical. The stakes for the patient are much higher in general than in the clinic, so the rules about levels of supervision are tighter and more explicit. Trainees learn that they need to observe before they can become proficient themselves.

A photograph of a trainee being supervised to do cataract surgery in 1981 is shown in Figure 5-7. The principle of close personal supervision illustrated here persists to this day. The trainee is viewing the eye through the operating microscope, while the trainer views through the assistant's piece. Using the operating microscope, procedures performed by trainees are also often videotaped for later review, explanation and refinement. The activity system thus includes the affordance of the teaching microscope. Teaching videos of such procedures captured using a similar set-up as shown in the figure can be viewed as part of their preparation for conducting their own operations. The registrars view these on the internet video site, YouTube.



**Figure 5-7: Scaffolding and coaching: The affordances in the activity system include the teaching microscope**

First, the trainer demonstrates a procedure before the trainee is allowed to conduct part or all of the procedure under the trainer's supervision. Demonstration requires close contact and often special equipment and a ready patient. The closest physical contact between master and apprentice is in the operating theatre. Here the trainee and the consultant, and often the Fellow, are all working in close proximity, usually for at least a few hours. They are isolated



from the rest of the hospital activities and often conducting high-stakes patient care. A degree of intimacy and mutual trust is required.

The discussion below details the decision-making process of a head of unit regarding learning as showing:

*[In theatre] it depends a bit on who you are teaching, but for instance, [regarding] the registrar, I always like them to have them observe something preferably more than once, depending upon the complexity of it. Then if I am happy with their level of skill I'll get them to do it under supervision themselves. [male trainer, P206]*

The consultant describes the next phase, including his rationale for allowing the Fellow to supervise those more junior.

*The next ... if they show a good level of competence, is to let them do it under the supervision of a Fellow because I think that, in terms of the Fellow's education, it's good for them to be teaching because you learn more by teaching someone something. They get a final step forward in terms of surgical skills because it's good to be able to teach someone something which is not easy. The registrars don't get to do that, I guess, because they don't have enough time and exposure to the procedures. My theory is that if you have done cataract surgery and have a lot of experience as a senior registrar, you might get to teach a junior registrar some of the steps of cataract surgery or what [ever procedure] we are doing. [male trainer, P206]*

The process of 'observing' initiates bonds between the actors in the activity system by foreshadowing shared patient care, in this case a procedure, between these actors. Although the consultant does not here explicitly state the bonds between the three actors involved, this can be analysed from an educational point of view.

Activity theory is illustrated here. There is an 'activity system' (Vygotsky 1978) that includes the head of unit, the Fellow and the trainee, as well as the patient. One of the factors that bind them in this activity is the stress of performing the shared work. There is stress because of the responsibility of delegating and performing the surgery and in the uncertainty of the outcome for the patient. Surgical work always includes the stress of the possibility of unexpected intra-operative complications that could happen at any time.

Not infrequently, an operating list includes a complication or potential complication that must be dealt with immediately. Averting a minor or major adverse outcome is always on everyone's minds. Elective surgery, which is the most common form of surgery, places a particularly high onus of responsibility on the surgeons. 'See one, do one, teach one' is an aphorism in surgery (Talbot 2004). It is seen from this example that, unsurprisingly, a more complex process is involved.

The way in which the trainee engages the consultant, and vice versa, can be labelled the 'pedagogic content knowledge' (PCK) of the community of practice (Shulman 1986). PCK applies not only to the consultant-registrar dyad, but also all down the line of the hierarchy of

the community of practice. The consultant teaches the Fellow, and the consultant knows that through teaching a skill he or she becomes more skilful in that same procedure. Teaching another is thus an important part of how the Fellows, in turn, learn. A marker that the journeymen's training is nearing completion is being given the imprimatur to teach their own skills to registrars, passing on what they have learnt in their intensive year of sub-specialty training.

The next step after watching and assisting at a procedure is to do a procedure oneself, under supervision. This may include the entire procedure or just part of it. Learning in clinic or theatre requires close engagement between trainee and trainer. Training quickly becomes vastly more complex than the simply comparing clinical signs together on ambulatory patients. The registrars move into a prolonged phase of coaching and scaffolding that requires intimacy and trust.

Below one trainee describes engaging his consultant so that they interact maximally before, during, and after their shared operating session. This trainee makes good use of the pre-operative phone call. This incident in the operating theatre has parallels with a later detailed account of the learning strategy a registrar uses in outpatients, arousing interest, talking a shared language, and subtly pointing out their status as 'legitimate peripheral participants' in this community of practice (Lave & Wenger 1991):

*I have a particular system that I employ. Every time I am operating with a new boss [on] a cataract list, I'll ring them up the day before. I say 'Look this is what's on the list. **'Can you do the first one and I'll watch you and then I'll try and replicate you?'** Or something else to that effect. [male trainee, P303, emphasis added]*

The registrar's plan has worked. He engages the trainer in learning a new technique. He enjoys accomplishing a new approach to making a cataract surgery wound. In addition to learning a new technique, he finds that his nervousness is overcome by trying out a new technique under coaching. The trainer knows how to ensure a successful and safe outcome for the patient even when the trainee is new to the procedure. He makes a judgement that the trainee is ready to perform a step that could earlier in his training have been risky for the patient (Lave & Wenger 1991).

Learning through shared work is thus a key component of apprenticeship training. Through the means of the carefully crafted telephone call and the subsequent shared experience of cataract surgery work, the ophthalmic trainee has taken steps to establish a relationship with the trainer. He describes enjoying the experience of training with that trainer while mediating his own anxiety regarding his technical performance. Shared work between trainer and

trainee in close relationship is critical in the teaching and learning of ophthalmology and a key feature of the apprenticeship form of curriculum.

Teaching someone else is understood as giving an almost graduated ophthalmologist ‘a final step forward’ in their own learning. Once fading from the consultant occurs, learning by teaching someone at another level in the hierarchy comes next. As one senior trainer put it, ‘by teaching someone something, they get a final step forward in terms of surgical skills’ (male trainer, P204).

### **5.3.2.2 Phase II Scaffolding and coaching in non-technical competencies: ‘Controlling anxiety’**

In theatre, it is not simply the technical skills that are learnt by focussed learning, coaching, scaffolding and fading. For instance, one trainee stated, ‘I learn all the subtleties of managing stress and managing patients and managing complications during an operation’ by ‘watching my consultants’ (male trainee, P305).

Supervising a trainee requires the trainer to reflect on their own teaching and care so they can instil confidence in the trainee to perform the next step during a subsequent theatre session together.

*I’ve seen the teaching styles of various people and adopted what I thought was good and not used what I thought was bad, like shouting at people in the operating theatre. Bullying people in the operating theatre is not a way to achieve anything. I think you’ve just got to be gentle and every once in a while to tell people to stop or do something, but usually I just try and take people through and see if you can [finish]. I took someone through his first squint yesterday and we got 80 per cent of the way through it and then he had to put a needle in on its side and he just couldn’t do it. On his back hand, he just couldn’t do it. But he quite rightly said, ‘I can’t do this’. So I showed him how to do it, and I said, ‘This is what you have to do next time’. [male trainer, P310]*

Shared work allows the trainee not only to learn technical skills, but also non-technical skills such as self-management of stress during a surgical procedure. A number of trainees mentioned as an example of non-technical aspects of training that learning the ‘big stuff’ involves learning how to manage anxiety during operations.

For trainees, learning these skills from a senior was exciting and empowering. Trainees learnt when to worry and when not to worry. Trainees are excited to learn from watching and sharing in such work and must learn the warning signs of impending danger. They see learning from watching and sharing in patient care as the core method of learning ophthalmology. They recognise the limitations of learning solely from textbooks. They know that randomised controlled trials do not exist regarding most aspects of ophthalmic practice. They recognise that their learning predominantly occurs through watching how consultants ‘go at that’. They want to learn the following:

*All the subtleties of managing patients and managing stress and managing complications during an operation, controlling anxiety during operations. That stuff you learn [just] by watching people. I love **watching my consultants** do all that kind of stuff because I see how they **go at that**. [male trainee, P305, third-year, emphasis added]*

Trainees realise that they are learning ophthalmic practice by watching their role models.

### 5.3.2.3 Role modelling: ‘This looks like me’

They are learning by example from an expert rather than learning an explicit evidence base for clinical practice. The data suggests that critique of practice can’t occur, because practice cannot be written down, codified, or otherwise reified, such as recorded in text books.

*You don’t need a [randomised controlled trial (RCT) to show] that you need a parachute to [safely] jump out of a plane, you know. A surprising amount of what is done in medicine is done because it’s done that way. Gradually people ask questions, you know, ‘Is that true? Let’s do a study and let’s find out’ [but] for the stuff that’s outrageously obvious it just goes on. That stuff you can’t learn from a textbook. [male trainee, P305, third-year]*

A useful feature of the system of training based on prolonged sharing of work is that the trainees experience close contact with a variety of trainers. Trainees aspire to practice the best way they can. By watching their consultants and taking their consultants as role models, they learn to mimic their trainers. Inevitably, they find some trainers more inspirational than others, as the following quotations demonstrate:

*It’s supposed to be inspirational. I mean that’s the idea. I think that master-apprenticeship works best when it is inspirational and [those trainers who are inspirational]; they are the people that stand out to you. You know people like [first name of trainer], my old bosses, even [first name of another consultant] over at [suburban teaching hospital], these are people who just inspire you because of their commitment to teaching and the way they educate you, and you know you want to model that behaviour. [male trainee, P305]*

*I encountered him when I was [a] fourth year medical student when I came here. And I spent [more time with him as a medical student]. That was really exciting, and I thought, this is really neat. Ophthalmologists swear, they smoke, they drink, they play chess and drink single malt scotch. This is what I want to do. And you know, the personalities. Only later did I realise they’re mostly boring, middle-class bastards. This is why I think anyone does a speciality; he was an intellectually dynamic person. Really exciting and was doing really good things and interesting things. And I thought ‘I could really sink my teeth into this. **This looks like me**’. [male trainer, P310, emphasis added]*

There seems to be a link between the excitement of learning to recognise a rare or subtle clinical sign and role modelling. High excitement means a higher degree of inspiration attributed to consultants. Learning a specialised area of medicine, particularly one in which visible objective signs play a frequent role, is very exciting to ophthalmic registrars, especially when the senior ophthalmologist leads an interesting professional life. The phrase ‘this looks like me’ (P310) speaks to the power of inspirational role models on professional identity formation.

Role models also assist trainees in learning how to conduct themselves in theatre. Learning to manage theatre staff is part of becoming a surgeon. The trainee needs to learn to take on the

identity of leader of the surgical team in a theatre by managing the theatre staff. Trainees learn how to rule over theatre as if it were their sole domain. It is seen as vital by consultants that trainees learn how to take charge in theatre; they believe that learning is safer when the trainee feels 'in charge'. Feeling in charge gives the trainee a supreme sense of responsibility. A sense of responsibility is an aspect of professionalism that makes for better learning of technical skills that are of high risk, and high benefit, to the patient's eyes.

Managing such staff in theatre is clearly a challenging task for a newcomer. The trainees are new not only to the setting, to the procedures and to the room of people on any particular day, but also to the profession. Theatre is a site in ophthalmology where the learning is not only about the technical aspects of cataract surgery; it is also where it may be most apparent that a registrar is learning about 'managing staff' (P302). It is a site, for instance, in which trainees may 'have difficulty' (P302) even once trained sufficiently to be deemed 'technically competent' (P302). They are two separate skills.

In the following example, one trainer points out that female trainees, as a group within the pool of trainees, often face such difficulty in relation to managing staff, specifically managing female staff. According to the trainer, in theatre trainees must learn to 'be calm', get 'everybody onside' and to be 'in control of the situation' (P302). The trainer also describes one exceptional female trainee who 'came to theatre like a queen. Everyone was eating out of her hands' (male trainer, P302). Although this account is gendered in its use of the word 'queen', it illustrates that in theatre the ophthalmologist is sovereign. If male, he is king. Following this analogy, in the world of this theatre, the trainees make a transition from being commoners to royalty through their training. Clearly gender issues, to which the argument turns in Chapter 8, Androcentrism, play a role.

*I think one of the big problems of females, just [in] my anecdotal experience, is that they often have difficulty managing female staff and it is very apparent in theatre. And [yet also] I've seen some female trainees handle staff perfectly. Everybody is 'on side' in theatre: they're in control of the situation. My example par excellence is [name of female trainee]. She **came to theatre like a queen**. Everyone was eating out of her hands. She'd sit down all calm, everything worked: everybody loved her. Now I have seen equally technically competent females get into a fizz, and when they get into a fizz, the female theatre staff freeze up and they keep deferring to the male in the room. Now maybe that is females with females, I don't know, but I think that is one of the hard things from a trainee's point of view and from [the] female surgeons' point of view. Now I don't know how you solve that except perhaps there could be some sessions on just how to interact: Take your time, get everything set up, bring a bloody cake along for morning tea. I don't know. You don't have to bribe people, but my observations have been that female trainees, sometimes and only sometimes, feel that the nursing staff are not recognising their position, station, whatever you like. [male trainer, P302, emphasis added]*

#### **5.3.2.4 Learning to become full participants, but not everybody**

Learning to belong to this community means learning to rule in theatre. The position and station one is to hold in theatre are important facets of learning. After initiation into ophthalmic theatre as outsiders, trainees gradually participate more fully in the culture of the ophthalmic theatre, becoming consultants within it, for life. Recognising their ‘position, station’ as being the one deferred to, as expected of the leading ‘male in the room’, is a vital task—all registrars must learn that their ‘position, station’ in life and society will henceforth be an elevated one (P302).

Those trainees who have difficulty with this aspect of training must work particularly hard to develop into a fully legitimate member of the ophthalmic community of practice, which, even so, is not always possible. The ophthalmic trainer quoted in the above section describes not knowing how it might happen that full inclusion could occur, but recognises that it is a training problem that needs to be addressed. This example highlights the theoretical point that ‘apprenticeship’ can imply undesirable power relations that simply cannot be overcome, which even leads some authors in the literature to demand all apprenticeships be abandoned. Some students are excluded from full membership of a social group.

The contention that group membership provides meaning is thus disputed by theorists. An important feature of apprenticeship is said to be that it provides meaning to some individuals through group membership (Ainley & Rainbird 1999:5). Gee (1992) says, ‘Once you are a member of the group, once your behaviours count as meaningful within the social practice, you get the “meanings” free’ (10). Gee is contending that group membership is a very important, and constant, feature of apprenticeship, whereas Gamble questions this (2001). Gamble goes as far as noting that the differential states of belonging between apprentices that occur in apprenticeship training have led to the extreme measure of abandoning calling any training at all ‘an apprenticeship’ in South Africa (Gamble 2001).

Data in this study supports Gamble in disputing that apprenticeship training can be unproblematic. The meanings of ophthalmology cannot be gleaned by merely joining its craft training. Acquiring the full meaning of being an ophthalmologist is more complicated than simply being enrolled in, and immersed in, its training program.

This prior literature raises the possibility that the reason ophthalmic training is not officially called ‘apprenticeship’ is to avoid this unwanted connotation, but this does not stop it having the same potential impact. The data in this study suggests that the training program is in fact

apprenticeship based, and that some students in the training program may have considerable difficulty becoming legitimate participants in its social practice.

### 5.3.3 Phase III Fading

The responsiveness of the trainee to taking direction affects the teaching and learning that occurs.

*I was told that I was too young to be too set in my ways because I wanted to do a corneal [incision] and the boss wanted a scleral tunnel. And I said I really want to do a corneal [incision], and he said 'No you're too young to be set in your ways'. So I said, 'Okay'. I took that on board. I was pleased to do the scleral tunnel by the end of it. It was good, I enjoyed that. I think that was very early in my operating training. I was very nervous, [not wanting] to make a mistake. What I thought was [that] I wouldn't make a mistake if I did the same thing over and over again because I would get better at it... The patient did very well. [male trainee, P303, third-year]*

In some situations, fading may take place too early. In the following example, a head of unit had to bring a complication to the trainee's attention because the trainee themselves had not made the supervising ophthalmologist of the day aware of a problem during the operation itself, and later a complication became apparent. The trainer quoted below had undertaken some educator training since the incident occurred and thus was in a position to discuss the 'hidden curriculum' in ophthalmology.

*He's obviously a sort of a risky registrar in terms of behaviour because that is definitely not acceptable behaviour for a graduating ophthalmologist. So he needed to be aware that that was the case and change those behaviours so they didn't happen again in the future. I don't have anything to do with this Fellow now. And I haven't heard any other cases [from him]. I think that, from an educational point of view, all you can do really is follow up with them and point out the behaviour to them—that it's unacceptable and that it shouldn't happen again. And if it does happen again the consequences have got to be more dire, they can't progress in the training program. I just don't know what the follow-up was [with] that particular person. [female trainer, P319]*

She had some advice that correction of trainees' behaviour ought not to be simply individualised. Rather, in her view, problem behaviours could be treated as part of an educational system. Suppressed acknowledgement of the problem leads to the profession dealing with trainee behaviours as if they were only a 'hidden', rather than an explicit, aspect of curriculum:

*I think it should be dealt more at a sort of a system level, rather than just [at] an individual level, [whereas] that was dealt [with] at an individual level. There may have been a lot of other cases where this has happened but they just didn't have a negative consequence, and so they may not have been detected and so the behaviour goes unchecked. It's part of the hidden curriculum because a lot of these things aren't talked about in the curriculum for the registrar. About that type of behaviour, of what behaviours are good and which are unacceptable. We're mostly dealing with the theory and the practice of ophthalmology rather than focusing on good ophthalmologists' behaviours, which is very important. [female trainer, P319]*

The lack of explicit teaching of professional behaviours means that senior ophthalmologists don't talk with their trainees about such problems. It also means there is no explicit shared teacher knowledge about this.

*They didn't seem to have anything on that, they just went to the theory and the tutorials and the practical aspects and didn't discuss these particular behaviours. [I am talking about] professionalism and all that sort of thing. Regarding teaching professionalism behaviours or observing them and talking to trainees about them, I think that it needs to come out of the hidden curriculum and into the actual curriculum. There need [to be] case scenarios that registrars could have in tutorials and discuss what's appropriate and what behaviour is expected. And that it is acceptable to voice it and that it's not acceptable to cover it up. [female trainer, P319]*

Experiencing a complication is a problem not only for the patient but also for the registrar. Beyond patient risk, silencing registrars about complications has another harmful side effect. Individuals may be blamed unduly and systemic factors neglected. Silencing registrars during training may set a precedent in their entire professional lives. Foucault's panopticon may be a model for this force of conservatism:

*I'm sure that there'd be other instances where they would get away with it, because not everybody is going to have a choroidal haemorrhage [where there is a globe perforation], and some of them feel that it may be better to say nothing because they don't want to have any negative consequences for their training period. They want to get a good report and sail through it smoothly with no problems. And it is highly competitive. It's difficult to get in in the first place, and they want to stay in and progress through. So it doesn't seem to be in their interests to actually say something, unless it's brought out in the curriculum that it's a good thing to talk about problems that they've had. It still is thought generally in the profession that it's always difficult for ophthalmologists to report their complications to their peers. A lot of them, especially if they are isolated in private practice, are less likely to. You know, it's more likely that they will discuss things in the public hospital situation because there's less of a blame culture there and things are more open. [female trainer, P319]*

During fading there is a chance for internalisation and generalisation to develop. In drawing to a close this account of learning to operate, it is useful to point out that technical skill acquisition is the focus of teaching in the operating theatre; however, once a relationship is formed between the registrar and the trainer, the trainer may teach many other aspects of an ophthalmologist's professional life beyond simply the technical. There is always something that one can teach the other.

*[Even] if the trainee does a perfect operation, for example, there is always something to discuss. [male trainer, P302]*

The trainer is implying that if the trainer and trainee have had a shared experience of ophthalmic work, then there will always be the potential for other interchanges that result in learning. The sharing of work binds this dyad together.

### **5.3.4 Phase IV Internalisation and Phase V Generalising**

Learning operating theatre skills creates a sense of common identity among surgeons. Other work, such as the activities involved in outpatient care, are conducted in various ways by other health care providers in other circumstances, but surgery is unique to surgeons. This is not true of 'theatre preparation' skills like eliciting the signs at slit lamp examination for pre-operative signs of potential complications, such as crystalline lens instability or post-



operative wound leak. Trainees learn that there are always things to talk about in theatre and an intimate relationship may form between trainee and trainer.

*But it's then and there that you really need to discuss the pros and cons with your consultant to see what's going through their mind. This [means] then [that] you learn what needs to be going through your mind [as well]. [male trainee, P305]*

## 5.4 Learning professionalism: Knowing the boundaries of what is worth sharing:

Surgical skills can only be passed on from surgeon to surgeon. Operative ophthalmology is only performed by consultants and registrars. To perpetuate their craft, it is imperative that ophthalmologists teach trainees as summed up by the trainer who said: 'We need you to be able to do this operation and that operation' (P308).

Working together in theatre creates a close bond between surgeon and trainee that leads to collegial behaviour, but this close relationship is under threat from those who would wish to alter surgeon behaviour. 'And we could so easily lose it' is expressed with lament by an old-timer who recognises that the collegial professional bonds seem to be eroding in the modern teaching hospital. Medical dominance is, arguably, decaying (Willis 1989), as the following quotation from a male trainer indicates:

*I think you should state that you are a professional first of all because that is the main thing. It also has [a] very big implication on training because it is not just acquiring academic knowledge, it is also training. People **need to be trained in a one-to-one situation by a master, a senior**. And I think that it is extremely important and is one of the things we always had, and we should be very careful not to lose. **And we can easily lose it.** [male trainer, CR, emphasis added]*

The trainees take their cue about what to learn from their consultants. They learn about the boundaries of what is possible in terms of tolerance of ocular tissues. Consultants know that it is important for the trainee to develop skills in both the corneal approach and the scleral tunnel approach to cataract surgery, for instance (P303). Trust is involved. This is called 'craft intimacy' (Wenger, McDermott & Snyder 2002:98).

### 5.4.1 Learning to avoid complications

Learning about complications is a further area of professional knowledge acquisition. It was treated as non-technical by some and technical by others in the community. Complications may be discussed inadequately in some areas of teaching hospital training.

*[People say that ophthalmic education is predominately master-apprenticeship]. Yes. [Do you see yourself as a master?] Yes. [When you're with trainees?] Yes [Can you tell me what that means to you, and what you do?] It means that I've had 35 years' experience in this field of hard knocks. I've made every mistake there is in surgery, except for ones that hadn't been described yet. And as recently as last night I made a new mistake lasering that I'd never heard of before and I had to fix up. So I'm still on the learning curve. So I'm very much the master [with an] apprentice and when I'm teaching them,*

*I tell them that I'm going to teach them the safest way to do surgery, to keep them out of trouble. And so that's what I do. Also I'm there to show them how to do things efficiently and well and also to show it's kind of easy to do it. It's not that hard to do. [male trainer, P310]*

How to stay safe and to keep 'out of trouble' is affirmed as important in the quote above.

Learning 'when to worry' is key to postgraduate learning in paediatric residency (Balmer 2006) and is confirmed as important in this study's data also.

### 5.4.2 Learning communication about complications

Learning technical skills is not simply learning how to use the instruments. It is also learning how to have confidence in one's own capacity. Communication skills also are necessary for routine surgical practice, and they become even more necessary when a complication occurs. Poor communication skills can be a cover for the lack of professional capacity to own a complication, to learn from it, and to make amendments to one's own practice. Despite this, developing effective communication skills is not considered core curriculum, unlike gaining technical skills such as cataract extraction.

Sometimes communication issues are considered too trivial for senior clinical staff to address, for example, the communication of an infrequent complication may be left to junior doctors alone to explain to the patient as best they can, despite their inexperience:

*Other examples that text books don't really deal with are [how] to deal with complications that arise from surgery. I think that is a really difficult one. And how you learn is really by, I think it's a [matter of] watch[ing]. Everyone has their own personality obviously, which dictates a lot of how we deal with patients, but I think also that you learn from your seniors and other consultants about how to deal with [many] situations. But it is not an area that is dealt with in text books as you know. [Examples?] We do a lot of cataract surgery—be it the refractive surprise, be it infective endophthalmitis, the dropped lens, vitreous to the wound, the need for re-operation—anything that would be considered a surprise surgically. That is because we do so much cataract surgery. That is the most obvious one but [for] any complication from any surgery, there's no textbook way of explaining it. How to deal with complications? There's different ways in which people deal with the same problem so the first thing [to know is that] management is definitely taught from seniors. A good example of this is raised intraocular pressure following cataract surgery. Be it from retained visco [elastic] be it from another cause. I have worked with some people who have said to 'burp the wound' and other people have said 'never to burp the wound'. Like never release aqueous from the wound, in [order to] lower intraocular pressure because it's a transient effect. Different people I have worked with suggest different things. [female trainee, P306]*

Performing work under supervision for the first time is also managed as part of this training milieu. In discussing the number of cases required before the trainee acts as the main operator, one trainer says, 'Then if I am happy with their level of skill, [after observing me] I'll get them to do it under supervision [but by] themselves' (male trainer, P206).

For reflective teachers with self-confidence gained through maturity, their relationship with the trainee may be very rewarding. Focussed training is diverse and multiple: it can include minute details of surgery such as how to hold the needle or gathering evidence from the

literature about the merits of two alternative diagnostic tests. When the trainee also wants to model the sub-specialty of the already vocationally secure trainer, a particularly good relationship may develop:

*I've got a new one who's just a first year, but the one before was in his third year and wants to have a big component of [subspecialty] ophthalmology in his practice. And he gave me a bit of a run for his money. He's a bit antsy and he likes disagreeing with you and telling you wrong and [says] 'You don't do it like the [subspecialty] ophthalmologist [Dr X]' who's 15 years younger than me in this town who trained at [an internationally recognised iconic training hospital], so there's a cultural difference straight away, and there's an age and experience difference. And he used to say 'Well Dr X doesn't do it that way or he doesn't use that [technique]' and 'I don't find that [your technique is] very useful'. I said, 'Well you haven't done it many times, but I find it very useful and these are the reasons why'. But he was really good. Whereas 15 years ago I would have been a bit threatened by that and I would have been a bit defensive, and now I say 'Great'. He's like a young bull running around the paddock bucking against the posts and [as] the old bull, I just let him buck and have a bit of fun with it. And we really actually had a fantastic time with each other. I really enjoyed it. I think he really enjoyed it because he could be a bit provocative and I'd say, 'Well I wouldn't do it that way. Where's your evidence?' or I'd go find some evidence and say 'Actually this is a good test and here it is [my evidence]'. So that was a very good relationship. [male trainer, P310]*

This is an example of scaffolding. What is being learnt here is professional intimacy as part of collegial relations.

## 5.5 Sharing time at work: apprenticeship in the operating theatre

Time shared between trainers and trainees is an important facet of apprenticeship training. Shared time refers to hours spent together, and the duration of the contact is hours to months to years. Other important facets of shared time include the nature of being together and whether the time spent together is during office hours or is during non-office hours of on-call commitment. Time is important because relationships take time to develop. It is also important for control by seniors. Respect can only come if sufficient time is spent together, as one trainer explains:

*The other thing is that the term is usually three months long. You've got a limited time in which you can develop that sort of respect from the registrars. [male trainer, P308]*

The base level of hours that are required to train as an ophthalmic surgeon is hotly contested in the literature. Here a trainer puzzles over its conceptualisation. The number of hours for which trainees are rostered is vastly less than in the past. The question is, 'how low you can go in terms of number of hours, to still feel that you are still learning' (female trainer, P304). The on-call time for the registrars in the past included '56-hour shifts' (female trainer, P304) at the hospital. There is no guarantee of seeing trauma cases unless the registrar does considerable rostered time after hours. Eye trauma surgery 'doesn't get put on the regular list' because cases only come in 'after hours' (P304).

*You do have to be around for that. I mean a lot of that training was after hours and the really interesting cases only come after hours. [female trainer, P304]*

The trainer is saying that flexible training needs to include a considerable portion of rostered after hours training.

*[Continuous full-time training. Where does that sit in your model of training?] My model's quite different because when I trained, our hours were always double what a full-time person's doing now and our on call time was so massive, 56-hour shifts and things. So in my mind almost what they are doing as full time seems to me to be part time. I know that's not quite true, but it certainly does feel like that considering how many hours we used to do. So I think that I don't know how low you can go in terms of number of hours to still feel that you are still learning. I know there must be some level. For instance, if you do a job one session a fortnight, you actually forget. [female trainer, P304]*

Long hours of on-call work are another notorious area in the lives of surgeons and trainees. Surgeons believe that long hours of work are one of the hallmarks that distinguishes them from other workers. Trainees will miss some learning experiences such as eye trauma surgery if they have insufficient rapport with their surgeons through inadequate time spent together, or if they are rostered to an insufficient commitment of duty after hours with those same surgeons. The suggestion here is that this is not simply because they are not at work when the operation happens, but that the rapport is not there.

*Well you do have to be around for that. I mean, a lot of that training was after hours and the really interesting cases only come after hours. You're not going to get trauma in daytime, there's very little trauma in daylight. It doesn't get put on the regular list because it comes in after hours. [female trainer, P304]*

The training program's final year means 12 months in the same post. In earlier years, the trainees may have changed posts as frequently as every two months, and occasionally even shorter terms occurred, if they were doing a relief job. A year-long period together is seen as a unique training opportunity, a journeyman year during which trainees learn 'the finer points of managing patients' (P301), far beyond simply making a diagnosis.

In conclusion, this chapter presented data demonstrating the apprenticeship model as a form of training in the operating theatre. Shared work is key feature of this model. Although non-technical skills are also considered necessary, the focus of ophthalmologic training is primarily on learning technical skills in eye surgery.

In the data, there is no explicit mention of the social contract between the community of practice and the society it serves. Therefore another aspect of the requirement for exactitude between master and apprentice appears to be that it is the technical skills that are the priority in this community of practice's epistemology. This technical focus is in keeping with the biomedical focus of medicine, and the blocking out of the social and the contextual in the training of medical practitioners. There is a further implication from the data, which is that

ophthalmic identity ought, it is taught, to be largely focussed on the heroic rescue of an eye, and the rescue of a patient from the blinding effects of cataract.

The doctor as rescuer has a strong ethos in medicine at large (Becker et al. 1961). This ethos is relevant to thee contrasts between managing acute and managing chronic eye disease, which is dealt with in more detail in a later chapter, Chapter 7.

That the training of ophthalmic surgeons is an apprenticeship form has three implications so far. These are that the trainee's self-development is not an important aspect of the curriculum (Eisner & Vallance 1974; Pratt et al. 2001). The 'technical' is a priority for learning above the 'social'. The social contract is not borne in mind by trainers (Nair & Browne 2008). 'Clinical responsibility' is taught to be the acute, rescuing role rather than the salutogenic or 'ecologic' one (Becker et al. 1961; Annas 1995; Linstrom & Eriksson 2006). This work builds on previous work as to what counts as 'clinical responsibility' (Becker et al. 1961).

The data about training in the operating theatre has been placed within theoretical constructs presented by socio-cultural theorists of work and learning, such as activity theory. A diagrammatic model of learning ophthalmology based on the study data was included. The chapter discussed the importance of shared time together between trainer and trainee as a way of building a sense of belonging to the community of practice where apprenticeship learning happens.

The next chapter is Chapter 6, Apprenticeship in the Outpatient Department Clinic. More data about the community of practice in which apprenticeship based training happens is analysed there. The next chapter also focuses on apprenticeship learning, but this time on situated learning in outpatient clinics, rather than on situated learning in the operating theatre.



## Chapter 6 Apprenticeship in the Outpatient Department Clinic

The previous chapter demonstrated that training in the operating theatre draws heavily on an apprenticeship model of learning. This chapter demonstrates that training in ophthalmology outpatients is predominantly also apprenticeship based. This opening section of the chapter introduces learning in outpatient department clinics.

Training in ophthalmology includes a high volume of shared outpatient consultations. During their training, trainees conduct thousands of outpatient consultations under the supervision of their consultants. It is estimated that each trainee provides at least 10,000 supervised consultations during their training. Skills in episodic care, and repeat visit care, are both practiced. An estimated 75 per cent of patients are seen more than once by the trainee. Since one individual patient will attend numerous outpatient visits for their chronic condition an estimated 25 per cent of these consultations, approximately 2,500 occasions of service, are provided for patients new to that trainee.

Trainees see a much larger number of patients during outpatient consultations than in operating rooms. It is useful to extrapolate experiences over the five years of training, and compare the learning opportunities with those recorded in a 1983 graduate's log book in the RANZCO program, shown in more detail in Appendix 6-1. The outpatient figures in Table 6.1 below are based on an estimate of seeing 20 patients per clinic twice weekly for the duration of the training period.

The number of operative cases is less, so it is useful to treat the learning experiences of trainees as different for each site of learning. The 2008 data is taken from one trainee's audit data. There is a need for the trainee to have better developed communication skills when interacting with patients in the outpatient setting compared to the surgical arena. The higher number of outpatient consultations in comparison with the number of theatre cases during one trainee's period of training is shown below in Table 6-1.

Table 6.1 shows an upward trend in the surgical numbers over time between 1983 and 2008, and since the annual tally is higher in 2008, this upward trend is due to factors other than simply an increase in the length of training.

Outpatient department experiences		2008	2008	1980–1982
		Extrapolation to 5 years of training	10 months of training	3 years of training
	Total	10,000 consultations	2,000 consultations	6,000 consultations
	New outpatient consultations (25%)	2,500	500	1,500
Operating room experiences	Total	More than 3000 procedures	674 procedures	294 procedures
	Cataract and anterior segment		442	93
	Glaucoma		7	20
	Conjunctiva and cornea		10	16
	Miscellaneous procedures		14	6
	Vitreoretinal		48	3
	Laser		67	0
	Lid and lacrimal		86	55
	Extra-ocular muscles		0	89

**Table 6-1: A trainee's surgical and outpatient audit: 1983 and 2008 compared**

Extrapolation of the surgical numbers to the full five years for the 2008 trainee suggests that performing at least 1000 cataracts and 10,000 outpatient consultations during training would be the norm in Australia and New Zealand. Evidence of a transformation in the use of a technology in ophthalmology, namely the insertion of an intra-ocular lens during the procedure of cataract extraction, was also present in the data, from 5% (5 of 93) in 1983 to 99% (441 of 442) in 2008.

## 6.1 Mastering the basic knowledge of the community of practice

Data describing learning in the outpatient clinic appear to be consistent with learning through participation in a work-based community of practice, which is a key feature of apprenticeship.

### 6.1.1 Basic training: comparing your opinion with their opinion

Learning the clinical signs required for cataract management in ambulatory settings is a preliminary skill set that trainees must acquire early in training. They concurrently undertake operating room training. The relevant clinical signs are learnt through a specific and detailed process of repeatedly matching one's own perceptions with those of a colleague. Mimicry of others' skills thus plays a powerful role in learning. This process involves the trainee



comparing their own perception of the physical signs with that of a colleague's, patient by patient, a process of scaffolding that is an essential component of apprenticeship based training, already described in Chapter 5 in relation to learning surgical technique. The trainee is taught to self-initiate cessation of comparison with others when repeated matching of their assessment of the clinical signs with near-peers and consultants occurs. This is in keeping with fading, the process of gradual withdrawal of supervision (Pedowitz et al. 2002).

A registrar explains that this matching process means 'comparing your opinion with their opinion'. In the quote below the trainee refers to the technical sign of nuclear sclerosis, which is one sign of cataract. Cells are present after surgery if inflammation requires more post-operative suppression:

*Early on [in training] you're learning simple things like how to assess a cataract, and what nucleus sclerosis looks like. I mean things that now you just think are so simple. And if you can remember back to then, it was quite complicated: how to even just get the slit lamp beam to get a cross section of the cornea and things like that. I think you build up on those skills and then you are confident looking for cells, and then you don't have to ask people anymore if they're cells or they aren't. Each step along the way you sort of get confident with the different ability. And most of that is just by looking at it, getting someone else to look at it, and **comparing your opinion with their opinion**. Once they start matching all the time, then you've worked out how to do it [male trainee, P307, emphasis added].*

This process of simply 'comparing' opinions starts in the first week of ophthalmic training. Looking back to his previous year, this trainee described learning the 'simple things' early, and this explicitly includes staging both cataract severity and intraocular inflammation. In pedagogical language, the same five processes for learning of theatre skills apply in outpatient consultations.

### **6.1.2 Apprentice and master engage together in outpatients: pedagogical content knowledge**

Analysis of the following quote illustrates in detail how one trainee initiated the pedagogical process of learning and teaching in an outpatient department. The patient in this example had the chronic condition of 'dry eyes'. The trainee reports three steps. Dissecting this trainee's learning process into its component steps details the 'pedagogical content knowledge' of trainer and trainee (Shulman 1986).

*I saw a patient who had some **dry eyes**, and I knew I was in a situation where I could learn, being that clinic [Corneal Outpatient Clinic]. So I went and saw [first name of consultant, Tim] and said, 'I've got this patient with dry eyes. To me it seems moderate, and I'm not sure how to suss out the pores or the simple sort of treatment options in the initial setting'. He was fantastic. [So you took the patient in to him?] No, I went and grabbed him and he came and sat down with the patient and took a history and did the examination. He was very good. [male trainee, P305, third-year, emphasis added]*

In the outpatient clinic, trainees employ shared language, close proximity, a shared patient, and a game of challenge to engage the trainer in an apprenticeship-based training model. The

trainee decided to bring the consultant into his consulting room where the patient was seated, saying 'I grabbed the consultant and he came in'.

Both actions and language here are important. The trainee elicits explanation and experiences 'scaffolding'. His steps can be labelled pedagogical moves that demonstrate his pedagogical content knowledge (Shulman 1986). Asked a question by the trainee, the consultant's own expertise and experience is acknowledged by the newcomer. Through this dyadic relationship, and its repetition several thousand times over the training years, the community of practice gradually admits the newcomer into the community of practice, and the newcomer learns to belong to the community of practice as a full member (Lave & Wenger 1991). The trainee's subsequent reflections represent internalisation and generalisation about practice (Pedowitz et al 2002).

Issuing the challenge that 'to me it seems moderate', he approached the consultant in the consultant's room and asked for help. It is reasonable to presume this is a busy clinic with many patients scheduled. The consultant needed a reason to interrupt 'his own' patients to leave his consulting room. He is induced to do so on this occasion by the trainee through the challenge of a junior colleague in a training setting being confirmed or wrong, just as any colleague in the same clinic might elicit. That a colleague might do so in general is a compliment: it demonstrates that the colleague values the professional opinion of another member of the community of practice (Guile & Young 1999).

In order to frame and issue the challenge, there must be some element of doubt as to whether this is really moderate or not, although this is not acknowledged explicitly by either party. Further enticement is created through mention of the Meibomian gland pores, catching a wave on a current biomedical theory of dry eye, that evaporative dry eye may be due to deficiency from Meibomian gland pore secretion. The stage is set by the registrar's overture for a detailed explanation of the consultant's knowledge on these glands and their clinical assessment in a patient with dry eye, and this indeed ensued.

The trainer explains his opinion to the registrar in detail with the patient present at the trainee's slit lamp. In learning about dry eye, the trainee firstly learns the importance of taking a history, of finding signs, and of putting them together towards a treatment plan. This becomes the basis for knowledge that will be accumulated and developed by the trainee over several years, across many patient encounters. This fits with the phases of explanation and scaffolding in theoretical accounts of apprenticeship training (Pedowitz et al. 2002). The trainee makes the pedagogical moves from A to B to C and identifies the conditions of

possibility for a specific training encounter, initiates the encounter, and is able to describe what he has learnt from that encounter as shown in Table 6.2 below. The trainee learns both the explicit and the tacit skills that are required to belong to the community of practice (Polanyi 1967)

The trainee knows the conditions for a successful exchange. The strategic use of the phrase ‘I’m not sure how to suss out the pores’ marks the trainee as a legitimate insider. He is able to speak about the technical, scientific aspects of ophthalmic practice. Using shared, colloquial, informal language signals that they are part of the same community of practice. The trainee will know through overhearing this kind of colloquial tone between consultants that as peers, the trainers might use such informal language between one another. The trainee will have heard such collegial approaches before. The trainee knows how to induce the ‘master’ to physically move from one room to the other. The consultant examines the patient for whom they share responsibility.

They use the registrar’s own room and its equipment, enabling the trainee to learn in his own consultation room. The trainee strategically calls this presentation ‘the initial setting’, meaning that this is the patient’s first contact with an ophthalmologist about the problem—a way of placing the patient’s predicament at the centre of the exchange. Dry eye is a common condition. The language the trainee uses puts the ophthalmologist into very familiar territory. This is a further strategy that lends weight towards him giving the trainee a fuller, rather than a narrower, explanation of the clinical problem of dry eye. Modelling and coaching in how to treat the patient ensue. The trainee notes that the exchange achieved his goal of learning about dry eye. Validation of the legitimacy of the patient’s condition as a teaching case occurred. That the trainee’s overture was legitimated in this context also occurred. The success of the overture affirmed to the trainee that his decision to approach the consultant was suitable in this community of practice.

### **6.1.3 Advanced training: internalizing knowledge and attitudes**

Outpatient care can be complex. Numerous hospital staff may take care of a single patient, even in a single visit. Inpatient, procedural and outpatient care are commonly a part of the patient’s illness journey, and the trainee’s encounter with the patient may be only a single encounter among many doctors in this journey. Social interaction with the patient is learnt on the job in the outpatient department. Junior staff conduct practice differently from consultants. They often are required to explain the workings of the hospital to the patients.

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	Pedagogic content knowledge	Theoretical point that fits with the traditions in this community of practice	Individual interview transcript data, male trainee, P305	Explanation
A	Suitable conditions	Teaching case identified by trainee	<i>I just saw a patient who had some dry eyes</i> .....	Identifies that the patient he is caring for is a suitable teaching case. He speaks English, has potentially good physical signs, and there is time remaining in clinic together for this encounter to happen. No emergency is happening; no more important condition is being discussed in clinic to trump this condition.
		Knows that he has some language shared in common with the consultant	<i>I said 'I'm not sure how to "suss out" the pores'</i>	Both know that he means the Meibomian gland orifices. 'Suss' is informal language.
		Recognizes the advantage that having rooms are in close proximity in the outpatient clinic offers them both	<i>I just grabbed him</i>	The trainee requests that the consultant come into his room. 'Grabbed' is strong, informal language. A sense of entitlement and belonging is displayed by the use of strong language 'grabbed'. The informality of language also seems to help.
		Uses the nickname of the consultant, indicating that he has identified a consultant who he believes wishes to teach	<i>Tim [pseudonym]</i>	Uses the consultant's first name when telling the story. To open up the possibility of a closer professional relationship, the trainee might well have used this same nickname when approaching the consultant.
		Identifies that this is a legitimate place for learning about dry eye	<i>Being that clinic I knew I could learn [Corneal Clinic]</i>	The condition is a core topic in this subspecialty clinic's domain of knowledge.
		Reminds the consultant that he is a legitimate peripheral participant	<i>I said... 'I'm not sure [of] the simple sort of treatment options in the initial setting'</i>	Trainee explicitly says he is new to the topic.
		Shared patient and shared instruments as part of the regular patient care work in the clinic	<i>He sat down with the patient and took a history and did the examination</i>	Trainer uses the actual instruments in the trainee's consulting room.
B	How to initiate	Challenge able to be issued. A game of challenge is successfully played. Explanation, scaffolding and fading ensue.	<i>He came and sat down with the patient</i>	The trainee is able to issue an appropriate challenge, this decision is validated by the fact that the consultant responds positively.
C	Success	Trainee describes challenge as successful. Membership of the community of practice is mutually affirmed by trainee and trainer	<i>He was very good</i>	

**Table 6-2: Learning to belong to the community of practice**

The trainee in the example below performs medical work, and learns through reflecting on this work, and on the consultants' attitudes to patient care. An advanced trainee, she describes deciding on her own communication style based on her reflections with such patients. She has internalized the knowledge she has learnt, and generalizes it (Pedowitz et al. 2002). Here is the clinical scenario:

*It was when I was working on the glaucoma unit. [A guy had] a post YAG capsulectomy pressure rise. It [the eye] had [an] enormous pressure spike and because it is not often seen, some people consent for it and other people don't. But because it is quite an unusual complication, no one really took the time to explain that it was unusual and unexpected and what the cause was. He was the classic scenario—non-English-speaking, so when he got to hospital he didn't really understand why. I saw him in an outpatient setting about a month after the event, [and his eye condition] had settled down and he was really angry and cross that he hadn't [been informed. He was angry] that the doctors had done this to him and no one really knew why and what was going on. English wasn't his first language. He was just very frustrated with the system I think. [female trainee, P306, fourth year]*

She shows below that she learnt from this experience to call an interpreter in future. She realized that because the explanation was left to the junior doctors, she could make her own choice of practice style, even whilst a registrar. 'My preference is to talk to patients'. She notes she has learnt the norms of this community of practice; the community expects that communication will occur via trainees. Her own choices in how to practice can be based on role modelling, or lack thereof, according to her own reflections.

*[What could have been done differently?] All the obvious things in terms of getting an interpreter, explaining the situation, explaining the reasons for the admission. The fact that it was an unusual complication but one that we do see from time to time. So just better communication I discussed the case scenario [with my consultant] rather than the communication aspect of it. [The case scenario was] definitely covered. The case was discussed as it was quite an unusual presentation, but definitely the explanation was left to the junior doctors. A lot of the particulars tend to get put to one side in terms of those issues when you are dealing with a difficult case like that. Some people take a great deal of time to explain what they are doing to the patients and other people don't. **My preference is to talk to patients.** I think that from limited clinical experience, again obviously still being a registrar, patients tend to respond much better to [you] when they have things explained to them. They mightn't necessarily like it but they do definitely respond and appreciate what you do for them as long as you are transparent. So I mean, in most of my work so far the people that have responded the best have been those who have had their complications explained to them. [female trainee, P306, fourth year, emphasis added]*

The trainee points out the background, showing her understanding of outpatient teaching. In the teaching hospital, the patient would have been 'consented' by one member of the outpatient team prior to the procedure and would then have undergone the procedure, which would have been performed by another surgeon<sup>21</sup>. The patient would then be seen by a further member of the team on coming back to the outpatient department for review. Although the potential exists for good chronic disease management, frequent changes in personnel appear to inhibit good communication with the teaching hospital patient. Trainers,

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<sup>21</sup> To be 'consented' means to have had the procedure explained and to have given formal consent to doctors to carry out the intervention.

it seems, often leave it up to the trainee to keep the patient informed. The registrar in this piece is showing that in the later years of her training, in her time as a 'journeyman', she can make use of this delegation of duties by her trainers to explore her own identity as a future ophthalmologist.

In apprenticeship based training, it is the work that structures the learning. Interaction with peers is another key feature. The registrar becomes a 'knower' who shares in the distributed knowledge of the community of practice about a patient. The registrar here has something to contribute, as do the consultants. In communicating with the patient about the complication, the registrar performs vital work in patient care in conjunction with the rest of the team in the unit. Everyone's perspective contributes to the work of patient care. Since her learning occurs through shared work, this evidence supports the idea of apprenticeship. Both 'domain' and 'practice' are aspects of apprenticeship. The topic here is cataract complications. The trainee learns about this aspect of the 'domain' of ophthalmology. She also learns about practice, through hearing stories and sharing ideas about ophthalmologists' experiences of such complications. She learns in this way from her trainee peers and the consultants who make up the unit, thus internalising the knowledge and attitudes required to be a 'master'. This is apprenticeship training.

#### **6.1.4 Rural outpatients**

For some trainers, it is the health care context, rather than the technical aspects of ophthalmology, that is their most pressing trainee agenda. The context of the shared work together influences the practice of ophthalmology. One trainer points out that learning in different practice contexts always means learning about different aspects of the same eye condition. It is the clinical practice, not the eye condition, which differs in different contexts.

*Clearly ophthalmology is going to be partly the same, cataracts are cataracts, but the context in which you see them is different, the nature of the practice is different. [male trainer, P204, rural]*

Through shared work with seniors, trainees learn not only hands-on skills, but also such things as the effects of health budgeting on patient care. Cataract surgery, for example, in a rural outpatient setting can be used by the trainer as a trigger scenario for learning non-technical skills such as budgeting and administration. The trainer knows that this is knowledge that the trainee will not acquire in the city teaching hospitals.

This focus on learning context is emphasised as being much more teachable in a rural ophthalmic setting than it is, rather, in a large city teaching hospital. The current RANZCO workforce distribution is only 15.6% rural, the rest 84.4 % metropolitan (Personal communication Julie Gustavs RANZCO, July 9<sup>th</sup> 2008).

The trainer is able to teach knowledge that will be ultimately internalized and generalized by the trainee, as is expected in an apprenticeship system where the learning objectives are not explicitly spelled out. The trainer simply defines the curriculum through his own practice (Lave & Wenger 1991).

The trainer quoted below is keen for the trainee to acquire the knowledge that teaching hospital medicine is de-contextualized medicine whereas rural practice is contextualized.

*There is no sense of public responsibility in terms of budgeting. You can see that all the time [in the city hospitals]. There is no sense of being part of the decision-making process [such as] in a community-based hospital which [is] dealing with most of the issues. They are not dealing with the rarey-airy stuff of say the [named big city hospital with Royal in its name] which are doing cardiac and that sort of thing. So there are different pressures. So **you expose the registrars to what the pressures are in [actual] communities.** [male trainer, P204, rural]*

Multifactorial reasons for local area variation lead to many differences in clinical practice.

Difference may be the trigger for new knowledge and skills. In the rural post, the trainer explicitly explains the pressures that bear on the ophthalmologist personally in rural practice.

Registrars experience first-hand the impact that a diversion of funds to metropolitan from rural populations has on an ophthalmologist's practice. They begin to sense the importance of health budgeting in ophthalmology.

Ophthalmic training does not always simply mean decontextualised technical training, it occurs in a context. In short, in the rural post, trainees are encouraged to gain a sense of belonging to the community of practice of ophthalmologists as a whole, with shared ophthalmic patient care in common between metropolitan and rural practices.

*They get brilliant surgical training. They get decision-making process training. They are with the consultant all the time, they have to make decisions, they are given responsibility, [and] they see the same patients. They keep complaining [in the city] that they don't see the same patient again so they don't get a long term [view] but they get [too much] follow up stuff [in the city]. They do get a sense of all the other styles of practice, remember that we haven't even talked about that, that we are not just exposing them to the medical side of things we are exposing them to the whole of administration, of inter-staff interaction, of how a private practice runs as well. So there's a whole lot of other positives they get out of it. They learn about to deal with people [male trainer, P204, rural]*

This is another example of the ophthalmic curriculum defined by the practice that is conducted, in this case rural ophthalmic practice, rather than through learning objectives or other documentation (Lave & Wenger 1991).

*On top of that the demands are so high on your time that you can select out and prioritise what you need to. So, you can say to registrars for example, historically, it's changed now with the advent of high volume of cataract surgery, but historically we used to do a lot of refraction. It can be done now by a machine or an optometrist. You can prioritise where and what [and who in the] community would benefit from your skills. So you can argue all these out to the registrars and you can look at the budgetary processes. You have a budget. Here [at the big city hospital] you don't, you are in a big institution so you can hide it and down here there are 'phaco' machines and they use expensive lenses but if they were a bit more responsible there would be more money for us in rural areas where there is huge long waiting list because we have to budget and we budget under a totally different scheme. [male trainer, P204]*

Apprenticeship means that the trainee is immersed in practice with this rural ophthalmologist. Trainees experience the effects of health policy, namely, the dismay at a long waiting time for patients they see who are vision impaired from cataract and would benefit from surgery. In addition, they learn this trainer's explanation of what is going on. They build up a mental picture of possible variations in ophthalmic practice in a different context from the city teaching hospital. Embodied experience of such practice, apprenticeship training, means that they could adopt this different style of practice for their own on graduation.

## 6.2 Clinical space design

The physical proximity between trainer and trainee affects training. The design of outpatient department rooms affects the learning that happens within the community of practice.

Physical room layout can facilitate or block educational exchanges. As one trainer puts it

*I think they learn a lot ...[when] they can observe by example and hopefully **see it done**, and from that move on to ... pick up on what can be done better [male trainer, P206, emphasis added].*

Trainees, starting from their own stage of expertise in the work, improve on their current practice. In other words, they gradually learn by example 'what can be done better'. When they 'see it done', they learn through closely shared observation and interaction, the core processes in apprenticeship learning.

### 6.2.1 Two adjoining rooms separated by a sliding door

A common room layout in outpatient departments consists of two adjoining rooms separated by a sliding door. The data suggest that the more open the clinic layout is, the more conducive the design is in facilitating apprenticeship training. The consultant and the registrar often work in adjacent rooms. The trainer and trainee each see patients booked to the same clinic, along with several other consultants and often a Fellow, or journeyman (Guile & Young 1999). Often the patients are booked to 'the clinic' rather than being assigned to a particular doctor. The nursing or other triage staff on duty will allocate a particular patient to a particular doctor.

A typical scenario in a large teaching hospital would be that there are four consultants and two registrars providing care to patients from the one waiting room. One trainer, for instance, observed the following, 'I found on some inspections where you've had two adjoining rooms separated by a sliding door, (there would) be the second-year trainee (in the very next room to the consultant)' (male trainer, P302). The trainer and trainee are practicing near one another, in adjacent consulting lanes in the outpatient wing of the teaching hospital. Figures 6-1, 6-2, and 6-3, each below, show this proximity.



### 6.2.2 Separate offices and semi-open clinics

A more recent arrangement than those with a sliding door between them is for the consultant and registrar to work in separate offices in the same outpatient clinic. In such a modern layout, trainers can no longer overhear what is said in the consultation between registrar and consultant. One trainer notes that this is an issue in supervision. These days for instance, he was uncertain if or how the trainees included the CanMEDS competency of 'Health advocate' in their clinical practice. He replied using the example of a diabetic consultation in which the trainee mentions to him that such diabetics, for instance, are receiving allied health care in addition to their ophthalmic care. He notes this is done, nowadays, by the trainee explicitly bringing the topic into the conversation they have in their separate offices, because he cannot overhear.

*Because [nowadays] we're in separate offices, not separate lanes in a clinic, I will not really be party to a conversation with diabetics about dietetics. I am not party to it. I hope it goes on. I don't know [male trainer, P302].*

The trainer notes that because of the altered room arrangement in teaching hospitals there is less intense scrutiny of the trainees in terms of educational supervision. Shared work is a feature of apprenticeship. This trainer suggests that Foucault's panopticon model of surveillance is relevant. This trainer is saying that where surveillance was made easier through open clinic layout, the capacity of the trainer to scrutinize, and correct, a trainee's practice was better than it is under the room layout arrangement of separate offices.

Figure 6.1 below shows a picture of the consulting room. It shows the equipment needed to practice and learn ophthalmology. Equipment is similar in all consulting rooms, facilitating shared practice by consultant and trainee. In fact, this virtually identical equipment set up facilitates shared practice between all members of the unit, including the trainer and trainee. Patient care can be shared between consultant and trainee. This clinical space layout supports the apprenticeship model of training, but less so than an open clinic used to.

The trainer and trainee consult in adjacent rooms. Practicing and learning can go together since the rooms are near one another and both trainer and trainee can use each other's equipment interchangeably in caring for patients. Figure 6.3 below shows the common waiting area shared by patients of the consultant and trainee and five adjacent consulting rooms. The consultant, Fellow, and trainees all work as the one unit in adjoining but separate offices.



**Figure 6-1: Registrar's consulting room in the outpatient clinic<sup>22</sup>**

Figure 6.2 below shows the registrar's consulting room, or office, in a teaching hospital outpatient department adjacent to, but separate from, the consultant's office.



**Figure 6-2: Adjacent separate offices<sup>23</sup>**

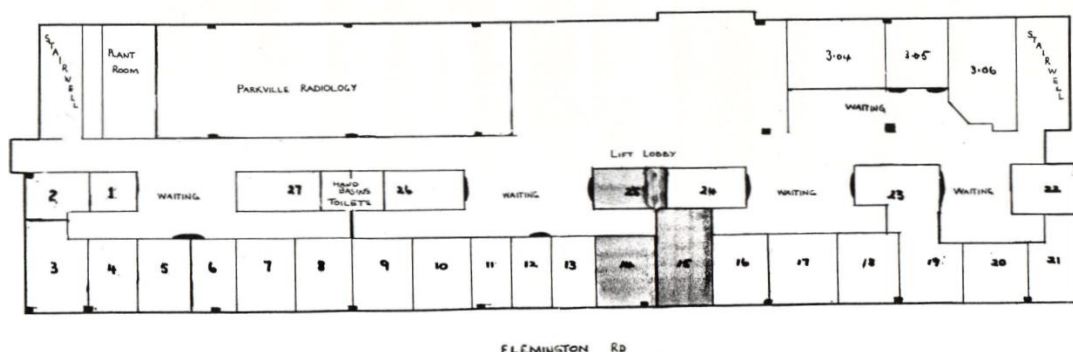
<sup>22</sup> Source of the picture that is Figure 6-1 is the sixth floor outpatient department, Royal Children's Hospital, Melbourne. 2011. This photograph shows the equipment required for learning in outpatients: A patient chair, registrar's chair, bench, computer, ophthalmoscope, vision chart, lamp, and slit lamp are visible in a separate office room layout.

<sup>23</sup> Source of the picture that is Figure 6-2 is the sixth floor outpatient department, Royal Children's Hospital, Melbourne. 2011



**Figure 6-3: Five adjacent consulting rooms for the Unit's session in outpatients<sup>24</sup>**

The diagram in Figure 6-4 shows an outpatient floor plan that demonstrates separate offices. It demonstrates that each consulting room is separate from the rest. There are no sliding doors. This clinic appears less designed to facilitate apprenticeship based teaching than are clinics where there are sliding doors between two seemingly separate consulting rooms. The privacy of the waiting area and corridor space constitute one aspect of the teaching conditions that affect any master-apprentice encounter.



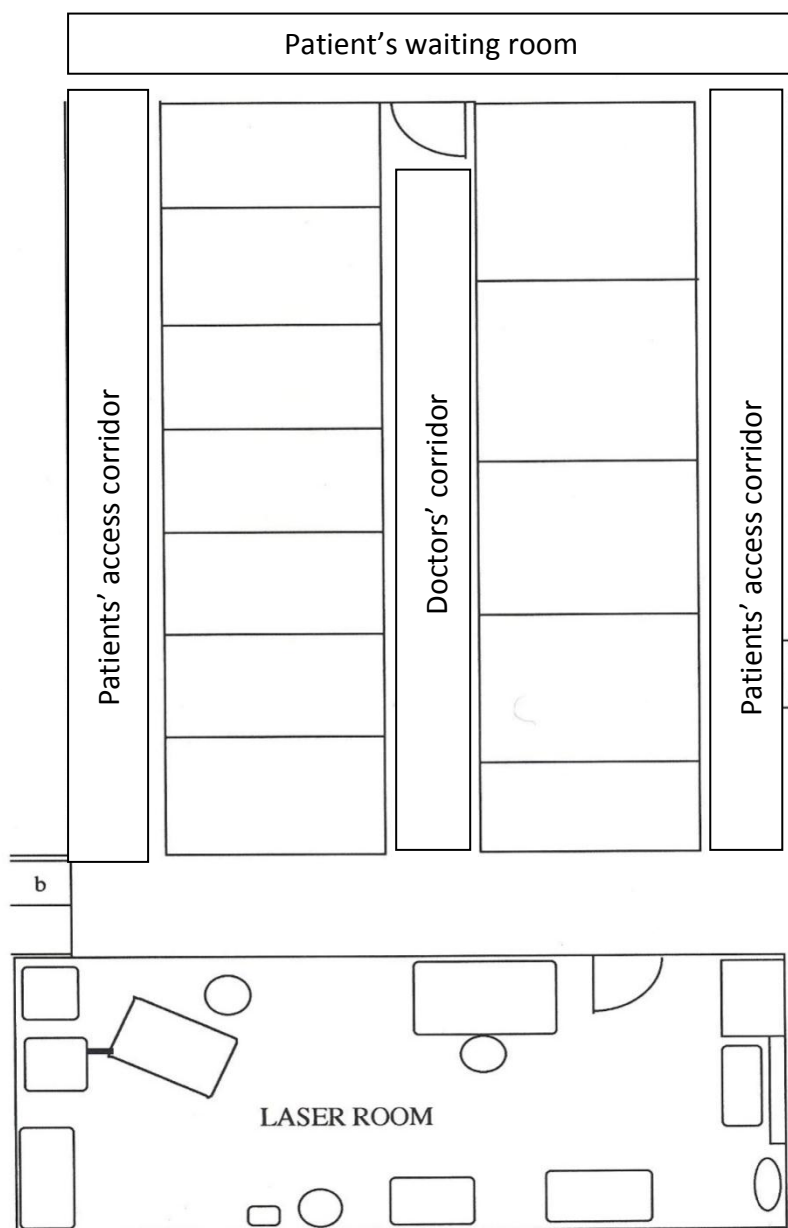
**Figure 6-4: Separate offices in the outpatient clinic<sup>25</sup>**

In one further arrangement, pictured in Figure 6-5 below, one corridor is allocated only for clinic staff to move along, including the doctors, allowing quick interchanges between them during the clinic. The other corridor is close to a general large waiting room or opens directly into this large waiting room. Patients can move back and forth, usually sitting and waiting for

<sup>24</sup> Source of picture that is Figure 6-3 is the sixth floor outpatient department, Royal Children's Hospital, Melbourne. 2011

<sup>25</sup> Source of the private practice consulting rooms floor plan, Royal Children's Hospital that is Figure 6 4 is Helliger H Sub-lease agreement 9105142HH.doc Annexure 1 and 2, Royal Children's Hospital Foundation Ltd, June 5th 1991

their names to be called or for their dilating eye drops to work, so they can be called in again for the second half of their consultation



**Figure 6-5: Separate corridors for patients and doctors provide semi-open clinic layout<sup>26</sup>**

The different arrangements of clinics and teaching spaces make it more or less easy for master to apprentice teaching to occur routinely as part of patient care.

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<sup>26</sup> Source of the floor plan that is Figure 6-5 is the Clinic 3 outpatient department Austin Hospital, Heidelberg, Victoria, 1998.

### 6.2.3 Open clinics

In the past, outpatient departments were large open spaces used for all patients, and the practitioners, for instance, the ophthalmologists, practiced together in the open. The data show that one trainer lamented the passing of the old ‘open clinic’, saying that they had made it easier to closely supervise trainees. In this trainer’s description, the old ‘open clinic’ outpatient clinic seems far from the modern-day outpatient clinic room layout, which features separate, smaller rooms for each doctor. With respect to medical education, the open clinic seems closer to the inpatient ward round setting in that there could be very close supervision of the trainee’s consultation, Figure 6.6 below.

Today, because of the separated patient rooms, the trainee and trainer are more physically separate. Teaching methods cannot be assumed to be ahistorical. The reality in modern hospitals in this 21<sup>st</sup> Century is that the geographic layout of outpatient wards is more private than in the previous century, and there are far fewer inpatients—factors that have, in combination, contributed to decreased contact time and intimacy between trainer and trainee, for instance, even since the 1970s. Increased patient load and an increased trainee to trainer ratio also seem likely contributing factors. These changes are likely to reduce the efficiency of the apprenticeship model of training, and should be taken into account when developing curriculum, and when planning hospitals.

In the past, outpatient departments were large open spaces used for all patients, and the ophthalmologists practiced together in the open.

*There’s always a compromise between an old-fashioned open clinic and sometimes the happiest clinics I have been in [is where there’s] three little rooms that replace the ghastly open cubicles at Royal [Name of Australian capital city]. We weren’t searching people’s intimate details, you know it wasn’t so much a privacy issue but I tell you what it was very good for hearing when a trainee was [out of line in their handling of] a patient, or something like that. You could sort of hop in and keep an eye on them. You’d tell them ‘**Don’t speak to a patient like that!**’ You know, that would be infrequent, but it also make[s] it terribly easy to access and share. Just duck your head around the corner and have a look at this. See, all open. [male trainer, P302, emphasis added]*

The open clinic is thus one model that is of historical importance for comparison to the way hospitals are designed today. The model demonstrates important features of the powerful past traditions of apprenticeship, particularly guild apprenticeship. These are traditions that still affect training relations. In the open clinics, attitudes towards patients could be monitored and corrected. The close proximity that some open clinics offered may not have been quite as intimate as the single American-style room that is shared by consultant and trainee together. However, in the open clinic the high degree of potential intimacy reported is noteworthy.

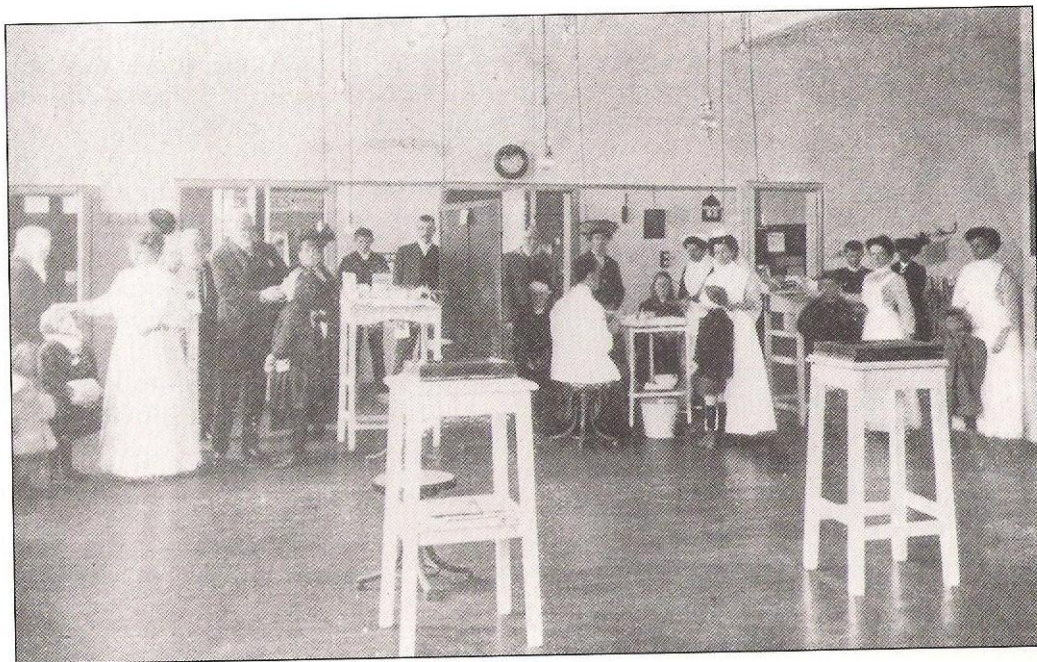
An example of learning ‘health advocacy’ was exhibited in the above quote. It relates to learning to speak respectfully to patients. Although suggesting that this was rarely needed, in



the open clinic the consultant could easily and swiftly correct the registrar by saying, ‘Don’t speak to a patient like that!’ (P302).

This example demonstrates that physical, pedagogical and social spaces are co-located in the outpatient clinics. In this open setting, any patient might become a teaching case, and might alternatively also quickly revert to being simply a clinic patient in consultation with their own qualified consultant. This open clinic design allowed the consultants and registrars to proceed through their session’s caseload in the clinic smoothly; the consultant, patients, and registrar could all see that the staff were progressing through the clinic work, the ‘pile of histories’ (P302) and teaching was conducted openly, efficiently, quickly, and flexibly.

Figure 6.6 below shows the room layout at the Royal Eye and Ear Hospital in Melbourne, Australia in 1910. This photograph shows several consultations happening in one large room. The doctors are seated, and the patients and relatives are standing. Twenty-two figures, including four children, can be counted in the one room in this open clinic outpatient department. Five of the people are nurses, and two appear to be doctors. At this time, all specialty doctors in this setting provided both Eye and Ear, Nose and Throat services, rather than either alone as is the case in the 21<sup>st</sup> Century.



**Figure 6-6: The open clinic room layout at the Eye and Ear Hospital c1910<sup>27</sup>**

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<sup>27</sup> Source of Figure 6.6: The open clinic room layout at the Eye and Ear Hospital Melbourne, Victoria, Australia (Picture: Donovan 1992).



with their consultant. One trainer who chooses to have the trainee sit in the same room feels that by having the registrar sit in with him, he is indeed offering highly valuable learning experiences.

*Refraction? Well I run the clinic [so] that [it] is slightly different to the 'You see one, you do one, you teach one' type clinic. I run the American style clinic because I did my training in the States after I had done my local thing and I get my registrars to sit in with me just about all the time. So we do cases together. The registrars refract and I will check the refraction, in the beginning anyway until we are very similar, assuming I am correct. And then that is really the practice, you are passing on the skill and then I try and, if possible do a subjective at least once before they sit their exams because I like to see how they do it and take out whatever I think need to be changed and teach them how I think it should be done. I have four registrars [per year]. Two per term for six month term[s]. We have I think six trainees [in our program]. Some come back [to my hospital] for a second round. There are registrars in different hospitals. [We have] Fellows as well. I think we know our trainees really well. [male trainer, P311]*

When the registrar and consultant spend a clinic together in the same room, there is very close supervision of the trainee by the consultant. This includes the trainer checking that the trainee's patient care skills are developing well, including providing corrective feedback.

### **6.2.5 One trainer many trainees, one trainee many trainers**

Whatever the room layout, there can be tight collegiality between individual trainers and their trainees. This occurs through working in close proximity together in outpatients and in theatre. They know what each other knows. They know about each other's lived experiences of training. They discuss cases together and frequently share their experiences of practice. Questions of knowing one another's competence are not at issue between close colleagues; it is simply assumed knowledge through shared training experiences and continued collegial contact. As one ophthalmologist points out, from the trainer's point of view 'you had some idea of the capability at the end of it' (male trainer, P204), because of close contact during training.

As part of a community of practice, close contact occurs between one trainer and numerous trainees, and between any one trainee and numerous trainers. Appendix 6-2 shows the list of RANZCO training regions. Trainees are appointed to one region for their entire four years, but usually move to another region, or to an overseas post, for their fifth and final year as a 'journeyman'. The registrars rotate every few months within their region, yet the rest of the team remains stable. When filling in for a registrar rostered to that theatre session for the term, a 'covering registrar' may attend that theatre session only once. Appendix 6-3 shows a sample roster. Although rosters appear to show rotations of at least three months, this frequency of rotation is slower than the lived experience of being a registrar or a trainer. The reality can be likened to the rapidly changing re-arrangement of grasshoppers in a plague of them. The point is that, while indentured, prolonged training is the conceptual model held



from their own past experience in the minds of those delivering apprenticeship training; alternatively, in the present day, a rapid turnover of master-apprentice relations may be more the reality.

Learning in ophthalmology happens within a community of practice. The contradictions, the qualifications, the hedges that the participant offers are twofold. The first is the word ‘hopefully’. This occurs not once, but twice in the same sentence.

*I think they learn a lot ...[when] they can observe by example and **hopefully** see it done, well, **hopefully**, and from that move on to ... **pick up** on what can be done better [male trainer, P206, emphasis added].*

The second interesting point is the phrase ‘pick up’. This suggests that learning carries a kind of casualness. This notion is in keeping with the idea that it is the work that is shared, not the teaching. The prime focus is the patient care work, not the teaching and learning that occurs. This is in keeping with the inexplicit, tacit, nature of learning medical practice in an apprenticeship form (Polanyi 1967; Unwin et al. 2007).

## 6.3 Community of Practice

There is a hierarchy of people who train and are trained. A hierarchy of personnel make up the community of practice. The importance of the hierarchy of training is that the trainees may feel under the control of masters, that mastery requires forfeiture of control in order to learn, and that the existing culture may pose problems for those who transgress. Based on the terms used by participants in this study, Table 6.3 below introduces the hierarchy in ophthalmic training.

There is a strong hierarchy in training, and there is an ethos whereby it is through teaching another individual lower in the hierarchy that one learns oneself and improves one’s own surgical skills.

Trainees take on professional attitudes and may experience humiliation during their experiences with a teaching hospital unit. Women are present in training and in leadership discussions but are outnumbered amongst men both as trainers and as trainees. Humiliation seems to be a feature of strict hierarchies. Being outnumbered may put them at a particular disadvantage in resisting humiliation as a training method.

School leaver medical students tend to be younger than graduate entry medical students. There are many graduate entry schools, and in some places school leaver medical schools are being phased out. Over time, this trend will affect the age at entry. The overall time of training is increasing so the age at which ophthalmic trainees and ophthalmic Fellows exit the

program is rising. The current average age at commencement is 29 years (Personal communication Margaret Dunn, RANZCO, January 6<sup>th</sup> 2003). As shown in Appendix 6-4, the median age at graduation in 2002 was 34 years. However, very often trainees are at least age 35 years at graduation, sometimes quite a few years older. The table in Appendix 6-4 shows that the median age at graduation was 33 years in 1993, rising slightly to 34 years by 2002. The current age at entry for the January 2008 cohort was 29 years. The gender breakdown of fellows of the College is 83.6% males and 16.4% females (Personal communication Julie Gustavs RANZCO, July 9<sup>th</sup> 2008).

Many of the terms in the hierarchy are derived from the guild apprenticeship system, and its terms master, journeyman and apprentice are shown at the appropriate place in Table 6-3 (Guile & Young 1999). Guild apprenticeships often comprised fathers, sons and other close family members (Bunn 1999). There are many examples of father-son relationships in ophthalmology. At present, there are at least a dozen in each of the two largest Australian cities and also some in New Zealand.

There are also many examples of fathers and sons-in-law, and much more rarely, although at least two sets exist, there are father–daughter-in-law dyads, one of which is father–son–daughter-in-law family of ophthalmologists. Sets of cousins are common. A set of cousin-ophthalmologists ran and taught in one teaching hospital in Australia for many years. There is one such dynasty that connects approximately six ophthalmologists who are all heads of units in one major city in Australia, including two sets of cousins and a son-in-law (Bunn 1999). These patterns fit with apprenticeship. Far rarer, there is at least one mother-daughter dyad in Australian ophthalmology.

Some of these roles in the hierarchy are simply clinical roles, but almost all are of relevance to training relationships as well. The language is local and confusing. ‘Fellow’ has two meanings. Master and apprentice are no longer used day to day; the most commonly used terms by the participants are registrar, and consultant. These terms correspond to trainee and trainer respectively in the VET literature. Laying the complex matter of class aside for a moment, and also the matter of the strict hierarchy that medicine seems to display; a trainee has an established role in the community of practice even at the beginning of training.

As a fully qualified doctor, the ophthalmic trainee has a more established role in society at the beginning of their training than a trainee such as a young plumber’s apprentice might have in a traditional apprenticeship scheme.

Level	Description as used in ophthalmology	Age	Guild nomenclature	Term as used by interviewees in this study
<b>Consultant</b>	Old-timer, Fellow, Trainer, Supervisor, Clinical Tutor, Staff ophthalmologist, Senior, Master; Attending (United States)	35–75 years ‘PGY 10–50+’	Old-timer, Master	<i>Consultant, Supervisor, Senior, Master, the boss; as in ‘take the patient in to the boss’</i>
<b>Young Consultant</b>	Fellow, Junior Consultant, Consultant, newly graduated to fellowship	35–45 years	Journeyman	<i>Consultant</i>
<b>Fellow</b>	In a teaching hospital post, often full time at teaching hospital, always with significant amount of sub-speciality duties, as in ‘Paediatric Fellow, Oculoplastics Corneal Fellow’, Fellow, as in ‘doing a Fellowship’	32–40 years PGY 8+	Journeyman	
<b>Senior Accredited Registrar</b>	Advanced Trainee. Practices in a teaching hospital, a hospital employee, Senior Registrar, Senior Reg, as in ‘the senior reg. on in ED’, and ‘training to become a RANZCO Fellow’	27–35 years, PGY 4–10	Apprentice	
<b>Junior Accredited Registrar</b>	Basic RANZCO Trainee. Has passed selection into the College of Ophthalmology training program. Practices full time in a teaching hospital. Hospital employee	25–30 years PGY 3–7	Apprentice	<i>Junior trainee, the junior registrar, the junior, the trainee</i>
<b>Unaccredited Registrar</b>	Shares work and workplace with accredited trainees, may enter accredited training within a year or two, works alongside the junior and senior trainees, but may never become a trainee. May be taught by those within the community of practice, including registrars and consultants, who may not be certain of his or her status as accredited or unaccredited when they work together in the workplace, or when a ‘teaching case’ presents the opportunity to teach others	25–30 years PGY 3+		<i>Unaccredited registrar ‘When I was doing the unaccredited job’</i>
<b>House Officer</b>	Also called junior medical officers. Second year or more post-graduation from medical school. The name given to the more senior junior doctors who work in teaching hospitals. Not uncommonly, extends until PGY3–6. Also known in Australia as ‘resident’. A very small group of these doctors stay in hospitals forever, as a career end, and are then known as career medical officers	25–30 years PGY 2+		
<b>Intern</b>	Recent graduate of a medical school. Required post for legal registration as a medical practitioner. In Australia, a one-year full-time internship must be taken in a public hospital	23–30 years PGY 1		
<b>Medical Student</b>	Entered as a school leaver or by graduate entry. School leavers comprise those who are at the younger end of the range	17–30 years		<i>Medical students are ‘at the bottom of the totem pole’</i>

**Table 6-3: The hierarchy in ophthalmic training based on apprenticeship terms**

Nonetheless, several trainees described their life as ophthalmic trainees as being that of a 'slave' (male trainee, P303; female trainee, P320). Some trainees experience a strict control of their lives through their participation in this community of practice. In keeping with the medical literature (Quadrio 2001) the study data suggests that an experience of intimidation thus occurs as part of training.

### 6.3.1 Continuity-displacement

The 'continuity-displacement' contradiction mentioned in the literature review is a further feature of apprenticeship that is evident in the data. An allied term, 'legitimate peripheral participation' also has implications for practitioners and learners, and both phrases deserve explanation. There is a contradiction between legitimate peripheral participation and the displacement inherent in that same process (Lave & Wenger 1991:114). It is obvious that if the profession is to sustain itself newcomers are needed, and they must be trained. The fact that they are needed, though, must mean that the old-timers will pass on. 'If there were no tomorrow, we would not need to educate' is one way of putting this. In the language of apprenticeship, old-timers are experienced practitioners who see themselves as full members of the community of practice and view newcomers only as legitimate peripheral participants. The contradiction is that the newcomers are essential to the community of practice, because they are its present and its future. The community of practice will not survive without them. However the existence of newcomers threatens existing practice, and existing identity.

Training serves the purpose of replicating the profession by providing replacements for the old-timers. In the quote below the trainer is showing a newcomer, a registrar, that the clinical techniques can be simple, and that their own sub-specialty or area of practice is exciting and worth the effort of training, because there is a career path into satisfying patient care work. Patient care work is engaging, and the patients, as clinical material, are 'gobsmackingly wonderful' (P310). The opportunity to 'hold court' and to astound and amaze medical students is present. Specifically, these ingredients are seductive to the right junior registrar. If the junior registrar is convinced by this presentation to train in ophthalmology then the old-timer's succession is assured. Providing he teaches some trainees before he 'loses his marbles', a part of himself will live on in the practices he teaches, and by his example, in the attitudes he upholds.

*I've had 35 years' [of] experience in the school of hard knocks. I've made every mistake there is in surgery, except for ones that haven't been described yet. And as recently as last night I made a new mistake that I'd never heard of before and that I had to fix up. So I'm still on the learning curve. I'm very much the master of the apprentice, and when I'm teaching them, I tell them that I'm going to teach them the safest way to do surgery, to keep them out of trouble. Also I'm there to show them*

*how to do things efficiently and well and also to show it's kind of easy to do it. It's not that hard to do. Also that there's something particularly rigorous and interesting about my specialty. And usually the more junior guys come and spend an afternoon with me and see all these weird and wonderful things, sometimes (things) they've never heard of, and even further down the totem pole medical students who think this is just gobsmackingly wonderful [come]. They're just overwhelmed by it and I think 'This is really good'. [I can mention a trainee] who actually wants to do [my specialty]: she thinks this is a good thing to do. And I think this will be great because, you know, I want to ensure my succession. I want somebody to take over my work [male trainer, P310].*

This data suggests that the continuity displacement contradiction is at work in ophthalmology. The trainer wants to pass on his knowledge to trainees 'while I've still got my marbles' (P310). He does this to 'ensure my succession'. He would like his expertise to live on longer than he does.

*I'm getting to the point in my career where I've had huge clinical experience and I really think that both at the registrar level and the medical student level, I want to impart that experience while I've still got my marbles. I figure I've got about 10 years practicing lifetime in me. But I don't think I'll be practicing full time in 10 years' time because my present workflow is not compatible with life. [male trainer, P310]*

He admits that it is only now that he is secure and aware of his own future passing that he engages with the trainees more fully and enjoyably. Fifteen years ago he would have 'been a bit threatened ... a bit defensive and now I say "Great" ' (P310):

*My previous registrar, I've got a new one who's just a first year, but the one before was in his third year and wants to have a big component of [specialty] in his practice. And he gave me a bit of a run for his money, he's a bit antsy and he likes sorts of disagreeing with you and telling you [you are] wrong and you don't do it like the ophthalmologist who's 15 years younger than me in this town who trained at [famous hospital] Street, so there's a cultural difference straight away and there's an age difference. He used to say, well Dr F doesn't do it that way or he doesn't use that [technique] and I don't find that [technique] very useful. And I said 'Well you haven't done it many times, but I find it very useful and these are the reasons why'. But he was really good, whereas **fifteen years ago** I would have been **a bit threatened** by that. I would have been **a bit defensive** and now I say 'Great'. He's like a young bull running around the paddock bucking against the posts. And the old bull? I just let him buck and have a bit of fun with it. And we really actually had a fantastic time with each other. I really enjoyed it. I think he really enjoyed it because he could be a bit provocative and I'd sort of say 'Well I wouldn't do it that way. Where's your evidence?' [male trainer, P310, emphasis added]*

The tension between continuity and displacement is surely a part of all learning (Lave & Wenger 1991:114).

***The different ways in which old-timers and newcomers establish and maintain identities conflict and generate competing viewpoints on the practice and its development. Newcomers are caught in a dilemma. On the one hand, they need to engage in existing practice, which has developed over time. To understand it, to participate in it, and to become full members of the community in which it exists. On the other hand, they have a stake in its development as they begin to establish their own identity in future. (Lave & Wenger 1991: 115)***

In the ophthalmic data in this study, intergenerational tension is evident. The continuity-displacement contradiction is present in ophthalmic training, and this is in keeping with it being an apprenticeship based training form.

### 6.3.2 Apprentice as slave in the hierarchy

From the trainee's point of view, the continuity-displacement contradiction may manifest as difficulties with challenging the community of practice's norms. Silencing of any critique by trainees is a known feature of apprenticeship, even though practice changes and is evolving over time.

*It is known that production and social reproduction of persons are mutually entailed in the reproduction of the social order, the contradictions inherent in reproducing persons within ...communities of practice do not go away when the form of production changes, but go through transformations of their own. (Lave & Wenger 1991:115)*

The community of practice has a tradition of hard work and deference to the master that takes precedence over the personhood of the trainee. This is a professional identity that fits with socialization (Erde 2008) into the medical professional identity of heroism (Pringle 1998; Cassell 1998). Some participants noted that the modern, busy hospital outpatient department offers a difficult teaching environment as they attempt to learn what belonging to it is like. This was also identified by Wainer in her study on female doctors (Wainer 2005).

A professional identity of hard work and deference to those higher in professional hierarchy takes precedence over the personal preferences of the trainee. One female trainee points out below 'when someone calls you, you have to jump, and you learn this from a very early age' (female trainee, P320). Acknowledgment of, and support for, the personhood of the trainee is not the focus of apprenticeship training in ophthalmology. Moreover, sometimes a master-apprentice relationship even becomes instead a master-slave relationship.

In medical work, what is called the service/training balance rests on the extent to which the trainees provide the backbone of the work done at the teaching hospitals. Performing work that is not directed towards their training needs is a feature of some classical apprenticeships. Apprentices may be subject to overwork in the guise of apprenticeship training (Lave & Wenger 1991). Registrars are far lower on the hierarchy, or the medical 'totem pole' (P310), than consultants are. One result can be that ophthalmic apprentices feel as though they are slaves.

*When you are a registrar, in some respects it could be slightly likened to a slave. I mean that is probably a very extreme way of putting it, but **when someone calls you, you have to jump** and you learn [this] from a very early age. If you want to get far in this career or especially if you want to get into ophthalmology or a tricky training program [you have to jump]. When someone asks you to jump, you don't ask how high, you just jump as high as you can. My position as a registrar is to take instructions from my boss. I don't feel like a slave. I don't feel like I am getting whipped or anything. But I do feel a little bit like a slave to the system. I think the master is part of the system. Ultimately you are definitely a slave to [teaching hospital] administration. I kind of feel like you get control back of your life when you become a consultant, [although] maybe I am wrong and maybe you never get complete control of your career. I mean, there is still a lot of on-call and you still work with colleagues, and if you end up in public work, which is what I want to do, you are still a slave to the system. Just*

*being able to say, 'I am leaving now', and 'I don't have to stay back and see any more consultants'. Just being able to have more control [female trainee, P320, emphasis added].*

The culture of potential master-slave relationships is worsened by competition for valued advances in the profession that is also a feature of medical apprenticeship. The culture of the community of practice involves competition against one another. 'It is bred into you' were one trainee's words. The medical student and medical trainee's capacity for critique of their seniors is limited in such a system:

*I think that even though you can still be really good friends with a group of people in medicine, we are all fairly intelligent and we are all trying to get good marks, and we compete amongst each other, we all start to learn [competition] from a very early age, it is bred into you. [female trainee, P320]*

Apprenticeship involves a close and controlling relationship between trainer and trainee.

***The continuity-displacement contradiction is present whether the apprentice and master jointly have stake in the increasingly knowledgeable skill of the apprentice, or whether there is a conflict between the masters' desire for labour and the apprentice's desire to learn. (Lave & Wenger 1991:115)***

In this study's data on ophthalmology there is a conflict here between the master's desire for labour and the apprentice's desire to learn. This is a further feature of apprenticeship training that is evident in this study's data. The ophthalmic curriculum form involves intergenerational conflict and contradiction.

### **6.3.3 Clinic culture, collegiality and competitiveness**

Close proximity in clinic is only one condition for successful pedagogical exchanges in an apprenticeship system. A variety of other conditions must be satisfied for a satisfactory training exchange to occur. One of these conditions is a mutual recognition of sufficient shared identity between trainer and trainee for a teaching exchange to be successful. Below is an example where there the conditions were insufficient, but for an unclear reason, a reason that one can speculate may be personality-related:

*I found on some inspections where you've had two adjoining rooms separated by a sliding door when the 2nd year trainee (is there), we've asked them 'Well, how often would you take a case into the consultant?' and they say 'Well, I don't'. So [I ask] 'What do you mean, do you see the consultant during the afternoon?' 'The consultant might arrive late or I don't really feel the need to'. So here's a trainee who obviously doesn't know what they don't know and doesn't feel the need to communicate. The consultant may, for many different reasons, not feel obliged to slide the door open and keep contact up with the trainee (male trainer, P302).*

The personalities of trainer and trainee are one potential influence on training form in this example of an unsuccessful exchange. Training interchanges cannot occur unless both trainer and trainee are willing and able to achieve them. Seeing personality as stable rather than context dependent is recognised as a myth held by the medical culture (Regehr 2006). The data show an example of this. One trainer emphasised that the personality of trainee can endure beyond context in relation to workplace behaviours. He noted that any trainees with a

sufficiently good personality could not only teach themselves, but also could drag any dysfunctional hospital clinic upwards. Good trainees are seen as adaptable and able to ‘thrive anywhere’ despite a lack of systematic support in the teaching hospital environment.

*Well, you see some trainees that you know can actually make a dysfunctional system work. They are the fixers, and those trainees are gold [whereas there are] other people [registrars] who puddle along and who are always left with a pile of histories at the end of a clinic, and there's paper work everywhere and others [are] fixers. You know fixers, that are anticipating, [fixers who] can make a dysfunctional system work. They have sussed out problems [even] before they occur. They thrive anywhere. [They]'re good communicators. [male trainer P302]*

In looking at the curriculum form of ophthalmic training, as well as learning through patient care in the outpatients as described above, there are other curriculum forms evident in the outpatient department data. Outpatient teaching rests on book knowledge. Trainees must have sufficient knowledge of ophthalmic language to engage with their consultants. Rather than remain on the job full time, they attend tutorials that are based around the academic subjects of ophthalmic work such as pathophysiology. For Eisner and Vallance, this shows the partial contribution of an academic curriculum to ophthalmic training (1974). An academic curriculum form is thus evident, particularly before and after the intensively clinical middle years of training. ‘Some 50 per cent of final year trainees undertake their final year experience with leading scientists and practitioners in countries other than Australia or New Zealand’ (RANZCO 2002-2003:14).

Learning about the business aspects of ophthalmology practice is supported by pharmaceutical companies and is learnt concurrently with later clinical training. Training includes access to an ‘enterprise’ work culture. ‘(For trainee support) Pharmacia sponsored a weekend workshop in July 2002 to establish a national support program for recent Fellows and later year trainees; Pfizer has taken over from Pharmacia and intends to continue similar workshops in future’ (RANZCO 2002-2003:16).

In conclusion, this chapter, Chapter 6 ‘Apprenticeship in the Outpatient Department Clinic’ has demonstrated what the data showed about how the master and apprentice work together in outpatients. They each focus on patient care. The data show that the curriculum form evident in outpatient ophthalmology teaching is predominantly that of apprenticeship. Acquiring a sense of collegiality, learning in a community of practice, and from working together in close proximity in outpatients (and in the operating theatre, Chapter 5) lead the trainee to an increasing sense of belonging to the community of practice. Shared participation in the ophthalmic community of practice defines the epistemology of clinical practice of ophthalmology that is passed on to trainees. Clinical space design in teaching hospitals emerges in the study data as a factor that predicts how effective apprenticeship training might



be in any given setting. Clinical space design appears to be unrecognised as a factor that affects the delivery of apprenticeship training.



## **Section III: Contradictions: Can and should change occur?**

The previous section, Section II, explored the curriculum forms found in the data. Theatre and outpatient clinics are both important training sites for learning to belong in the ophthalmic community of practice. The findings were that the official view is a mixture of both competency based training and apprenticeship, whereas the lived experience of trainers and trainees rests largely on an apprenticeship base. From the operating theatre and the outpatient clinic together trainees gain a mutually reinforcing set of situated knowledges about ophthalmic work. While theatre is the most classical curriculum site, and is ever in mind, the importance of outpatient training is that trainees learn essential collegial relations and the epistemology of the community of practice, elaborated without the drama of theatre.

Section III here reports the study data about the contradictions that are drivers for change. Contradictions are clues to potential social change in a curriculum and two are identified in this section. First is the changing epidemiology of acute and chronic disease; second, the presence of women as ophthalmologists. An underpinning explanation for lack of change, and an explanation for stability or conservatism, called the ‘culture of no culture’ is then dealt with.

The first chapter in this section, Chapter 7, is about the contradictions that the chronic disease of dry eye poses for a training curriculum underpinned by a focus on acute rather than chronic disease. The apprenticeship based system appears to have the disadvantage that it reproduces traditional values about chronic dry eye that run counter to the literature on good patient care for chronic disease (Malterud 2000). Chapters 8, 9 and 10 are shorter chapters. They focus on specific implications of the apprenticeship based training for which evidence was provided in the previous section. The data set is explored using for androcentrism, and for ‘a culture of no culture’ in relation to teaching. The last chapter in this Section, Chapter 10, explores complexity theory, a curriculum form that theoretically embraces change, contradiction and myths. It appears to provide greater potential for change than apprenticeship or competency based training.



## Chapter 7 Chronic Disease and Dry Eye

‘Dry eye’ is an example of a chronic ophthalmic condition. This chapter presents the data about the epistemology held by the community of practice regarding dry eye. Chronic disease care is needed in ophthalmic work and in training for work; data from this study suggests in summary that the focus of both the work and the training of ophthalmologists is acute disease.

It would seem that conditions that ophthalmologists can attend to quickly (and preferably ‘fix’ immediately) tend to be the focus of both work and training, yet most diseases, including many eye diseases, include an important chronic component. The ‘personhood’ of the patient, too, determines the effect of any condition on their lives (Roter 2000).

All other things being equal, the patient’s station in life and their attitudes and knowledge of their condition determine how much ‘load’ a disease places on the person. Despite its obvious importance, the personhood of the patient appears to be neglected in the decontextualised teaching hospital setting. It is useful to ask here how this might have come to pass and particularly how it is relevant to training.

### 7.1 Continuity of patient care

It has been suggested that learning to manage the chronic nature of ophthalmic disease may form a significant part of the structure of training in outpatient departments in teaching hospitals, but this is also debated (Irby 1995; Holman 2004). The following registrar’s story highlights a number of points about the difficulty of providing continuity of ophthalmic care. During training, a trainee notes that following up one’s own patients is structurally difficult:

*At the [big city teaching hospital] it is quite hard to actually have continuity. [I mean] seeing the same patients [is impossible] unless you specifically bring the reviews back on a day when you’re in emergency and [then] you [personally] go through the emergency pile and pick out your own patients, which is kind of frowned upon. You might never see the same general clinic patient twice. I think you miss that longitudinal training. You miss that outcome. You don’t see what happens to your patients [from] the start of the treatment; you don’t get the feedback; you don’t modify your practice, because you see them once and that’s it, you won’t see them again. [male trainee, P204]*

The trainee realises that this structure is a feature only of the large city teaching hospital. It is not an essential part of ultimate practice, but it is difficult for the registrar alone to counter the barriers against learning about chronic care in his teaching hospital.

*Going to a place like [rural post], which is where I have just come back from [to the big city teaching hospital], you [alone] are responsible for your own patients and you see them [all personally]. The bosses don't see them unless you ask the consultants to help for an opinion or something like that. So you are purely [responsible for] that patient. So seeing them and then bringing them back in [at] times when you are free or booking them appropriate review appointments and seeing how your treatment works and the long-term sequential outcomes was in that [rotation] for me. Going back to [the big city teaching hospital], in the public [hospital] you are supposed to see the next patient in the queue. In emergency you don't go and pick out your own reviews. You do them in order. It's a triage system. It's categorised. Is there a way around that? It's difficult. I don't know how you would do that. I mean, you would flag the [review patient of yours] waiting in the queue until when you are free to be [seeing them]. Sometimes I do that. [How do you do it?] You might slot your review in the pile with a sticky label on it saying I will see it when it gets there. [male trainee, P303]*

Professional identity developed in the teaching hospital may thus, in turn, display a lack of emphasis on the personhood of a patient. Personhood needs to be included so that a patient gets good benefit from continuity of patient care by the same doctor (Plesk & Greenhalgh 2001). The registrar does not mention what happened if and when any patient asked for such continuity, for instance. He said that nurses dislike the patients having a long wait based on criteria other than 'time since arrival'. Patients in the queue might object if they see a patient who arrived later than they did being called out of the same queue so that a registrar could follow up their own patient.

### **7.1.1 Complications and communication**

Although they may not be named as such by ophthalmologists, complications are an example of a chronic disease. They may not be well handled in teaching hospital training and those patients requiring long-term care tend to be understood mainly as having a surgical complication, rather than as having chronic disease. Communication skills required for effectively managing complications and chronic disease may remain in the background, rather than being considered core curriculum as operating skills are.

Furthermore, communication may even be actively avoided, particularly when a medical complication may challenge the professional identity of the doctor as heroic rescuer (Becker et al. 1961). One trainer finds that 'everyone tries to avoid' (female trainer, P318) seeing even their own patients with complications, particularly in the teaching hospital. To actually see their own unit's patients with complications, rather than avoiding such review patients, the registrars have to be challenged to do so by this trainer. She encourages them to learn good practice through reviewing patients with complications. She knows this is difficult. Overcoming being 'uncomfortable' is something she has learnt to do herself, and she knows the satisfaction it provides in terms of good patient care. Here she describes encouraging registrars to overcome this self-imposed barrier to learning about what may be a chronic condition for the patient.

*I think it's very much an internship. In the early days you very much copy or do what you're instructed as a junior until you develop your own sort of way of dealing with things or your own set of skills for particular patient care and particular situation. And this includes the way I encourage them to review our own unit's patients with any complications. I think that once they see that it can be useful and effective I think that they do [it on their own initiative]. I do think that they take it on board because they recognise that it helps them deal with the situation and become comfortable with their own inexperience. When you have a complication, **everyone tries to avoid** it, we're all sort of uncomfortable about [reviewing] it. You know the truth and the factual evidence, but then you realise [that] in the majority of the cases, the patient is quite accepting and doesn't get angry and isn't litigious. But there are those cases that even with whatever you do, you can't placate the patient and their family. I think in the majority of times they [the registrars] do take that on board and it helps them. [female trainer, P318, emphasis added]*

After experiencing a complication, a patient may require chronic eye care rather than the anticipated quick fix of an operation. The shift from an acute to a chronic condition provides a challenge to both the doctor and the patient. Collaborative or teamwork skills for ophthalmologists, as one participant noted in jest, are not nearly as highly valued as the skills needed for a good academic record.

*You have to be a bloody good collaborator if you don't have a very good academic record! [male trainer, CR]*

The question raised here in this chapter is how values about the level of prestige accorded different eye conditions might be learnt by registrars, and whether these values best serve the patient.

Apprenticeship and its feature of role modelling in the teaching hospital setting are important sources of the values passed on through the reproduction of practice.

Sometimes communication issues are considered too trivial for senior clinical staff to deal with.

Junior doctors are left alone to explain and discuss an infrequent complication to the patient as best they can, despite their inexperience, as a female trainee explains:

*Other examples that text books don't really deal with are [how] to deal with complications that arise from surgery. I think that is a really difficult one. And how you learn is really by, I think it's a [matter of] watch[ing]. Everyone has their own personality, obviously, which dictates a lot of how we deal with patients, but I think also that you learn from your seniors and other consultants about how to deal with [many] situations. But it is not an area that is dealt with in text books as you know. [Examples?] We do a lot of cataract surgery—be it the refractive surprise, be it infective endophthalmitis, the dropped lens, vitreous to the wound, the need for re-operation—anything that would be considered a surprise surgically. That is because we do so much cataract surgery that is the most obvious one but [for] any complication from any surgery is. There's no text book way of explaining it. How to deal with complications? You know there's different ways in which people deal with the same problem so the first thing [to know is that] management is definitely taught by seniors. A good example of this is raised intraocular pressure following cataract surgery, be it from retained visco-elastic, be it from another cause. [female trainee, P306]*

The trainees learn that the management of complications varies considerably among their trainers, but may not see that this principle applies also to chronic disease management. They may indeed generalise the principles they learn in inpatient care to outpatient care, but these may be those of avoidance premised on a desirability of avoidance of the patient, rather than an engagement with them.

*You know some people, I have worked with some people who have said to 'burp the wound' and other people have said 'never to burp the wound'. Like never release aqueous from the wound, in [order to] lower intraocular pressure because it's a transient effect. Different people I have worked with suggest different*

*things, and some people take a great deal of time to explain what they are doing to the patients and other people don't. [female trainee, P306]*

The trainees learn to adjust to variety when working on inpatient problems, whereas in outpatients they may not see the same patient sufficient times with the same consultant to learn these lessons. The acute hospital ethos that relates to acute disease tends to prevail. By contrast, the anonymity and lack of personhood that appears to be a feature of clinical practice in the teaching hospital does not prevail in community work, where much chronic disease is managed.

A 'myth of simplicity' is at work here. This means that training involves largely heroic treatment of acute or surgical disease. That most patient management involves, or ought to involve, recognition of chronicity is neglected in explicit accounts of teaching hospital practice and, accordingly, of the ophthalmic curriculum. Any chronic disease that is medically unexplained is an extreme example of chronic disease in general. Attitudes to medically unexplained chronic disease illustrate the epistemology serving this community of practice and, in turn, its hidden curriculum.

### **7.1.2 The patient's personhood as 'other'**

Another important factor in hospital training is that the incoming registrars already have a professional identity and may intend to hold to this identity despite their training. The concept of 'othering' has been used in the study of female psychiatry registrars by Quadrio (1991) who found that both female patients and female doctors were constructed through language and exclusion from professional knowledge-making as marginal, or 'other'. Othering is also apparent in those situations where doctors generate separation between their own identities and that of patients.

However, changes in identity may already be occurring in the profession as diversity of registrars entering the profession increases. There may be secular trends in the ways that patients are 'othered' by doctors. Modern registrars may hold to their own views of the doctor–patient relationship, views that are less 'othering', rather than adopting what they see as the norm of othering that they observe in their ophthalmologist-teachers.

*I think that the new current and the successive batch of registrars are much better [than tradition] in some ways. They're more aware of what their expectations with the patient relationship [are]. It's less of, in the olden days, we're the doctor, you're the patient. [female trainer, P318]*

This participant is pointing out that modern registrars may be more self-aware about their expectations of the patient relationship and thus may 'other' the patients less than ophthalmologists of earlier generations.



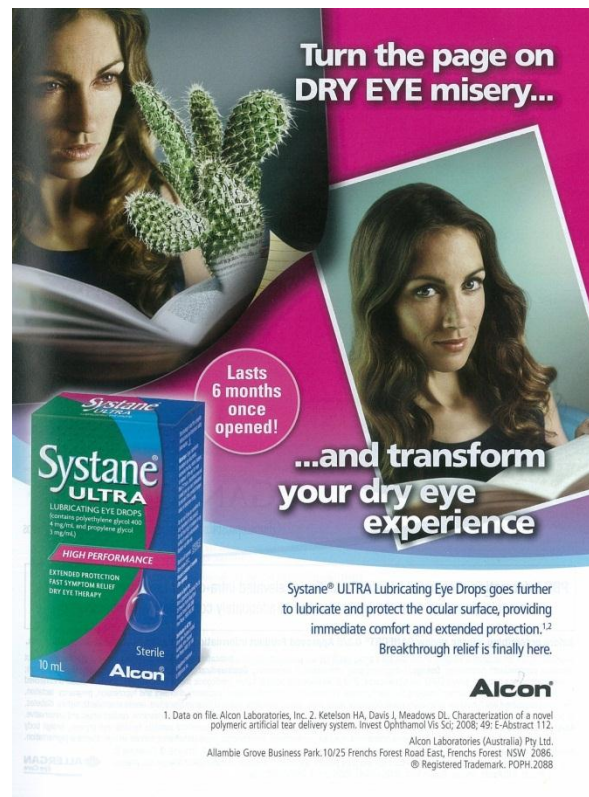
## 7.2 Dry eye and low prestige conditions

The symptoms of the condition dry eye are irritated, scratchy, dry, uncomfortable or red eyes, a burning sensation or the feeling something foreign in the eyes. An ophthalmologist can be helpful to the patient with dry eye. Although often no cure is available, treatment such as artificial tears or small plugs to slow tear drainage can ease the condition. It is a condition most commonly suffered by women (McCarty et al. 1998). In young women, it is associated with rheumatological conditions such as rheumatoid arthritis. In such cases it often goes by the name of ‘sicca’, short for ‘keratoconjunctivitis sicca’. It can be a chronic, unremitting condition that is frustrating for both doctor and patient (Malterud & Hollnagel 1999). However, there is a contradiction in this frustration. For an ophthalmologist, working with patients who have dry eye can be frustrating because it has a low prestige as a medical condition.

Its low prestige is represented in the advertisement below. This advertisement currently appears monthly in the College’s scientific journal. Figure 7-1 shows the advertisement for dry eye treatment (Alcon 2011). The advertisement suggests that ophthalmologists themselves experience discomfort when faced with a patient suffering from chronic dry eye. The phrase ‘lasts six months once opened’ perhaps feeds the ophthalmologist’s wish that the patient will not return until much later, if at all. The fact is that the instillation of a drop lasts hours, at most, rather than days. The advertisement appeals to the ophthalmologist to ‘transform your dry eye experience’ by offering the patient eye drops. The doctor’s eye drops transform the patient from a distressed, withdrawn looking woman whose gaze from prickly uncomfortable eyes is averted from the camera and cast intently on a symbolic cactus, into an attractive young woman smiling directly and alluringly at the reader of the journal.

Discourse analysis (Wodak 1996) applied to this image reveals that the ophthalmologist is discursively constructed (Wodak 1996) as a hero who has provided a scientific ‘breakthrough’ drug to the patient. From an ophthalmologist’s perspective, the patient with dry eye is portrayed as someone whose experience of prickly eyes needs a ‘breakthrough’ from the ophthalmologist. The female patient is rescued by the (usually male) ophthalmologist. The ophthalmologist is constructed as having the power to convert ‘DRY EYE misery’ to comfort through writing a prescription. The doctor’s knowledge of the scientifically formulated eye drops transforms the discomfort of both patient and doctor during an otherwise frustrating consultation. This advertisement offers relief to the ophthalmologist, who often experiences a sense of frustration in treating the condition of dry eye, as well as treating the patient.

The question arises as to where and how ophthalmologists learn to construct patients with dry eyes as frustrating. Academic and surgical achievement is valued much more highly where the context is a surgical intervention or scientific biomedicine, rather than chronic disease management.



**Figure 7-1: Advertisement for dry eye treatment<sup>29</sup>**

Ophthalmology contains a hidden curriculum about learning heroism, of treating people humanely or inhumanely, and of learning myths. All curricula have a component called a hidden curriculum. The hidden curriculum is the source of values and attitudes that are learnt by students of any curriculum. Professionalism is learnt through the hidden curriculum. Theoretical frameworks that support including personhood and chronic disease speak of the ‘ecological’ metaphor for practice (Annas 1995) or the salutogenic model (Linstrom & Eriksson 2006). Learning to treat people ‘inhumanely’ can unfortunately be passed on through education. The hidden curriculum also teaches myths. Myths serve the organisational purpose of papering over dilemmas in teaching and practice (Wodak 1996).

That trainees mentioned the importance of learning to manage some dilemmas in relation to the complications of cataract surgery further introduces the argument that there is a prevailing myth of

<sup>29</sup>Alcon (2011) Advertisement, Clinical Experimental Ophthalmology April: opposite contents page

simplicity at work. In truth, training is not simple, so to say that it is is an organisational myth. To the contrary, training involves a complex curriculum, some of which, naturally, is hidden.

The concept that ophthalmic training is simple is challenged seriously by this study's empirical material. Learning to be heroic is an accepted part of the hidden curriculum of being a surgeon. Though their training is entirely separate from other surgical programs and they have their own college, many ophthalmologists belong, for historical reasons, to the Royal Australasian College of Surgeons as well as their own College, and they identify as surgeons. But there is more overlap with physicians' training than in most other surgical specialties (Pringle 1998:91–92).

To be a surgeon is to be heroic, as the data on surgical complications seems to show in Chapter 6. Ophthalmologists are at the same time considered 'moderate' in terms of surgical bravado and identity, according to Pringle's (1998) qualitative study in which she interviewed Australian surgeons and ophthalmologists. Although ophthalmologists only moderately adhere to a solely surgical identity at large, their attitudes to dry eye might still be regarded as fitting most precisely with a surgical identity.

The curriculum of being taught heroism becomes 'not so hidden' when things go awry. Trainees and trainers alike find it hard to maintain a heroic identity in such situations. An example of things going wrong might be a complication during or after cataract surgery. Medical heroes often hide from patients when this happens. To save face and embarrassment, they avoid situations where their heroism has not worked out. Study data shows that consultants avoid reviewing their own patients in clinic after a complication occurs. The trainees too learn such avoidance. The institutional expectation of frequently seeing one another's patients as a matter of course, and of the patients not having a relationship with a particular doctor, facilitates avoidance both by trainers and trainees. Once a patient has a complication, or some types of chronic condition, they may be labelled as a difficult patient. Trainees learn from their seniors that it is unwise to develop relationships with difficult patients. The fact that valuable training experiences are missed is ignored.

An experienced ophthalmologist describes an event about personhood of the patient and the doctor, including herself, that she found formative early in her career. It helped her decide to get more deeply involved with her ophthalmic patients after she became a consultant:

*It was a lady and he [the consultant] kind of glossed over it in terms of how he explained to this patient, and then she went back to the ward and I can still recall having this conversation with him at that time. I thought it was important that the patient knew exactly what was going on but he was sort of very much of the old school: you didn't tell. It kind of got worse if you went in and told them about it. But I do remember thinking 'Well if I was that patient, I'd want to know so I could make plans'. It was just more, I suppose, [that I am of] a different generation and I do things very differently. I'd want to be open and allow the patient to know what was going on and then they could manage their life better. Because, that poor woman. How can you just sort of not say anything, in case she gets too upset by it all, which is what he was trying to do? Sort of the old way. [female trainer, P313]*

A senior trainee describes the dilemmas this senior woman ophthalmologist posed to him in his own identity formation. He links her excellence with copying the ‘advocate’ role she provides in her patient care work. He expresses ambivalence about emulating this competency she is role modelling, however, because he predicts he will experience emotional upset:

*I can't really say that she was more concerned about patients, perhaps she was, I mean all the consultants are concerned for their patients, but maybe she tended to become friends with some of her long standing patients. I'm sure that happens to all of us, or will happen to all of us in time, but she seemed to really get reasonably close with them. And that was nice to see. And I suppose that's because she was our medical retina/ diabetes consultant. So therefore she would see people from not quite cradle to grave but you know from young, when they've just been diagnosed with their diabetes and five years on when you start monitoring them, or ten years on when you are a teenager and you're rebellious and you're not coming to follow-ups. Then just as they get out of their teenage years and they start to control their diabetes, they start to need laser and lots of care to try and keep their vision. I've definitely seen [that] she's got that great relationship with those patients. And I've seen some of her patients since this woman consultant has left, and they always ask how she is going and what she is doing and things like that. So that was a nice thing to see. Being able to get close with your patients and, for better or worse, I did enjoy that aspect of it. For better or worse because in the sense that I'm a bit like her in the sense that I do like that getting to be able to be friends with your patients. I'm trying to recall if once one of her long-standing patients did pass away from complications from diabetes after a while, and whether, I'm just trying to remember whether she was a little bit upset by that, but just carried on. I think that's the danger part of it, I suppose, of getting too close especially in the generally older population that we have. But the better part of it is still having that ability to have a relationship, a good close friendly relationship. A trusting relationship with your patient. The down side would be if anything bad did happen to them that you wouldn't get too upset by it. Well I think I would get upset. Oh yes, [she was an] absolutely excellent practitioner. I mean certainly if we were to look at the College criteria, she was definitely always a patient advocate. She really cared for her patients, even those that she didn't really like she would still really treat them absolutely as best she could. [male trainee, P315]*

Another example of a ‘complication’ occurs when patients are not adherent to potentially sight-saving medication such as eye drops. In the following quotation, a trainer discusses his belief that public hospitals do not treat patients humanely.

*If you treat people humanely, and I don't think a lot of our public hospitals do, then the extension from that is that they [patients] may not be reliable and they may not be compliant. [male trainer, P302]*

The hidden curriculum in such teaching hospitals might unfortunately teach trainees to treat patients ‘inhumanely’. If this trainer is correct, then it is a serious concern that trainees each spend five intensive years absorbing the values held within these institutions.

## 7.3 Hunting down medically unexplained disease

The epistemology of this community of practice involves an abhorrence of medically unexplained disease. Medically unexplained disease is problematic to the professional identity of the ophthalmologist as a saviour of the patient from blindness. The heroic streak is unable to be demonstrated where patients have no organic disease from which ophthalmologists might, with their heroic effort, rescue them.

Having a definite medical disease is the first step along the path to a successful patient–doctor encounter. It is as if learning to hunt down medically explained disease is part of learning to belong

to the community of practice of medical specialists known as ophthalmologists. Many interviewees talked about looking for physical signs. One trainee emphasised the high value he placed on learning subtle signs later on in his training, when he was based in a hospital teaching clinic with that task as its explicit purpose. Learning to detect medically explained disease occurs largely in ambulatory settings. Along with this goes learning the attitude that medically unexplained disease is problematic for one's professional identity.

The process of learning to identify actions based on signs is considered key in ophthalmology. Sixty per cent of most registrars' rosters are allocated to be spent in outpatient consulting, much of which is about diagnosis and acting on signs. As part of conducting shared patient care work, learning clinical signs is a key purpose for which the registrar attends outpatients. Some clinics keep a book of these patients' names. At one clinic the researcher worked at this book was entitled 'Exam Quality Patients'. Such patients are also known as 'clinical material'. Labelling patients as 'clinical material' is recognised as taking a technical view of the patients' problems rather than a local community's view:

*One of the main reasons for having community controlled committees of management, [for health services is] so that the health problems are seen from the perspective of the local community rather than as technical problems for the health professionals to define and treat, or as 'clinical material' for students or researchers. (Legge 1992:97)*

### **7.3.1 Teaching subtle clinical signs: 'These are the signs so look at them again'**

As the trainee progresses along the training path, there are some refinements that are of interest in relation to the epistemology of ophthalmic training and ophthalmic practice. Refining the detection of diagnostic or prognostic signs in a real ophthalmic patient at a working clinic or a teaching clinic is an extremely important part of long-term training with a senior colleague. Again, this happens through interaction with a more knowledgeable ophthalmologist, but instead of involving basic signs, it involves more sophisticated signs.

Patients with real but subtle signs are most highly valued as patients at the teaching hospital. One role of the teaching hospital is to provide such diagnostic training and attract such patients that enable it. Some signs are interesting and rare. Providing clinics that are specifically for teaching these sophisticated signs is a specialised function of a teaching hospital. A pool of patients attends teaching hospitals specifically for the purpose of training registrars in such subtle and sophisticated clinical signs. In Foucault's (1984) classic description of the medical gaze, the patients were inpatients. In ophthalmology the patients are outpatients, but the principle of the clinical gaze seems to apply equally to this day.

One such clinic, for instance, is known as ‘Clinic Three Special’ and what connects the patients is that all their ophthalmic clinical signs are subtle or their presence in combination rare. The patients come to the clinic simply for registrars to learn how to detect such subtlety and to view such complexity. The community expects that once the registrars have this experience of detecting a subtle sign under supervision they, in turn, will be able to detect these subtle signs independently for the rest of their professional lives. Training is understood as an accumulation of such teaching events, resting in considerable part on seeing rare signs. Participants seem to believe that once such a subtle sign is seen, there is an enduring memory of it and that one will, as a matter of course, draw lifelong on such knowledge.

*They [clinical signs] are sort of learning steps because, for example, they [the consultants] might say ‘Oh look, this is very subtle but **these are the signs so look at them again**’, and that’s Three Special in a nutshell really, on the [monthly] Wednesday clinics. [Without this learning experience] I just wouldn’t have seen it [ever]. [male trainee, P303, emphasis added]*

Trainees recognise that breaking their learning into manageable steps is a key role of the trainers. As previously mentioned in Chapter 5, this applies not only to surgery but also to learning clinical signs: ‘I might take little bits of one particular technique’ (male trainee, P303). Trainers know that registrars want to learn about detecting clinical signs in minute detail. The dedicated teaching clinic of the training hospital is considered an essential and exciting place for learning these signs because signs must be learnt in patients and because patients with such signs are rare.

This matter of teaching signs is particularly important in ophthalmology, where the visual signs of disease are subtle yet may be visible through the use of instrumentation designed specifically to detect such signs, such as the slit lamp and the 78 D magnifying lens. Registrars point out that some clinics are useful because they are, like ‘Three Special’, dedicated to teaching subtle signs of optic nerve pathology—for instance, subtle glaucomatous optic atrophy. The same peripheral hospital clinic consultant was mentioned several times in interviews with registrars as being inspirational. The registrars voice a sense of excitement at learning rare clinical signs and often describe the teachers involved as inspirational.

*I think that the master apprenticeship works best when it is inspirational and they are the people that stand out to you. My old bosses, these are people who inspire you because of their commitment to teaching and the way they educate you and you know you want to model that, you want to model that behaviour. [male trainee, P305]*

This excitement with rarity is a well-known feature of teaching hospital medicine. To make their knowledge come alive, medical students need to compare what they read in textbooks about signs with an interesting clinic patient with those same signs (Becker et al. 1961). The ophthalmic teaching hospital Clinic Three Special is the site of such training. The Paediatric Ophthalmology Seminar that was mentioned in the Preface is another example. These sites provide an ophthalmic

example of the same learning processes described by sociologist Becker's medical students in the famous *Boys in White* (Becker et al. 1961).

Becker (1961) argues further that patients without signs hold far less interest to doctors in training. Medical students perceive those patients as the opposite extreme in terms of level of interest; in fact, they are labelled as 'crocks'. Not all patients in teaching hospitals are of uniform value in relation to medical education. Rather, there are good patients and bad patients. Patients with real, subtle signs are very highly valued as clinical material in teaching hospitals. By contrast, none of the respondents mentioned the importance to ophthalmic practice of taking an ophthalmic history as readily as they mentioned assessing objective clinical signs. The example of dry eye, however, is a telling one, because trainees learn that history taking is important in some instances. The patient with such a complaint appears to be an example of an ophthalmic 'crock', to borrow Becker's term. Taking an ophthalmic history becomes particularly important when there are no ophthalmic clinical signs.

Although they are the 'big stuff', cataract and glaucoma are not the only topics to be learnt about as part of ophthalmology. Dry eye is a contrasting condition. It is a condition that causes considerable eye discomfort, often itching and burning, and it is also a very common ophthalmic problem. Dry eye is not the 'big stuff', it is derided. Despite being common and often treatable symptomatically, it is not a topic high on the priority list of teaching topics for trainers. One trainer responded to my question with disdain.

*[The itchy, burning eyes? Please] talk about the comparison between [registrars] early on and [those in their] later years [of the training program]? To be honest I haven't really been using that particular fascinating scenario much in recent years. Can I choose a different one? [male trainer, P317]*

The ophthalmologists repeatedly confirmed that both the condition and the patients who suffer it are derided, yet none explicitly stated why this might be. Trainers other than the one above, for instance, confirmed that a derisive attitude to the condition was present among their peers. The quotation below is from a trainer who knows that to teach about 'dry eye' would for some trainers be stooping too far below their station.

*And so I'd look at the patient and I'd say, 'Look sometimes you can see something, sometimes you can't'. We'll look at the ocular surface and we talk about tear film break-up time. We'll talk about Meibomian gland disease and we'll talk about the treatment of blepharitis if there's anything there, and sometimes if there are no signs, we'll say it's probably just a little bit of mild ocular surface dryness, and so we'll talk about lubricants. If I'm convinced it is dry eyes, I might even recommend a trial of punctal plugs. So in response to your question, yes, registrars do ask about it, obviously we all see these patients and that's generally speaking my response to them. Sometimes they're a little reluctant to mention it to the consultants, I suppose because they think, 'Oh, now this is beyond them'. [male trainer, P308, corneal subspecialist]*

He notes that for a hypothetical trainer the topic of dry eye could be perceived as, quite simply, 'beyond them', by which he means beneath them. This is despite this particular consultant speaking in detail on the topic of how to teach about dry eye to registrars because it is a topic within his own

sub-specialty area of interest, cornea. If there are no signs, it is difficult for the ophthalmologist to be ‘convinced’ himself that the condition is real.

In contrast to anything to do with cataract and its surgery, which is the ‘big stuff’, dry eye then is ‘basic stuff’. Trainees learn to belong to the community of practice and to align themselves with the prevailing attitudes of that community, including conservatism and value judgments involving prioritising some ophthalmic conditions over others. Unless there is too much of a clash, trainees identify themselves with the community of practice. Being immersed in training means learning to belong. But what if belonging means ignoring patients’ stories about their comfort? There are dilemmas and tensions for all concerned. One trainee usually keeps his own reasons to himself for learning about dry eye.

*[Dry eye?] The problem with some of the **nuisance things** is that no one really teaches them. They just think glaucoma and cataract and the **big stuff**. Well you have to teach them (too) but [as opposed to cataract, for instance] they don’t get some of the basic stuff and [yet], you know it is patient comfort after all’. [male trainee, P305, emphasis added]*

While he knows that in the minds of his community of practice the dry eye patient is ‘basic stuff’, whereas, by contrast, glaucoma and cataract are the ‘big stuff’, he also knows other things that keep dry eye patients in his own sights. This knowledge motivates him to direct his own learning during his training period. He maintains motivation to learn through working through his own understandings of what is going on around him. He identifies that the patient’s perspective ought to be held up as a higher priority than seems to be the case in his teachers’ value system.

Recognising that there are risks at stake for both patients and the community of practice alike, one trainer admits there are dilemmas for the trainee in adopting a negative attitude to the condition and to the patients with the condition.

*[Trainees might] brush it [a patient with dry eye] off as just another rubbish-type problem, [thinking] that it’s not serious [but] they need to take it with some [seriousness since] it is a patient requesting advice. So I think they do need to take it seriously. [female trainer, P309]*

She argues that dismissing the patient as having a minor condition is a mistake. She teaches instead that there are a number of detailed steps that a good ophthalmologist takes and that the registrars need to copy.

The following example is an exception to the rule of the usual male doctor–female patient dyad in the literature on medically unexplained conditions, as it is an example of a female ophthalmologist talking about a male patient whose work is affected by dry eye. It is also an example of the value of standpoint theory, which predicts that the least powerful members of a system can see more clearly the structures of the system, and thus the necessity of obtaining their input in searches for what is going on. Here it takes a female ophthalmologist to detail how to teach about dry eye, validating the research decision to oversample women:



*They do need to do a full exam, make sure the vision is not [off], and make sure they really don't have really dry eyes, which are in fact a serious problem. And I suppose that it does come to mind recently a patient who came to me last week who had seen quite a few ophthalmologists. [The patient] had itchy, burny eyes and I think had been brushed off but in fact had really severe dry eyes and [it] was really affecting his work. So I think they just need to deal with it as an issue and work out what the problem [is]. Is it dry eyes, is it allergy? [They need to consider] all the different things it can be, and to work out what treatments have already been initiated and what's actually available and what the patient could use to help them. [female trainer, P304]*

There are two problems highlighted for the community of practice by this example of dry eye. The first is that there is no outlet for expressing disdain for some patients because of their condition. The disdain is allowed to fester within the community without resolution or sophisticated moves to adjust accordingly. The second is that the disdain, since it persists in lacking not only articulation but also open scrutiny, becomes replicated in training just as other attitudes held by the community of practice are replicated through training, in particular through the hidden curriculum.

A question about dry eyes was included in the interview schedule. The researcher's purpose in doing so was to explore medically unexplained disease. Malterud recommends an exploration of unremitting disease as a way of better understanding medical practice (2001a). Werner and Malterud found that female patients with a chronic rheumatological disease, that was an unremitting and frustrating condition for clinicians to deal with, had difficulty negotiating good medical care with their doctors. Some of these patients suffered from dry eye (Werner & Malterud 2003).

The attitudes of clinicians to these patients reflect the epistemology of practice. The reason this topic is important is that there are strategies for providing better health care for these patients that can be taught to registrars. Some of the strategies involve a shift in a doctor's thinking about medical practice. They recommend seeing the patient's symptoms in themselves as a source of medical knowledge (Malterud 2000). This stance, seemingly radical to conventionally trained doctors, provides a powerful structure for the consultation even when no clinical signs can be found.

Study participants expressed a high degree of defensiveness in their attitudes about patients suffering from the condition of dry eye. There is a moral dimension to the data. Put boldly, the doctors allow themselves to treat the patient's eye as a container for what they loathe—the medically unexplained condition that does not lend itself to heroic intervention or cure. Unfortunately, it seems that there is no acceptable forum for expressing such boredom and feelings of dry eye patients as being a nuisance.

An educational dilemma here for this community of practice is that some trainers feel obliged to, 'let on' to trainees that the profession is divided about such patients and yet they have some difficulty with this need. On the one hand there is a 'myth of universality', of uniformity of practice, at work. Part of this myth also involves a lack of self-awareness of geographic variations in patient

care within the profession of ophthalmology. In contrast, on the other hand, all members of the community of practice are at the same time aware of much variation in practice. Such variation in practice includes attitudes to patients and their conditions.

The data show many quotations about the epistemology of dry eye in the minds of those belonging to the community of practice of ophthalmologists. A sample of terms and phrases used in relation to the clinical work of caring for dry eye patients, and to teaching for such practice is found below in Tables 7-1 to 7-3.

Study participants use many derogatory and distancing terms about dry eye, such as ‘brush it off’ as a ‘rubbishy type problem’. Some interviewees focus on it as a cause of personal frustration, some use terms whose hallmark is its low status as a condition. The condition is one of low status, and the patients, in turn, are judged also to be of low value. There are also mitigating comments reflecting awareness by ophthalmologists of the condition’s importance to the patients themselves. However, looked at together, there is a predominance of terms used in relation to dry eye that demonstrate the low esteem in which the sufferer is held. This response is accentuated by the condition being one that is most likely to be experienced by people who have low status because they are old and female, two conditions that are independently of low status. At the same time there are terms in use that demonstrate that some ophthalmologists in this community of practice do take the patient’s condition of dry eye seriously.

The most telling and relevant data that relate to arguments about curriculum are the comments in which the very act of teaching the condition is seen as demeaning. The patient who suffers from the condition is also seen as justifying a demeaning tone. The doctors often feel frustrated by the minor nature of the condition and, by extension, feel frustrated by the patients themselves.

### **7.3.2 A medically unexplained disease: Dry eye in more detail**

The work of the doctor facing a patient with dry eye symptoms is predominantly to rule out medically unexplained disease and, conversely, to rule in medically explained disease. This notion fits with the ophthalmic literature. Griffiths and Eddyshaw (2004) advise that it would be best if ophthalmologists were to avoid calling anything, such as unexplained blindness, ‘a functional problem’. For the condition of dry eye, for example, some trainers, by contrast, believe their main task is to simply rule out a functional<sup>30</sup> problem:

*And what you’ve got to do is you have to sort it out into a functional problem, functional overlay on sensitive eyes and people with a true allergy. And they may be combinations of the three. But once you decide what*

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<sup>30</sup>The term ‘functional’ means ‘of, or pertaining to, a function; affecting the functions, but not the structure’ (Dorland’s Illustrated Medical Dictionary 1965)

*they are and that you've excluded or included, you know dry eyes and side effects of medication things like that, then you can go to what you are going to do for them and the tolerance and treatment may vary from person to person. [male trainer, P302]*

Intense self-imposed pressure seems to be expressed by ophthalmologists about dry eye. This pressure to answer the question 'is it real disease?' during a consultation with the patient with dry eye seems striking. For instance, one senior trainer used the conventional medical term 'functional' to describe what concerns him greatly when caring for a patient with dry eyes. For him, ascertaining whether the patient has other functional problems in the past is deemed a routine part of the history taking.

*I think you[ve] got people who have got a purely functional problem and they're switching it on to their eyes and they've had other functional [problems]. [male trainer, P302]*

This trainer was aware that this is a condition requiring self-management by the patient. He realises that this is a chronic condition. He knows he can relate to the patient such that he becomes a part of the patient's 'support mechanism'; however, he simultaneously labels her disparagingly as having 'a purely functional' problem. For his registrars, he guides the patient into using tear supplements, choosing something safe and over-the-counter, advising a choice of drugs so the patient finds a symptomatic solution or at least knows the ophthalmologist will support her long term in this chronic condition. The aim of his advice is to identify for the patient 'something which will hopefully will limit their continual attendance for it, (although) some people (patients) you just have to see on a continual basis because that's part of their support mechanism' (male trainer, P302, senior).

One ophthalmologist talks to his patients about managing dry eyes. He admits this is a memorable and common problem. He draws on his experience of successful relationships with the elderly. He states that if they 'have a sense of humour' the consultation proceeds well from his point of view. He has a list of practical consultation strategies, including sharing a joke with the patient and recommending medications with no side effects to 'limit their continual attendance for it' (P302).

*[Can you think of a typical patient?] Oh hundreds! They tend to be elderly ladies, and they tend to ... you know the ones who **have a sense of humour** and I can't find anything wrong, I just say 'You are a delicate flower and this is the sort of thing you can do'. The itchy burning eyes with a functional overlay? Then I think a lot of that management has got to be done by the patient using medications that are not going to have side effects. [male trainer, P302, emphasis added]*

Gender relations are complex in ophthalmology. The crone with dry eye is one scenario that emerged in the study data. The case of dry eye appears to be a general example of a particular type of gendered medical practice in the context of ophthalmology, that of medically unexplained chronic disease. There is much gender overlay about chronic disease described in non-ophthalmic medical scholarship (Werner & Malterud 2003).

In the ophthalmic literature Griffiths and Eddyshaw (2004) studied 58 patients with medically unexplained visual loss. They recommend that ophthalmologists convert to using the terminology 'medically unexplained symptoms' rather than 'functional', as has been done in other disciplines, to avoid the meaning of 'hysterical' that is often implied by the term 'functional'. These examples of dry eye tell a story of the difficulty that ophthalmologists have with their own professional identity when faced with a patient with chronic disease, particularly chronic, unremitting, unexplained disease with no clinical signs. The important point here is that the apprenticeship model appears to suppress critique of practice, leaving practitioners little conceptualisation of medically unexplained disease. Where there is no language for a concept in a group, it is difficult for an individual from that group to reflect upon. Some individual trainees and individual consultants may know that such matters are of great importance to their patients. However, the shared wisdom of the group's knowledge displayed attitudes that appear to reflect a group norm in this community of practice that hampers effective patient care. If the findings here were to be confirmed either in medically unexplained eye disease or, furthermore, in chronic eye conditions generally, that research could be a source of impetus for change in practice and change in curriculum.

At the same time as apprenticeship and role modelling appear powerfully influential, ambivalence about emulating the role of the CBT-derived 'Health advocate' was expressed by a trainee. It is possible to imagine a situation where the trainee could query the attitudes of their consultant rather than mimic them. As is predictable from apprenticeship theory, and confirmed in the study data, a lack of critique seems to be a feature of the apprenticeship curriculum form in ophthalmology as well. The question of the 'pedagogy of deferral' appears very real for ophthalmology (Lee 1996:223). Significant potential benefits exist from curriculum change. Importantly, the study suggests that the implication of the curriculum form being apprenticeship is that this change requires a simultaneous change in work. In Chapter 11, Conclusions, this issue of an impetus for change is dealt with in greater detail.

## **7.4 Teaching about a hierarchy of prestige of conditions**

Ethics is the science of morality, and teaching doctors to maintain professional attitudes to sufferers of chronic ophthalmic conditions is part of ethical training in ophthalmology. The case study of dry eye elicited numerous comments that were, on the whole, demonstrative of negative attitudes towards both the condition and the patient. The current curriculum form of apprenticeship leads to negative attitudes to chronic medically unexplained disease being replicated.

The data suggests that teaching of ethics about the management of dry eye is contentious. This teaching occurs through the hidden curriculum of values attributed by members of the community

of practice to diagnosing and treating the condition. The condition is an example of a medically unexplained disease. It is chronic. These two features in combination appear to seriously challenge the prevailing professional identity of the ophthalmic practitioner. Institutionally, the ethical standards of the profession appear challenged by this condition. The data on the condition serve as a bellwether indicating the profession's attitudes to either medically unexplained disease or to chronic disease, or both. Older women are the most likely demographic group to suffer dry eye, and they are already culturally invisible (Broom 1995).

A summary of findings from the interviews includes comments specifically focussed on teaching about dry eye (see Table 7-3 below). Very few comments were positive about the condition or the suffering patient. It is clear from the responses that dry eye is a common condition and that ophthalmologists know that its symptoms are distressing to patients. The comments also demonstrate that negative comments about the condition itself, in turn, reflect the negative view held by ophthalmologists of patients who suffer the condition. It appears that the condition elicits defensiveness in the ophthalmologists. It is reasonable to speculate that the ethical standards of care in relation to patients with dry eye are compromised by the attitudes displayed to ophthalmic patients with the condition.

In brief, the analysis shows that the condition of dry eye, and by implications the patients who suffer with dry eye, are labelled as 'nuisance', 'ordinary', 'rubbishy' and 'boring'. The condition is frequently associated with the word 'functional', meaning medically unexplained. Following the literature, ophthalmologists unconsciously seek to maintain their self-image of heroism and ability to heal in the face of the reality of challenges posed by dry eye. The patient with medically unexplained disease challenges their capacity to provide a quick and valiant cure, as does the chronicity of the condition. Denigration of the patient, however, is a maladaptive behaviour that, while it assuages anxiety in the individual ophthalmologist, provides only a temporary refuge from the potential social sanctions that might be imposed were the patients to realise that they were being denigrated. Table 7-1 introduces the data and shows the low prestige of the condition. Table 7-2 lists the dilemmas that treating the condition poses for ophthalmologists. Table 7-3 lists the dilemmas involved in teaching about the condition and levels of resistance to the dominant view from the teaching perspective. The community of practice is faced with a dilemma. The patients suffers from a low prestige condition, that the trainees must learn how to treat. Treating a patient with this condition means discomfort for many ophthalmologists.

The community of practice deals with this dilemma, as for other dilemmas, with a complex solution that includes segregating the problem of low prestige to general ophthalmology. As part of their

apprenticeship training trainees learn ‘not to ask’ about the condition beyond their first few years because it marks them as ignorant of professional norms.

The data identified a dilemma for trainers and trainees in relation to chronic disease management. The literature suggests that such dilemmas can provide a focus for change in local practice through what is called their ‘expansive potential’ (Engeström 1999). Those practitioners who choose to do so may make changes in their own work practice. Under an apprenticeship curriculum form, these changes can foreshadow, in the longer term, a change in the epistemology of the community of practice.

By and large, learning to become an ophthalmologist means learning this defence. Trainees learn how to save face with one’s colleagues at large by saving face with their consultants during training, and by learning to denigrate patients with dry eye. Resistance is tricky but not impossible. Table 7-1 summarises the data and illustrates the low status of patients with dry eye: the bulk of comments were negative and defensive.

Tables 7-2 and 7-3 also point out that dilemmas exist not only for the trainee who may not ask about learning such a topic, but also for the consultant who avoids teaching it. Further evidence for institutionalised silence about the condition is that despite its common occurrence and its emotive weight for ophthalmologists, there was no mention of dry eye in the curriculum review transcript. These three features of silence, frequency of occurrence, and heated emotion appear to constitute hallmarks of the basis for the hidden curriculum in ophthalmology.

To illustrate the points in detail, I have provided below a more detailed account than in the table above. In the extract the trainer outlines her views on teaching dry eye. She identifies that, for consultants in general ophthalmic practice, the particular condition of dry eye is ‘garbage’, that it is inevitable that one must deal with it as a consultant, and yet at the same time that a trainee would not ask her in her role nowadays as consultant for fear of being thought of as ‘dumb’ by the consultant.

For the trainee, it is important to avoid such a judgement as the consultant will be marking their progress in the course. The trainees must make a judgement balancing their need to learn about such a common condition and their need to ‘save face’.

*I don't think a trainee has asked me about that for a long time. When I was the senior trainee myself I'd guess I've had a junior trainee asking me, [but] I don't think I've had a junior trainee asking me as a consultant. So my first feeling is [to say that] questions like that that seem simple on the surface are kept within trainee level. [That] would be my first thing, so as not to bother the consultant. [So I am hearing maybe that they might ask someone else but maybe not a consultant?] Yes, that's what I certainly did because you know they are [judging you] and you don't want to be thought of as dumb. It's the first thing that I [thought of]. And also because consultants tend to say 'This is the sort of garbage you get as a consultant'. So first of all, my answer to it is not based on what I can remember doing talking to a trainee about recently as a consultant. So I would*

*say that it's depending what they wanted to know about it, I suppose. Do they want to know that they've got a patient, how to treat it, how I deal with it? Is it the patient who is really here for an eye problem, or have they actually got lots of other problems because sometimes it's a problem that really is concerning a patient but sometimes it's [the case that] they just like seeing doctors, some of the patients. So it can go either way. [female trainer, P304]*

Table 7-2 provides a summary of data about treating the condition of dry eye. It shows that dry eye is understood to be a condition that requires active discouragement of return visits by the patient. To avert a further consultation, ophthalmologists must give some careful thought as to what is needed from them. This is tricky, as it must be done without the patient knowing.

In summary, dry eye without physical signs such as those elicited by fluorescein staining is considered not to be a 'real' ophthalmic disease, and therefore is unworthy of the attention and time of the doctor. Pedagogic values around teaching dry eye both reflect such attitudes and replicate them. By contrast, cataract is a 'real' condition to teach about, and the patients suffering from cataract are good teaching cases. By implication, those with cataract might also be regarded as good people, rather than as 'crocks' (Becker 1993; Album & Westin 2008).

Attitude	Representative comment	Implied meaning
<b>Extremely positive</b>	No quotations found	Good condition, good person
<b>Positive</b>	No quotations found	Helpful, nurturing, accepting, positively judgemental attitude
<b>Mildly negative</b>	<i>Nuisance [P305]</i>	A more developed response, but still not functional. Doctor acknowledges there is a problem
<b>Mildly negative</b>	<i>Ordinary old dry eye [P309]</i>	Dislike, dismissive. Tiresome condition, tiresome patient. As if doctors are saying to themselves, I deal with the extraordinary. I am elevated
<b>Negative</b>	<i>Rubbish-type problem [P304]</i>	Bad condition, bad person, necessity felt to create a great distance between doctor and patient. Doctor feels a great sense of inadequacy
<b>Extremely negative</b>	<i>Most boring condition in ophthalmology [Francis 2009] Not that again [P309]</i>	Extremely bad condition, bad person. Doctors distance themselves from the patient to a great height above the patient. Through the psychological defence of 'boredom', unacceptable thoughts on the part of the doctor are translated into a seemingly acceptable form, that is, projecting the label of 'boring' upon the condition

**Table 7-1: Attitudes to treating dry eye patients reflect the low prestige of the condition**

Comment	Term used
<b>Positive:</b> <b>Taking the patient seriously</b>	<i>It was fresh. I genuinely saw how it really upset people, like it really is an annoying problem for patients to have chronically—it's very minor, it's not going to ruin their vision or anything, but it does actually affect their quality of life. [male trainee, P305]</i>
	<i>For the patient, it is a problem and it surprises me that they [the registrars] don't see it as something that requires attention. [male trainer, P308]</i>
	<i>Okay, so first of all they do need to do a full clinical examination and not to sort of brush it off as just another rubbish type problem. That it's not serious. They need to take it with some (gravity). It is a patient requesting advice so I think they do need to take it seriously. [female trainer, P304].</i>
	<i>Other people will explain in quite an amount of detail about lid hygiene and gland dysfunction and going into it as a sort of a five minute spiel. [male trainee, P307]</i>
<b>Neutral:</b> <b>The condition is a nuisance.</b> <b>An honest appraisal that there is some difficulty involved in treating this condition</b>	<i>A nuisance condition, beneath me. [male trainer, P308]</i>
	<i>Ho hum, not that again. [female trainer, P309]</i>
	<i>I get the impression that in the future it will be those little things – how you manage in patients those little things that sort of goes to the smoothness and, you know, the feeling in the community. I mean I'm going to go back [where] it's a small place and people talk and so you know disregarding the small things won't be helpful [male trainee, P305]</i>
	<i>Nuisancy. [male trainee, P305]</i>
	<i>People have sort of said 'Oh well, they ignore it' [male trainee, P305]</i>
<b>Negative:</b> <b>The condition is mildly aversive to the ophthalmologist</b>	<i>So for a dry eye some people just tell the patients 'Take some lubricants and go away'. [male trainee, P307]</i>
	<i>Brush it off. [female trainer, P304]</i>
	<i>We all talk about itchy, burning eyes as if it is something that comes in twenty times a day but it doesn't. I don't think. [So how much of that would you tell a registrar who doesn't ask you] It is thought of so lightly, an insignificant, not a serious problem. It's in the text books, but I don't think they ask consultants about it. [female trainer, P304]</i>
	<i>You know basically that itchy, burny eyes are a pain in the neck and they're annoying and there's not a lot you can do a lot of the time, but you know smile and nod and see how you go. [male trainee, P305]</i>
	<i>It's very minor. [male trainee, P305]</i>
	<i>Ordinary old dry eye. [female trainer, P309]</i>
	<i>Hundreds. They are usually elderly ladies. If they have a sense of humour, I tell them they are a delicate flower. [male trainer, P302]</i>
<b>Strongly negative:</b> <b>The condition is a seriously uncomfortable one for ophthalmologist</b>	<i>Trying to get rid of them. [male trainer, P302]</i>
	<i>A purely functional problem. They've had other functional problems. [male trainer, P302]</i>
	<i>A lot of ethnics will want medical [therapy] prescribed. [male trainer, P302]</i>
	<i>May be trivialised by a lot of ophthalmologists. [male trainer, P302]</i>
	<i>Hopefully limit their continual attendance for it. [male trainer, P302]</i>
	<i>Rubbish-type problem. [female trainer, P304]</i>

**Table 7-2: Dilemmas in treating dry eye**



Sense of dilemma	Comment	Verbatim quotation
<b>1 No dilemma for the trainee: Resistance to the dominant view</b>	The registrar is in no dilemma. He takes the patient seriously. He shows his resistance to the prevailing view of the community of practice. He commits to taking this stand lifelong	<i>Oh look, I think, when I was doing my unaccredited time at the Eye and Ear. I mean, it was all new to me there then, so blepharitis was new and it was fresh. I genuinely saw how it really upset people, like it really is an annoying problem for patients to have chronically—it does, it's very minor, it's not going to ruin their vision or anything, but it does actually affect their quality of life. [male trainee, P305, second-year]</i>  <i>You know it is patient comfort after all. [male trainee, P305, second year]</i>
<b>2 A dilemma for the trainer: Resistance Decay</b>	The trainer is in a dilemma. The trainer acknowledges the disparaging attitudes through quoting peers, and yet at the same time is taking the condition seriously.  On balance here is narrowing, rather than distancing, behaviour, between the life worlds and of ophthalmologist and patient, aligning their perspectives	<i>I think when they [trainees] are really new they are happy to hear everything but when they have been there 12 months (it's) 'Ho hum, blepharitis', 'Ho hum, itchy burning eyes, not that again'. I mean we tend to say that ourselves, but still, that's what's the patient is complaining about. That's what you've got to deal with. [female trainer, P309]</i>
<b>3 A dilemma for the trainee but only in the early years: Resistance Decay</b>	The condition of dry eye is only mentionable in the early years of training. There are some eye conditions that are marker conditions regarding the values held by the group as a whole. Here a trainee recognises the disparagement of the condition. He treads warily in approaching anyone more than a year or so senior to him to learn about the condition. Learning to belong to the community of practice means learning what conditions to talk about and what not to talk about	<i>You don't go up to someone and say [something]. You should be able to manage those things yourself. (male trainee, P307, first year)</i>  <i>Questions like that that seem simple on the surface are kept within trainee level, so as not to bother the consultant. [female trainer, P304]</i>  <i>So it is not unusual for patients like that to present in clinics and the registrars, well sometimes they're a little reluctant to mention it to the consultants. I suppose because they think 'Oh no, this is beyond them'. [male trainer, P308]</i>
<b>4 No dilemma for the trainer</b>	The trainer in no dilemma—he is disparaging in his use of sarcasm. His sarcastic tone suggests that this eye condition of dry eye is beneath his dignity as an ophthalmologist to teach the condition. He distinctly distances himself from the condition	<i>[Itchy, burny eyes?] To be honest I haven't really been using that particular fascinating scenario much in recent years. Can I choose a different one? [male trainer, P317, senior]</i>
<b>5 No sense of dilemma</b>	While nonetheless teaching it through the hidden curriculum, the institution silences talk about the condition's dilemmas. Neither trainees nor trainers readily acknowledge the dilemma of teaching that there is a hierarchy of ophthalmic conditions	<i>It doesn't often come up, unless I bring it up. [male trainer, P302]</i>  <i>I don't think that a trainee has asked me about that for a very long time.[female trainer, P304]</i>

**Table 7-3: Dilemmas about teaching dry eye**

### 7.4.1 Hidden curriculum—ophthalmic ‘crocks’

The community of practice of ophthalmology can be said to have a partial perspective (Haraway 1991) on the patient with dry eye. The patient’s perspective is relatively muted. In the comments overall, the ophthalmologists’ discomfort seems quite dominant. The trainees know that it is a delicate matter to bring it up with the consultant. They recognise that corneal specialists, however, have something special to teach. Corneal specialists are experts in detecting true signs of dry eyes, true signs that are recognised as difficult to detect by the general ophthalmologist. They are experts in detecting medically explained corneal disease, of which dry eye is one example. While it may not be acceptable for a trainee to ask a general ophthalmologist about the condition, it is nevertheless acceptable for a trainee to ask such a subspecialist about this otherwise ‘trivialised’ condition. The matter of ‘real’ conditions is returned to in Chapter 9, *The Culture of No Culture*. Balmer (2006) found in her study of paediatric residents that they classed some conditions as more ‘real’ than others. It would seem that patients with dry eye may not be considered to have ‘real’ ophthalmic disease.

Moreover, because of the low status afforded the condition, it is considered by the community of practice to be entirely appropriate to segregate the trainee’s learning in this way. There appears to be a considerable misalignment between the patients’ perspective and the professionals’ perspective. There is a lack of coherence between the perspectives of each stakeholder in relation to ophthalmic curriculum. This would seem to call attention to ‘the need for a stakeholder approach to devising curriculum change’ (Iedema et al. 2004).

There are three interrelated hierarchies evident in the study data:

1. Teaching hierarchy, relating to the high or low status of ophthalmic teaching topics
2. Practice hierarchy, relating to the high or low status of ophthalmic conditions and complaints
3. Patient hierarchy, relating to the high or low status of ophthalmic patients

This hierarchy of practice and patient appears replicated again and again as part of the epistemology of ophthalmic practice. This appears to occur through the teaching program. The above remarks about treating a patient with dry eye and about teaching such an area of medical practice demonstrate the attitudes towards such patients. These attitudes are not only held by the consultants but are adjusted to and in turn adopted by trainees, through role modelling of the consultants with whom they engage and on whose patronage they are dependent for staying in the course.

Difficulties arise when there are ‘no signs’. What the trainees learn unashamedly is to have both the drive and the clinical expertise to go to an extraordinary length in order to detect subtle clinical signs, to rule in or out medically unexplained ophthalmic disease. If there are signs, then there is a

lot for the registrar and consultant to talk about, such as Meibomian gland disease and blepharitis, and the hunt is on for medically explained disease. A minor procedure, for example, may be discussed that involves the insertion of punctual plugs to block the escape of the sparse tear film that is causing dry eye symptoms. Since it carries some risks, although slight, this can only be done in patients where a subtle examination of the patient's eyes has found some confirmatory clinical signs of the diagnosis of dry eye. If there are no signs there is silence, or at the very least, ambivalence. There seems to be little 'clinical material' to teach on. By 'denigrating the patient and the complaint' (Erickson 1999:135) ophthalmologists are classifying dry eye as ophthalmic 'junk'. It is not simply a matter of formal learning about chronic disease, or about practice in general. The primacy of apprenticeship for informal learning was emphasised by the participants. The public hospital system supports a master-apprentice type of collegial relations. Learning through shared work is considered less formal, but of a higher priority, than other forms of teaching and learning, such as the learning that occurs in tutorials. This master-apprentice type relationship supports the informal side of learning. One trainer describes the levels at which learning happens:

*It occurs at many levels of course. There is the day to day, almost master-apprentice-type relationship which goes on all the time in the public hospital system, because you have your registrar and Fellow with you. I see that probably as more important than the formal side of the teaching. I think that people learn a lot more, not just in terms of factual knowledge and practical experience in how to do operations and things, but the other important parts of patient care: how to communicate bad news to a patient, and how to deal with other family members, all those sorts of issues, which they can observe by example and hopefully see it done, well hopefully, and from that move on to...and **pick up on what can be done better**. So that's one level of teaching [that] I guess is more important than the formal part of it which is getting tutorial, lectures and clinical teaching sessions which we do well. [male trainer, P206, head of unit, emphasis added]*

It is considered essential for trainees to learn on the job in the teaching hospital environment. No matter where their practice is destined to be, the learning happens largely informally in the teaching hospital. In ophthalmology this has an important component of outpatient experiences, and it would seem that, unsurprisingly in an apprenticeship based training form, these tend to reinforce the attitudes to chronic disease held by senior consultants. These attitudes appear to be adverse to ideal patient management for chronic conditions, particularly for the special case of medically unexplained chronic illness (Naess & Malterud 1995).

There is no singular model of community eye care or of community service around the issue of blindness. Blindness in the community may be relatively unknown to hospital-trained registrars. The registrars' only avenue for understanding community eye care is through contact with their hospital consultants. This means that the apprenticeship system puts the picture of ultimate practice into the hands of the trainers with whom the trainees come into contact. The trainees tend only to train in hospitals, rather than in the community itself (Balmer 2006).

### **7.4.2 Technical and non-technical competencies**

Teaching hospitals historically have concentrated more on acute, technically focussed competencies than on chronic disease management and teaching. Including a focus more on non-technical competencies in the education of medical practitioners might better serve ‘societal needs’.

Achieving the training outcomes suggested by those advocating the non-technical competencies is problematic. The contentious issue is not the specification of the competencies, but the conventional teaching hospital focus on acute rather than chronic disease. This convention seems to override the rhetorical force carried within the documents and actions of those who would like to include non-technical competencies in the teaching curriculum through competency based training.

In other words, the conventions of the teaching hospital seem to have a strong influence on the outcomes of training. In ophthalmology, the apprenticeship training form seems to remain focussed on acute disease management and the social status quo, rather than on the evolving societal needs that are implied in the competencies documentation.

## **7.5 Outpatient work and community care**

Ophthalmology outpatient care is the site at which long-term patient care is likely to occur. It is estimated that a trainee provides at least ten thousand such consultations during their training. An individual patient will attend numerous outpatient visits for their chronic condition, so perhaps at least 20 per cent of these consultations, or approximately two thousand, will be for patients new to the trainee. Through these dual influences, she feels she brings a ‘broad-based knowledge from the coalface—in non-teaching hospital practice we see patients from all walks of life’ (female trainer, P309). The issue of what trainees learn about communication skills leads to the broader question of how the general skills needed for the management of chronic disease in the community are learnt by trainees.

One trainer describes the clientele of the teaching hospital as ‘limited’ (P309). On the one hand, those with serious and rare eye disease attend teaching hospital clinics; yet these patients are also often from poor backgrounds and thus trainers may have difficulty identifying with and communicating with them. A trainer frames this from her perspective. She notes that her experience as both a practitioner in the community and a trainer in the teaching hospital have provided a benefit to the trainees in the teaching hospital. In her private practice, she sees patients who are not so poor and not so seriously affected by their eye diseases as the clientele at the teaching hospital. She can bring in the community patients’ perspectives to teaching hospital knowledge (White et al. 1961; Glanz 2000:389). Those who practice outside the teaching hospital see patients from both the most privileged and the most impoverished spectrum of our society, and they pass on their

combined experience to their trainees. Such consultants bring a complex perspective to the teaching hospital. They bring in the social culture of professional life, which includes being ‘well connected’ to business, government, and community. Outpatient teaching is the gateway to these connections.

In this chapter I have outlined further how shared clinical practice fits theoretically with the notion of the community of practice. Teaching in outpatients is informative about how ophthalmologists learn. Trainees and trainers at clinics, again and again turn mutual engagement in clinical practice into teaching and learning encounters in the teaching hospital outpatient department that replicate attitudes to the condition of dry eye, and that replicate attitudes to medically unexplained disease within this community of practice. In conclusion, that dry eye is a condition of low prestige is a curriculum issue. This is true because teachers express strong views and express dilemmas about teaching the condition of dry eye in the data. The presence of problematic views in the community of practice about such patients is translated into dilemmas for trainers about how to portray the condition to the registrars. The presence of dilemmas also leads to a silencing of registrars about the condition. The registrars must be quite selective about who they bring up the topic with. In the case of dry eye, the later year trainees bring it up largely with corneal specialists because in this specialty the condition is not of such low prestige as it is in general clinics.

This chapter finds that the chronic condition of dry eye represents a significant challenge to consultants and trainees. The outpatient location of much ophthalmic training has important educational features because it is a major site of shared patient care work. Outpatient teaching in this case study does not appear to offer the hoped for teaching of chronic disease that might be expected to reflect the emerging epidemiology of eye disease.

There are considerable risks in assuming that outpatient teaching will be effective and sophisticated in the twenty-first century, as summarised by Irby in his study of teaching medical students in outpatient clinics. He found that ‘Education in (an) ambulatory care clinic is characterised by ‘variability, unpredictability, immediacy and lack of continuity’ (Irby 1995). The challenges of outpatient teaching are not readily articulated in detail, and rarely articulated for the purpose of scrutiny. In an example parallel to that of ophthalmology, an educator in the field of psychiatry argues that for outpatient teaching to be successful, the inpatient model of teaching needs to remain the ideal model (Pessar 2000).

This is debated. The inpatient model rather than the outpatient model may promote reflection by the trainer with the learner, at whatever level in the hierarchy the learner is, about the ‘general principles’ of the case (Pedowitz et al. 2002). This analysis is contentious because it unreasonably assumes inpatient care to be inclusive, chronic disease focussed and community oriented. Holman (2004) states that ‘both health care and medical education remain with basic structures and practices

designed for acute disease'. The data for this study suggests that since ward work is sparse in ophthalmology, outpatient care in ophthalmology might need to be adapted to allow learning about chronic disease management. This debate, however, seems to assume erroneously that one or other location is clearly the right current model for teaching chronic disease care.

Clinical values influence what is taught about practice. Some dismissive attitudes about dry eye in ophthalmic education parallel those shown in research about other disciplines. Ophthalmologists' attitudes revealed in this study indicate the low prestige with which chronic, medically unexplained eye disease is held. In particular, this study's data demonstrate that teaching and learning about such conditions is accorded low prestige. Dismissive attitudes towards 'dry eye syndrome' are evident in the data and are explored in detail in this chapter.

While current teaching aims to emphasise blinding conditions that might present with dry eye symptoms, such as thyroid disease, current teaching about dry eye may be said to lack quality in relation to attitudes it displays as a model of chronic disease. Understanding the community of practice is a key to understanding ophthalmic apprenticeship in relation to dry eye because the ophthalmic learning environment involves role modelling. If role modelling of attitudes that may be harmful to the patient is the norm, as it appears to be, and successful training means that registrars learn to belong by knowing and participating in the community's epistemology of practice, then trainees face a contradiction. They may wish to include their patient's 'personhood' but are unlikely to learn how to do this here.

While the 'big stuff' in training is cataract surgery and its common and not so common complications, dry eye is a common, chronic medical condition with no surgical solution that provides insight into training dilemmas. It would appear that because there is neglect of the dry eye patient, and neglect of other chronic disease is likely, that change in work and curriculum is justified.

The topic of the next chapter is androcentrism. It is another source of concern about the ophthalmic curriculum. The question that this thesis moves to now is whether androcentrism exists in the ophthalmic curriculum form, and if so, whether and how the evidence supports this as a further potential driver for change in curriculum.

## Chapter 8 Androcentrism

Contradictions were found in the data in relation to gender and androcentrism, and these are presented here.

Gender is relevant to the research question of ophthalmic curriculum form because it is both an important determinant of societal needs for eye health care in general and, at the same time, it is an important influence on medical education and curriculum form.

The study data so far demonstrate that the curriculum is focussed on ophthalmic work. Therefore it is useful at this point to cast a gender lens on the data in relation to ophthalmic work, and to the professional identity that is constituted within ophthalmic work. Trainer–trainee dyads are also gendered. The standing of women as scientists and leaders is dealt with also in this chapter.

### 8.1 Gender in apprenticeship

Gender issues in medical apprenticeship include the work of patient care, master-apprenticeship dyads, and selection into training.

#### 8.1.1 Gender and the work of patient care

Gender stereotyping of patients was evident in the data. Female patients were deemed by a registrar, for example, to be more conscious of their appearance than male patients were. As a result, despite its potential to attain stability of their eye condition earlier and shorten their clinical course, female patients were believed to be more likely than male patients to decline or defer elective enucleation of their blind eye for cosmetic reasons. In the quotation below, a patient who was reluctant to place herself in a position where she needed a prosthetic (glass) eye to replace her removed eye was assumed to be delaying treatment on the basis of concerns for her appearance. The trainee discussed how the gender of the patient might make some difference to their eye care:

*I treated an elderly patient aged 102 [who was] still conscious of her appearance [despite her age]. Not like a [male] farmer—I've got squillions of them [male farmers as patients who would not care about their appearance]. [male trainee, P305]*

Participants also noted the gender of the treating ophthalmologist had clinical implications. The value of taking gender consciously into account was advocated strongly by one female ophthalmologist. She stated that it would make a significant difference if patients were to take into account the sex of the ophthalmologist who is listing them for surgery. She feels that the influence of the doctor's gender is underestimated by ophthalmic patients. She points out that male surgeons

were aware of this nuance of clinical practice. Instead of valuing difference, as she appears to, male surgeons rather label the female surgeons as ‘wimps’.

The female ophthalmologist quoted below seems to be an exception in that she fails to honour the ‘culture of no culture’ in relation to patient care, about which there is further discussion in Chapter 9.

*[I] think that if ever I was needing radical surgery I'd probably get a male and a female opinion just to see if there was somewhere in the middle that I have to go. I think it's good to have those [two opposing opinions]. This comes out in the angiogram meeting every week. [I mean] that there are differing opinions and I'm sure that the men think that the females are wimps, and they're not prepared to go that extra mile with every patient and try every conceivable treatment that's available. But I don't think they realise that it's along gender lines that they have differing opinions. [female trainer, P301]*

The clarity with which this trainer observes gender differences as a local area variation in ophthalmic practice is striking, and consistent with standpoint theory that predicts that those with less power in a system see disadvantage more clearly than those in dominant positions within the culture (Harding 1991; Haraway 1981; Mooney 1992)

There were no instances of explicit statements of self-awareness among participants in the study that gender differences might result in equally valuable differences of opinion in clinical judgment in ophthalmic practice, rather than that one would be right and the other wrong or worse.

### 8.1.2 Being selected to train

A trainee demonstrate quoted below demonstrated some of the gender problems around selection. She struggled to identify herself as part of a group that is numerically non-dominant, despite this being plainly apparent to both the patients and members of the ophthalmic community that she is a female trainee and is vastly outnumbered by male trainees.

*The only thing that I would say, having said that I don't think that there is no gender problem in ophthalmology; I am the only girl in my year. There are no girls behind me, so there [aren't] that many around in terms of third and fourth years. First years, there are a few more, so bearing that in mind, that might be why you don't have that many responses. So in my year, there are six of us, and I'm the only girl, and in the year behind me it's all six of them males. In [large Australian state] interstate, the balance is a little bit better. But for example, of [more than 20] sitting the part two clinical, I was the only female, this year. [How did that feel?] Strange. Even the patients were noticing. As soon as I walked in the room after about six or ten candidates had passed through, they said 'Oh, a girl' (laughs). Yeh, a girl. I was surprised. I was surprised, I was really surprised. I didn't realise that in the second sitting, the one that's going on now, there are other females from around Australia doing it. But it just happened to be in that sitting that I was the only girl. [female trainee, P306]*

Selection that led to unequal numbers of men and women clearly puzzled this female trainee. She seems to be in what Tate (2005) calls ‘George Orwell’ territory. She has great trouble reconciling gender equity in selection for ophthalmology with the numerical equality of men and women in medical schools. Approximately 50 per cent of medical school graduates are female, and yet only 15 per cent of entrants selected into training for ophthalmology are female. She does not articulate this clearly; rather, she talks about small numbers as an explanation for the vast mismatch that leads



to an overall paucity of women in the total number of women selected annually for the 25 places across Australia and New Zealand, and to the unexpected isolation she experienced in the highly stressful exam environment.

The trainee also points out that smaller programs may take a smaller percentage of women. One can speculate that it is ‘safer’ to select men than women, and if there is only one place on offer, she simply assumed that it will be offered to a male trainee.

*I think that they say that they take the best candidates into the course and that's irrespective of sex, so I guess you have to take that on face value. Meaning that in my year the people who applied, it just happened to be that the best candidates were males, the majority were males. [But there must have been other interstaters in your intake?] There are a couple. I think in my year there are two or three in [large Australian capital] and two in [medium-sized Australian capital] but I think [small Australian capital] didn't take any girls, but they have lower numbers than us. Sometimes they only take one registrar for example. But there was no one else in this particular sitting [of] the exam. That's the way the numbers bore out, so it's quite strange. They will all sit [the exam]. I think they are doing it in this sitting now. [female trainee, P306]*

A female trainee's struggle to reconcile the numbers with an organisational myth of equality is apparent in this extract. Sinclair (1998:19) posits that organisations that suppress acknowledgement of gender are in her Stage 1 of developing their understanding of what is going on the workforce, where ‘The absence of women ... is not regarded as a problem’. This would seem to be the myth that this trainee is attempting to reconcile with her own experience of the reality of training (Sinclair 1998:19).

Stage	Characteristic
Stage 1 Denial	The absence of women from executive levels is not regarded as a problem or a core business issue
Stage 2 The Problem is Women	Women's difference is seen as the problem and the solution lies in women learning how to adapt to (male) norms
Stage 3 Incremental Adjustment	Adjustments at the margin allow access to individual women who already have a 'track record'
Stage 4 Commitment to a New Culture	The exclusion of women is recognised as a symptom of deeper problems requiring solutions that involve initiatives to produce 'inside-out' change

**Table 8-1: Bringing women into the organisation**

The frequently expressed hope that these statistics will translate to numerical, and cultural, equality in educational leadership is called the ‘pipeline myth’. ‘The pipeline myth puts faith in time and patience...It is predicted that increasing numbers of female graduates and recruits into organisations will learn the implicit rules and requisites of leadership and gradually move through to executive ranks’ (Sinclair 1998:18). Unfortunately, this applies also to curriculum:

*(That) the discourses of curriculum history collude in producing normative assumptions of gendered, raced and sexed subjects remains relatively unproblematised. (Munro 1998:263)*

A simple example of gender stereotyping of hospital personnel can be seen in the logo used by an Eye and Ear hospital until the 1990s (Figure 8-1). This logo appeared for example on the front cover of the House Surgeon's Procedure book for the year 1980 (Appendix 8-1). This logo was current during the time when most of those who now train themselves worked as trainees at that hospital.



**Figure 8-1: Past Eye and Ear teaching hospital letterhead**

The clear subliminal message from this coat of arms is that doctors are men and nurses are women, which leaves little imaginative space for women who want to be doctors, or for men who want to be nurses.

### 8.1.3 Master–apprentice dyads

Some trainers, no matter the sex of the trainee, claim to entirely ignore gender in their teaching. For example, when asked if being a male teacher makes a difference, one male trainer said, ‘Doesn’t make any difference to me’ (male trainer, P206).

This male teacher’s comments appear to confirm the privileged status of masculinity. He assumes that his experience is normative. One female teacher is more alert to gender differences. She indicates that because she is female, she likes to convey to the registrar the sense that they aim to look after the ‘whole patient’. She feels she brings a view of the ‘whole patient’ to her consultations. She develops:

*a more personal relationship with patients, and I think, I hope, that I give to the registrar a feeling that they are looking at the whole patient, not just the cornea or lens. ‘Oh look, the fellow’s got clubbing and he’s got pain in his ankles. Do you think he might have Behcet’s disease, and that’s why he’s got this particular ocular problem?’ I hope I bring in a more overall picture of the patient. I am not saying that this is just a gender thing. I am sure there are plenty of males that do that too, but I think we need to look at the whole patient and watch them walk in, be interested in what they are wearing and how they are walking and how they sit, how they speak to you, if they sound anxious or not. We use our intuition a lot more [than male doctors do] I*

*think. That's probably terribly sexist, and you'll never use it [in your research], but I do think that I bring a softer element to the practice. [female trainer, P207, rural]*

This consultant was able to speak about gender yet at the same time was cautious about making generalisations. She eschews gender polarisation, aware that there is much overlap between the sexes in terms of what is taught about practice style. She is also very wary about being identified as having a view that women and men practice differently and deals with this by anticipating contradictory responses—‘That’s probably terribly sexist’—and predicting or hoping that her comments will not be used in the research. This anxiety is part of the struggle women have to be who they are, holding the values they hold, yet having to pretend that they are the same as their male peers in a male-controlled environment that was identified by Wainer in her study of women doctors (2005).

Current training developed from a pattern, historically, of males selecting and training males. Female trainers used to be extremely rare. In the data for this study, by contrast, some trainees keenly appreciated having a mix of male and female trainers. They recognised that having experience of both male and female consultants was a valuable addition to their training.

*I love having both male and female trainers. I think it's great because men and women think in slightly different ways. I think that there' [are] just different things that they can bring. I get a lot out of all the other stuff. I love all the education and learning, but like I love say [female trainer] and how gentle she is. Then you see other people who are just very decisive. These are all good qualities that I like learning and would like to try and balance to work out how you do it. I love hearing from men and women. [male trainee, P305]*

This male trainee particularly felt well mentored by a further female trainer:

*I mean I'm working with [a female trainer] who has just been fabulous to work with. I mean she's young. She feels quite happy to take things on, but she also has demonstrated a confidence in me which is sort of catching, because then you feel a little bit confident in yourself too. So we had a case of a perforated globe from keratitis a week ago, and I was excited about it because it's one of those things where you think 'This is a really scary situation for ophthalmologists. How on earth do you manage this? This eye could easily go down the toilet'. It's just great talking with her though, because you're not going to get an answer in a textbook because it factors in so many things. The age of the patient, what's the other eye like? I mean all these things are mentioned in textbooks to consider, but it's then and there that you really need to discuss the pros and cons with your consultant to see what's going through their mind. This [means] then [that] you learn what needs to be going through your mind [as well]. [male trainee, P305].*

Trainers also recognise that it is valuable for both male and female trainees to experience female trainers.

*Because we work very differently. In [the] angiogram [meeting] you will find that the female consultants are much more conservative than the males, and it's actually very interesting. I hadn't really [always] appreciated that it [is] divided along gender lines, but it does often. So again, to get that experience of different ways of managing things, it may well be that you will need to get some women and some men as masters. And I think for women training, it is very important that they have women masters so that they can see how you can have a family and also work well, and similarly good for men trainees to see how women colleagues need to juggle, perhaps more things. I think in life it's good to have both models. I think it's important to have both [sexes as trainers]. [female trainer, P301]*

Some states in Australia and regions in New Zealand have very few female ophthalmologists. They also have very few female trainees. In such teaching sites, female trainees may thus be a rarity for many male ophthalmologists.

*Well, there is a very powerful gender bias in [his Australian state]. I mean you can count the female ophthalmologists in this state on one hand. There are just so few of them. I mean, [in] most of the sessions that I do [for registrars] there is only one or no females there. Very few [female teachers] have got through the system. There's only one female ophthalmologist in this town who is in a position where [she can present the face of ophthalmic academic leadership]. [male trainer, P205]*

The local environment of training may thus affect the development of a gendered professional identity among trainees. On the contrary, a trainee in a large state explicitly made the point that she does not feel as though she is 'flying solo' (female trainee, P306). However, a sense of isolation and 'flying solo' may apply to the situation of a pregnant trainee in some instances. To the contrary, this male trainee believes that the presence of numerous senior female trainers means that female trainees can have flexible training for pregnancy and sufficient female role models:

*The big advantage if you're female and you want to take time off, particularly for childbirth, would be the flexibility of time of training the trainee. I think that's probably the biggest difference. I mean ophthalmology seems to be a speciality where there's lots of senior females. Some other specialities, particularly medicine, orthopaedics, and neurology, they're male dominated and you can see that the master being in control, whole male/female, junior colleague might be important in those specialities. But I don't know if that's [an issue]. I haven't encountered that as a problem in ophthalmology, and I don't think any of the girls. [How is it a problem?] I mean I imagine it could be a problem if it sort of turns into a bit of a boys club [like] in some of the other specialities, but I haven't noted that happening in ophthalmology at all. [male trainee, P307]*

*[Can you see any advantages or disadvantages for men and for women using either apprenticeship or say a competency based model for training?] I think in ophthalmology we are quite fortunate that first of all that there are a lot of women in it and secondly the type of man that takes up ophthalmology,... probably by the virtue of the type of medicine that we practice, are actually quite good communicators on the whole as opposed to some of the other surgical subspecialties. The men that tend to go into that are not necessarily, I've found, in my limited clinical experience, not as good communicators as the ophthalmologists I have worked with. I don't know if that is at all a fair statement, but I think that in terms of gender and ophthalmology that we are fortunate on both fronts. Does that make sense? [So I can understand the men being good communicators in ophthalmology. What is the other front?] The fact that there are a lot of women who do it too. So that you don't feel like you are flying solo. [You see there being quite a lot of women teachers?] I do. There is obviously still more men, but there's definitely, you know, female heads of units and enough clinical supervisors to make you feel like you have role models and that you don't, well, I don't feel like you are one of the minority. [female trainee, P306]*

These data highlight a contradiction in relation to gender. One Australian state has so few female ophthalmologists that one participant says that any adjustment to teaching is not thought of as important or necessary because there are simply no female trainees. In contradiction, a trainee indicates that in another state there is such a variety of role models that she feels she is not 'flying solo'. There seems to be an inexplicit but persistent tradition at work here. It would seem from this data that women are less likely to be appointed as trainees in smaller states than they are in the larger ones.

These data also highlight how difficult it is for women to believe their own experience. The female trainee says that she is lucky that she is in ophthalmology because there are a lot of women, even though College training data demonstrate that fewer than 15 per cent of trainees are female. This is

likely to be a result of years of training instilling that it does not pay for a woman to notice that women are different, or to draw attention to her femaleness as a surgeon (Wainer 2005; Conley 1991, 1998). Conley, a female neurosurgeon in the United States, had a public battle with her male colleagues and described the necessity of not noticing the challenges of being female in a male profession as follows:

*In order for a female to get taken into the club, which is necessary in order to get cases and to get trained, you have to become a member. I decided that I would go along [with sexism] because I wanted to get to where I wanted to be. I really wanted to be a neurosurgeon. I thought I could be a good neurosurgeon. Had I made an issue of some of the things that were happening during the time that I was a resident, I wouldn't have gotten to where I am. (Conley 1991)*

This process of silencing women makes it difficult for women to identify, even to themselves, what is going on, and extremely difficult for them to discuss it among their peers.

## 8.2 Gender and competency based training

Most trainers and trainees were asked in the interviews how apprenticeship and CBT might, in their view, be affected by gender issues in ophthalmology. There were numerous points made in the data about gender and apprenticeship, such as the existence of female role models that both male and female trainees could mimic, that ophthalmic work is gendered, that androcentrism is evident in that women have to adjust their life course to match the framing of ophthalmic training to that of a male apprentice, and that trainees learnt how to lead the life of an ophthalmologist outside work as well as within. However, there was almost nothing about gender and CBT.

This silence is in stark contrast to the theoretical work done on gender and CBT by the World Health Organisation, including research by the researcher as part of this doctoral study, resulting in the paper Colville, Wainer & Aroni (2008), attached as an appendix. Appendix 8-2 is the researchers' declaration, and Appendix 8-3 is the research publication. This publication demonstrates in detail that the CanMEDS competencies can all be seen to include a vital gender component.

The absence of gender data is recognised to be an anomaly of scientific research. The participants in this study were no exception and found the question about how gender might impact on CBT as a training form impossible to think about or respond to.

One respondent responded to the researcher's question on cultural competence as follows:

*[You brought up the issue of cultural competence and I also want to talk about a bit about gender. I want to know where gender fits with apprenticeship based and other forms of training? What do you actually teach about it, or what happens to your trainees about cultural competence?] Do you mean gender competence or cultural competence? [Either] Gender competence, we run courses. For cultural competence, we run courses. I mean it's all through the medical school as well, I mean, there would be no trainee here [who] wouldn't know about the treaty of Waitangi and that sort of stuff. And it's incredibly PC [politically correct] [in this] country and so that they were pretty pervasive. In terms of gender competence or gender bias, I certainly don't see that as a big issue in New Zealand. I mean probably more, well certainly more than half our trainees are*

*female and probably a third of our consultants are females so there are a lot of female role models and a lot of very successful female ophthalmologists. [So they're actively involved with the Registrars?] So these are all people [who] are active clinicians as well as teaching. And they've come from all sorts of private practices as well so I think the demonstration that you can have academic teaching and clinical roles rolled into one and be successful. Four have two kids each so they should have the balance to some extent. I don't think anyone can really balance it unfortunately, balance domestic and professional commitments. We don't do anything specific about teaching sort of gender equality or anything. Does anyone else? [male trainer, P316]*

He is pointing to the apprenticeship model. He is saying that where there are women in substantial numbers in the community of practice, there will be a sufficient diversity of role models for future trainees. Discursively, it is the medical school that is here constructed as the place for learning gender values, not the community of practice of his peers. He conflates numerical equality with cultural equality.

### 8.3 Ophthalmic work and the ophthalmic life course

Time use and 'breadwinning' are essential concepts to analyse when looking at vocational work. Learning about the balance of time spent at work and at home is an issue for both men and women in medicine. It is not only women who have to learn to 'juggle' their time. Men must do this as well, as described by a male trainee about an exchange with his male trainer:

*I really like working with him. I just like chatting to him about the impact of his work on his family and how he juggles that and all that sort of stuff, because that's all part of the training process I think. [male trainee, P305]*

While both men and women 'juggle' their time, the gendered expectations upon them differ. With their breadwinner identity, male ophthalmologists are in danger of losing themselves in work. The apprenticeship training scheme allows for learning about this. The trainee learns from his trainer about the risk of being 'lost' in work:

*We have the tendency to take on work, especially once we start going down the path of the money that can be being made by it. You know, he said to me once... 'Once you start thinking to yourself how much you could be making in this morning, then you're sort of lost, because then you'll never stop working'. You know, if you take half a day off and you're thinking 'Oh I could make X number of dollars during this time that I'm taking off'. He goes 'You know you'll just want to keep working'. [male trainee, P305]*

This risk involved in being a 'good provider' is a key aspect of masculinity in the workplace (Sinclair 1998). Prioritisation of work over family time is sometimes the extreme effect of being a 'good provider' and can be a key to professional identity that reflects the male life course. Wainer et al. found in a study of rural doctors that male doctors responded to the birth of a child with an increase in work hours, while women responded with a 30 per cent reduction in clinical work time (Wainer, Bryant & Strasser 2001). Watts (2009) notes that those who do not prioritise work over personal issues tend to be marginalised as workers:

***The concept of professional commitment [is] a key factor in the marginalisation of women in the professional sector. This concept has at its core the prioritisation of work as the norm, as a way of life, with other personal and family interests having to fit round this corporate work ethos. (Watts 2009)***

This drive to put long hours into work has different impacts on women and men. This differential drive predictably has significant implications for leadership positions in the College's educational hierarchy. Another male trainer, while advocating moderation in work hours sufficient to 'enjoy your work (and to) find an interesting intellectual challenge', cautions male trainees against allowing the women in their lives to drive them to work long hours for money. He advises trainees here, saying that 'you don't have to go in for too much money':

*You've got to earn a living. You're fortunate if you've just got one wife and not a mistress or two, so **you don't have to go in for too much money** and if you can enjoy your work, **find an interesting intellectual challenge**, that's what you should be doing. [male trainer, P312, emphasis added].*

Time use at work is an extremely important matter in terms of professional identity. Long hours at work, for instance, are a defining feature of the professional lifestyle. This is an important issue and part of the ophthalmic culture as well. Watts (2009) points to professional commitment, job insecurity, individualism, presenteeism, and the 'visibility-vulnerability spiral' as being conceptual items to analyse as part of any work culture of long hours.

### 8.3.1 The time of life to bear a child

Female ophthalmologists and trainees live their professional lives within androcentric structures that arose from the time when doctors were men. This presents a foundational challenge when those doctors have babies. College structures and training environments have no way of dealing with bodies that have babies. It is as if there is simply no way to think about pregnancy apart from to privatise it as a 'special need' within a discourse of 'lack' of commitment. Quadrio (2001) points out that medical women are dogged by claims of 'lack' that result from their different bodies (and sometimes minds) — allegations that are perpetuated by forms of curriculum that are crafted to carefully hand on an agreed, homogeneous professional persona.

In ophthalmology postgraduate training, this plays out in the struggle women have to work out when to have children. Unlike men, their fertility reduces and often ends towards the end of training and during the earliest years of being a consultant. Medical women usually put off childbearing while undergraduates and during their internship, and must search for a time when having a child is not a risk to their life as a doctor. For most trainees, the time in their life when they are most interested in giving birth to a child coincides with the time of ophthalmic training. If they wait until they have qualified as consultants, they may be too old to conceive.

The risk of such 'training-induced infertility' increases as the age of entry into training increases. The increased stringency of academic pre-requisites to gain a training place has pushed the age of entry into the training program later and later over the past decade. Such educational inflation is a general phenomenon applying to other areas of vocational training; it does not only occur in medicine. In medicine, where the age at entry is already well into the twenties, waiting until training

is finished risks age-related infertility for most female trainees. As mentioned in Chapter 6, Appendix 6-4 showed the average age at RANZCO graduation was a median of 34 years in 2002, with a trend towards increasing median age evident. The gender breakdown of fellows of the College was 83.6% males and 16.4% females.

The age at which training starts is the key to understanding how the life course of men and women in ophthalmology may differ early on.

*I think it [training] is different [for men and women] because if the College takes older and older people because they like more academic qualifications and most of the girls on the program are 27/28 [years of age] and it is a five-year training program, [then] family planning becomes a real issue. Whilst I can't speak on behalf on any of the girls, and not being a girl myself, I would imagine it would be very difficult because I think it's harder to balance family and work [if you are a female]. I don't know if work is more important than family [for a female]. That is a personal thing. I think family is the most important thing [to me]. I feel a little bit sheepish to be honest. Because it's not an issue for me, and I have been lucky personally because my wife has made decisions about family [planning] which completely correlate with mine, lucky about that. [male trainee, P303]*

Training that includes making decisions about the time of life to bear a child is understood by another male trainee as being 'a wrestle'. He sees the journey of his female peers as being a 'tough road' in comparison with his own life course as a male trainee.

*There is definitely a difference for females and males in their training. I think it's hard for females. I think it's really hard for females. That's my impression. Because there's all this other stuff that's ticking over in their brain, like family, like having relationships and having children and where are they going to fit that in? Talking with my female colleagues, that's just always a wrestle. It's always a wrestle for them. Because having a baby is not quite [the same] for a guy as it is for a girl. I know, I mean both the man and the woman [are] heavily involved in the whole process, but just because we don't carry the baby for nine months does make a difference. I mean I'm still very involved with the pregnancies in my life but I also think that—I mean I just love kids and I think that it ends up being a very personal decision—but personally, if I had a child, either my wife or I would take some time off, maybe six months, maybe 12 months to really input into that intensive time. Instead of us both working, I would have been happy to do that if my wife wasn't happy to do that, but she was and I was training, so it worked out that way. But I can see for women trying to go—we're now late 20s early 30s, where do we fit all this in?—it's a much harder decision. I think being a female in medicine is a tough road. [male trainee, P305]*

A male trainee suggests that his female colleagues might well be best advised to embark on pregnancy during the latter parts of their training if possible, rather than waiting until their five years of training is completed:

*This is five years. Women finish their training and they hit...the workforce. Taking six months off [means there are] increasing things to juggle. It's a safer time to do it during the training and learn how to juggle it [than] when you're out on your own [after training]. [male trainee, P305]*

Again referring to the timing of pregnancy, another senior member of the profession, this time a female, thinks that waiting until after passing the Part II final exams is the best option:

*I think you have to balance the length of time with also the fact that you've got people [with lives to live as well]. I mean okay, they've got to make that commitment to learn, but there's also the other factor that they've got life apart from medicine. [When's the best time to have children if you are going to have them?] I would definitely say after the exams were all over, definitely. I don't know how people manage to do exams and study for exams, work, and have babies. Some people do and cope. For me it, I think definitely after, for a woman, different for a bloke of course, but for a woman's point of view, I would say definitely after you've got your finals over and done with. [female trainer, P313]*



Ophthalmic training appears to deny the legitimacy of the female life course within medicine by requiring full-time uninterrupted training which can only be varied in exceptional circumstances that must be negotiated by the individual. This may work for most men, but the lack of flexibility is a major hurdle for women who want to become mothers.

There is a 'myth of gender inclusiveness' and gender equality displayed here. The organisation's androcentric reaction is to marginalise women's life course, and to discursively construct women as 'other'. This notion is reinforced by stating in the College training guidelines that flexible training can be negotiated on a 'case by case' basis (Australian Medical Association 2010). The inflexibility of the culture of ophthalmic training affects men and women differently, and is a reflection of the apprenticeship form of curriculum that competency based training could change if it had not been colonised by the apprenticeship form.

### **8.3.2 Pregnancy**

The case of a female trainee beginning a pregnancy during training is a serious challenge to the androcentrism that characterises the training program. Below is the transcript of an interview with a pregnant trainee that demonstrates that pregnancy during training is simply against the rules. It appears from the published training requirements of the College that pregnancy needs no special allowance because it is a private matter. When trainees were men, this might have been a safe approach, and in that safe and closed circle, curriculum requirements could ignore the parenting function of trainees. No allowance is made for a female trainee being pregnant because it is outside the experience of a curriculum developed when women were not present, and no revisions have been made since women joined the training program. It is plain from an androcentric perspective that if men can train full time while they are expecting a baby, so can women. The fact that it is the female body that bears the child is simply denied. The pregnant trainee must work the same roster as before, and she has no option for flexible or part-time work, even when this might be indicated for serious reasons.

The 'professional identity' of the ophthalmic registrar quoted below is bound to masculine gender norms. She works unwanted long hours that are beyond the hours that she feels are safe for her pregnant body because of the androcentric rules in the community of practice. She discovers quickly once pregnant that being on the wrong side of the construct of 'normal' counts her out of being entitled to full training, forever. There seems to be no organisational memory about precedents for her case. She is isolated from interstate trainees who might have attempted a similar path.

She is doing gender in an androcentric training environment that naturalises masculine experience and pathologises the feminine. The pregnant trainee explains this to herself as being the state of

affairs that is the choice of women in the profession, rather than the outcome of decisions made by the senior men who are in control of her training and of the administration of the hospital.

Representatives of the hospital administration with whom she is dealing imply that her pregnancy somehow disqualifies her from exposure to the full immersion in sub-specialty training that will assist her in passing her exams and catering to a wide range of patients, and that will provide her with the professional experience to decide on her own area of sub-specialty in due course.

Her choice is constructed as a personal one. She has opted to embark on an abnormal life course for an ophthalmologist; that is, having a baby during training. The androcentric frame of reference of ophthalmic training is clearly present, although unarticulated. By simply requesting to continue her training while pregnant, and requesting some forthcoming family leave, she is challenging the androcentrism of the ophthalmic culture.

Participants in her training environment appear to assume that trainees will live a male life course. Such assumptions cause her physical hardship through long hours of work and also cause her emotional distress through constructing her pregnancy as her private choice, which challenges the existing norms of the professional culture. In saying 'I am not pulling my weight' she frankly expresses the guilt that often occurs within those who challenge group 'norms'. Kellogg et al. (2006) call this the guilt of 'professional identity violation' (Kellogg et al. 2006:634). A trainee who requests family leave can be understood as challenging the norm of medical professional identity, that of workers who dedicate themselves to their work full time, have no bodily frailty, no family needs, and who never absent themselves from the workplace. Working full time at the registrar level in the hierarchy is simply paying dues for the privilege of training and working as a junior member of the hierarchy of a prestigious profession. 'Residents report that this surgical hierarchy required residents to know their place, and pay their dues' (Kellogg et al. 2006:634).

Trainees must work very long hours in order to earn and keep their place in the training program. They must not ask for leave for family responsibilities. They must not act in a frail manner. 'Scholars have highlighted that violating traditional power relations frequently spark sanctions' (Kellogg et al. 2006:634).

The trainee quoted below describes feeling guilty at the perception that she was not working full time while pregnant. She felt guilty in attempting to continue to train while pregnant and in negotiating what before her pregnancy were the entitlements due to all trainees, that is, good training terms in cornea and retina clinics. A peer registrar is construed as conveying to her the culture's abhorrence of adjusting to any bodily frailty: 'One of the other registrars was disappointed that I came in a couple of hours later'.

*I am still expected to do the same hours. I feel guilty if I don't do that, and I don't think that is my own guilt. There is no leeway that I am pregnant, and I am still expected to pull the same weight. Guilty if I am tired and*

*I am not seeing as many patients as everyone else and I am not pulling my weight. And I don't think that is just inherently from within me, I think that it is just like 'You pull your weight, you do your job'. Yes, I had a research morning the other morning, and one of my other colleagues, one of the other registrars, was disappointed that I came in a couple of hours later, but I am not actually even rostered to be on the clinic. I was here to keep doing study and I was having a sleep. And I kind of at some point wonder when you accept that, yes I am pregnant, and then I need a little more space than normally. I suppose it is quite different [to be a pregnant registrar]. [female trainee, P320]*

Many more male trainees become fathers during training than female trainees become mothers:

*I would say that there would have to be about 15 or so trainees [altogether], and I think that of those 15, two before would have been pregnant female trainees at some stage while I have been training, that have been pregnant in the trainee program and then myself, of the ones that I know of the current trainees. And then all the boys, I mean in my year, two of the boys have had babies. Yes, two out of seven. We have got four girls out of a total of seven altogether in our year. One of the boys has just had a baby and then other one is trying. The year above me, two of them have had a baby I think, and one of them is trying. The year above that, I think there [are] a couple of babies, and so it is incredible. So there are lots of boys that are having babies. I think they are probably almost equal now, [equal males and females out of 15, but many more of the men, about half, have had babies during the time I have been training]. I think it would have to be half at least. [female trainee, P320]*

The preferred timing of pregnancy appears to be an issue that is far more difficult for female trainees to decide upon than it is for male trainees:

*And some of these guys are [married to] paramedics and GP training [too] just seems to lend itself more to it, pathology also. I think there [are] still a lot of people who are shocked that I am pregnant or that I am even trying to do this. A lot of people have been supportive, but I think that it is still not a common thing to do at all. And why not? I am 30. [At 30 out in the general community] they have all had one child and most of them are on their second and that is a quote, unquote 'normal' thing to be doing, it is abnormal [not to]. Downs syndrome increases after the age of 35. [female trainee, P320]*

In this trainee's perception the decisions about timing are to be made by women. The systemic pattern is invisible to her when she takes on the view from 'above', as explained by standpoint theory (Harding 1991):

*[So how does what is normal get to be created?] I have no idea. I suppose because the females before me, they have set it up, I don't know. Maybe it is just [how] they have set it up and maybe being a female in this profession you just do the same job as a male and they are not having babies and so the females don't have a baby. Well they, the males, are having babies. Well their wives are. They are just not physically doing it. [The males], they are never asking or taking time off and their wives are not worrying about them applying for part time. They [their wives] are not even going back to work some of them. [female trainee, P320]*

There is rather a long history of ophthalmic women bearing children during training. However, the trainee's story contains a distinct sense of isolation. She is given to understand that there are few precedent cases of women undertaking pregnancy during training. Experiencing isolation and a sense of being an impostor, trailblazing her way into a male realm, seems to be a major focus of puzzlement and frustration for this female trainee.

*It seems to be a bit of a contemporary thing to do. [More common] now than I think it ever was. [So tell me, how might the females before you have set it up?] I don't know, some of them seem to have had children, but not many of them. And [name of senior male trainer] was wonderful and he said this is the best thing that I am doing and I don't realise it now, but gosh, it is great that I am starting a family and you know, especially because I want a big family. [female trainee, P320]*

This data has illustrated a critical moment in ophthalmic training. By describing the experience of a pregnant trainee, androcentrism in medical postgraduate training organisation is demonstrated as it

affects trainees. 'Studying up' is advocated by Connell (1995) to explore this sort of finding. He recommends studying the senior men in the organisation in order to identify the roles into which females in an organisation may tend to be pigeonholed. Where hegemonic masculinity is at work, the role of masculinities in organisational structure is a key to the experiences of women in that organisation which are framed by patriarchal influences (Sinclair 1998).

This trainee appears to have no senior women to whom she can appeal in order to question her treatment. The presence of women in this organisation is used instead to define frailty and lack of commitment, and to police time use. This supports the status quo whereby a monocultural picture of hegemonic leadership by senior men with such a view of women is maintained. The curriculum form of apprenticeship appears to support this androcentrism.

An emerging movement promotes gender-inclusive curricula in medicine (Colville, Wainer & Aroni 2008); however, the opportunity that the CBT movement promises is missed as currently introduced into the ophthalmic curriculum under the auspices of the Australian Medical Council. An opportunity to challenge the institutional androcentrism present in this postgraduate college has been lost.

### **8.3.3 Time served in training**

Planning a busy professional career over decades is much more than a matter of timing childbearing. Although the years between the ages of 30 and 40 are the key childbearing years for most doctors, there are other considerations as well. Dual career marriages are common among ophthalmologists. Whether full time or part time, another key factor is the total duration of training.

CBT is proposed as being a more flexible form of training than apprenticeship. Time served in training varies greatly between apprenticeship and CBT, as conceived by most educators. They conceptualise CBT as placing the duration of time served into the background. They conceptualise apprenticeship as placing the duration of time served into the foreground.

Time-based training potentially has different effects on men and women because of the timing of childbirth and subsequent commitment to childcare. Shortening training is theoretically possible under a CBT form, with potential advantages for women who want to have children.

If sufficient clinical experience can be gained in a shorter time, the trainee can reach an acceptable level of competence in a shorter time. The ophthalmologist quoted below believes that a shorter length of training might be possible if the trainee experiences 'a vast amount of clinical exposure' with 'a lot of hands on'. A lack of competition for patients suitable for teaching is also a key consideration. This ophthalmologist suggests that CBT, rather than time-based training, is a

possibility in her discipline. She was asked whether five years was too long, too short, or about the right duration for training.

*Well, whatever produces competent people at the end of it. It's really not the length of time but how [you spend that time]. What you need is exposure to clinical [cases]. That's really the way you learn, just exposure to lots and lots and lots of patients with lots and lots of different things as well as any sort of [formal] teaching or whatever. So I suppose, in theory, over time you have to see patients but you've also got to balance that with the fact that you have [a life], and often there's not just you but there may be your partner. I think if you make it too long, it's going to make it very difficult for some people. Well, for people, if there are two professionals, married or partners or whatever, then it makes it very difficult to try and work together. I mean [female trainee] was a case in point, she actually trained in [another country] and her husband was in [the other country], and then she went [overseas]. So she's made a lot of sacrifice for a long time in her life. [That might have been well [for the full] five years perhaps?] Well, it would have been. I think you have to balance the length of time with also the fact that you've got people [with their lives to consider]. I mean, okay, they've got to make that commitment to learn, but there's also the other factor that they've got life apart from medicine. [female trainer, P313]*

Another trainer, a male, also feels that continuous full-time training for five years is not essential on educational grounds. He asserts that the character of the trainee is more important than time-based training and implies that competition for patients, 'a commercial side', is a reason for keeping trainees from qualifying more quickly.

*[For a good program, do you think it has to be continuous in full time?] No, absolute rubbish. You've either got it or you haven't. As a pathologist there's a very similar thing. The pathologist reckoned that if you were a practicing partner, you should get the [fellowship] in half [the] time. You should get credit because you were thinking about your stuff when you were not on the job. I'm afraid I look at the commercial side of this. [male trainer, P312]*

He questioned time-based training as the only possible curriculum form. His views challenge the educational validity of the apprenticeship system and appear to support a move to CBT.

## 8.4 Androcentrism in professional identity: Male as norm

Career threats abound, in the account given by the trainee quoted below, simply from being pregnant. She enunciates the continuity-displacement contradiction that is a hallmark of apprenticeship training. It is essential to train new members of the profession, but policing their identities takes much boundary work on the part of her trainee-peers, her seniors and her educational administrators. The conservatism of the profession is transmitted through these strategies. The trainee decides to comply, not make a fuss, to get through her training, and to seek her ultimate escape after graduation.

*But there are still a few people who have said to me in passing, you know, this is not necessarily a good thing [being pregnant] to be doing for your career. Frowning at me. Just because you are supposed to finish your training and then you get on to doing that, and I think there are a lot of girls even in my year who have definitely considered having a baby. But they have thought 'How it is going to affect their training? How it is going to affect their exams, and how they are going to be viewed?' My gosh, one of them is worried about what all the bosses will think of them. Maybe they are [worried]. I don't know. [They wonder] 'Is it going to be a bad thing to have done or a destructive thing or in terms of training: you put your head down and work hard and just get through the training and you don't cause any problems?' And [they think they might be a worse doctor?] [female trainee, P320] ...*

Taking a break in training to deliver a baby was a signal difficult to overcome in this culture where ‘presenteeism’ is a feature. Keeping the respect of her trainers was her concern:

*... I am not sure [if it's that] or [that] they just won't get as much respect from the consultants. And teaching. [Does it matter to how much teaching, has it made any difference to how much teaching you get?] I don't think so. I am still doing the same job that I was doing. How it was going to affect, you know, my training and all my exams? There is still a very, very small part of me that wanted to power ahead and finish the training. Like how am I going to get through all these exams and how am I going to get everything that I need to become a good ophthalmologist, and not just someone who finished the training program, but good in every aspect? And what do I need, [I need a] cornea or retina job this year and I am mentioning that to administration, and they said that they might be able to find some way of giving me a cornea outpatient once a week. It is not the same as kind of doing a full-time cornea job. [You might need that for the long term?] Yes. I just wonder how my training will be and even if there was an issue...[Disadvantaged in your training?] Perhaps. You just might not be able to get the speciality [you need]. Your choices might be more narrow because you are visibly part time or you have opted to be part time and that is something that might defeat the very experiences that you get. [And what is symbolic about cornea or retina?] You want to do the speciality terms so that you can get some speciality knowledge. [Is that special knowledge that you might be excluded from?] Yes. If I don't get a retina term and a cornea term, I just might not be as good. Administration is dictating [my choices]. They can chose to do what they want to. They can choose to chuck me in ED [Emergency Department] for three days a week if they wanted to. I mean, the College wouldn't be happy with it and the College standard is part time, and I have to do one day a week in surgery and two outpatients a week. To a certain extent [the College will protect my training] but at the end of the day ... you really are dictated [to] by the system, and you put your head down and you get through your exams. And you try not to make a fuss and you try to get the hell out. I am making the training sound terrible, [but] it is not all terrible. [female trainee, P320]*

Losing the respect of her trainers flowed on to risks to training experiences, so she was not certain she would get the training opportunities she needs to gain the experience to pass the difficult examinations still to come in her training.

#### **8.4.1 Othering, imposter status and a sense of entitlement to belong fully**

The question of whether women may access the ‘legitimate peripheral participation’ described in Lave and Wenger’s theorisation of apprenticeship is important here. The question is how the phenomenon known as male-as-norm persists as a concern.

***Are women human beings? In this overt form, this question sounds quite bizarre today, but it has been discussed quite seriously in the past... historical incidents indicate that what lies at the roots of the wider variety of male as norm (MAN) phenomena is this persisting concern [about whether women are fully human]. (Braun 1997)***

To act as fully human one must possess a sense of entitlement to participate fully in professional training. The professional implications of taking parental leave and planning the return to work and training can be experiences that subtly erode this sense of entitlement. On the face of it, one trainee claims above that there are no problems. However, in two issues raised in the text below, she appears to hint at significant professional impediments to full participation in her training. These issues bring into question her sense of entitlement to full professional training once she becomes a mother while a trainee.

First, she notes that it is up to her, individually, to make the complex and time-consuming arrangements for childcare and interstate travel to attend a routine training event for registrars. As

she puts it, it is ‘just time and baby dependent’. The timing and facilities of such conferences may not be conducive to taking her baby with her and to making smooth arrangements for the baby’s care during the conference. Second, in saying that ‘anything I want to go to is available to me’, the trainee must have questioned her entitlement to full participation in her professional life.

*[What about your learning during this time of maternity leave, and what about going back?] I am still [participating] where I can. I try and get to lectures and conferences. Like two weeks ago there was a conference for registrars, and I went to that. **Anything I want to go to is available to me**, and it is just time and baby dependent. So I have not felt as though I couldn’t go to everything. I have not felt as if it is inappropriate for me to go to anything for example. [female trainee, P306, emphasis added]*

As an interviewer, the researcher was careful not to make any comment about the trainee’s sense of entitlement to fully participate in training. The trainee nevertheless qualified her reply with the following double negative, suggesting she is uncertain of her entitlement: ‘I have not felt as if it is inappropriate’.

#### **8.4.2 Can she be scientific enough? Women doing medical science**

There is an argument that women have difficulty taking on the aspect of being a doctor that involves practicing scientific medicine (Pringle 1998). It is even more difficult to be seen as generating scientific knowledge (Cassell 1998). One feature of this argument is that women are seen as less legitimate as scientific researchers and medical experts. Leaping upward conceptually, this issue extends to including women in the very demonstration of legitimacy in any culture, including the medical culture of ophthalmology. The point is that medicine simply does not routinely include feminist concerns. Becker (1998) provides the following light-hearted description of the motivation behind Haraway’s feminist analysis of science:

*It’s not just common sense and the prejudices of our companions that blind us to what’s there to see. We often decide what to include and what to leave out on the basis of an imagery and its associated theory that settles all of those questions for us a priori. All our theories specify something about what we should look at and, by implication, what we needn’t bother with (whatever the theory doesn’t bother with). That’s the very solid core of feminist complaints that many, if not most, sociological theories are sexist. Those theories aren’t openly, or necessarily, male oriented: they just don’t routinely include, in their systematic exposition of topics and problems, some concerns feminists think important, part of what you routinely ought to look for. The male-dominated study of chimpanzee social life, as Donna Haraway has shown, went on and on about dominance and all that boy stuff, without paying attention to the food-gathering and childrearing the females did. There’s no good scientific reason for that emphasis and, of course, the males could never have spent all their time trying to push the other guys around if someone wasn’t bringing home the bananas and taking care of the kids. The theories that focussed on dominance could, in principle, encompass these other matters, but they didn’t enjoin researchers to do it in a regular way. (Becker 1998:97–98)*

Becker is arguing that such neglect is not consciously active on the part of the male-dominated group. Haraway argues that a view ‘from below’ highlights the ‘God-trick’ (1997:134). The view from above is the ‘the culture of no culture’, and the standpoint of the subordinate is a better one for seeing clearly what is going on (Haraway 1997). Throughout history, women have had difficulty being defined as scientists. Though it is socially acceptable for women to *teach* male-defined knowledge, there are sanctions against women being identified as the *generators* of knowledge.

This poses problems when women who teach are also, arguably, generating new knowledge about ophthalmic practice. Women are, according to some, expected to stay in the private rather than the public sphere. This includes those who seek to become professionals. Attention is required to ‘the wider cultural and social meanings of surgery’:

***Equal opportunity measures alone will not be effective until there is a shift in the wider cultural and social meanings of surgery which enables it to be seen as an appropriate field for women. (Pringle 1998:72)***

Women are not conventionally labelled as a scientific genius or as having high intellectual and scientific originality of achievement.<sup>31</sup>

***The task for women in surgery is therefore, not only to lay claim to those qualities that have been understood as ‘masculine’, but to demonstrate that inhabiting a female body need not be a barrier to exercising the ‘feminine’ qualities that have in the past been associated with male genius. The practical problems begin to look like the easy part! (Pringle 1998:74)***

Women in ophthalmology constitute a ‘Special Interest Group’ (RANZCO Annual Report 2000). Women ophthalmologists and trainees are constructed as ‘other’ while at the same time apparently training as full members of the community of practice of the profession of ophthalmology. This is a complicated matter of professional identity formation. Its effects on individuals are not minor, as delineated by Wainer in her study of women doctors (2005). A sense of being an impostor can be a consequence of such ‘othering’. A feeling of being an impostor in the profession is frequent in studies of female medical students and doctors. It is easy to slip from ‘different’ to ‘inferior’, as the extensive literature in gender studies more widely shows. ‘Othering’ was explicitly demonstrated during the interviews. For example, one male trainee says that women have ‘all this other stuff ticking over in their brain, like family, and relationships’ (male trainee, P305). He is implying that he himself has different ‘stuff’ ‘ticking over’ in his brain in comparison with the female trainees who are his peers.

Australian psychiatrist Carolyn Quadrio (2001) explains such ‘othering’ as a useful concept in understanding professional identity formation. From her interviews of Australian male and female psychiatrists, she notes the following about female psychiatrists:

***Their position as ‘other’ does to professional women what it does to women in general. By internalising an identity as ‘other’, a woman’s inferior status becomes part of her self-image and she constructs a stigmatised identity. (Quadrio 2001:200–201)***

This stigmatised identity becomes part of the rhetoric of ‘lack of clear career identity, lack of confidence, role strain’ (Quadrio 2001:200). Rather than having some personal kind of ‘lack’, Carolyn Quadrio argues from documentation by Leebens et al. (1995) that in academic psychiatric departments

***women have less departmental support (administrative, secretarial, computers, statisticians). These are not ‘special needs’ and it is important to focus upon issues like the deficiency of essential services as constituting forms of discrimination rather than reflecting special needs. (Quadrio 2001:201)***

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<sup>31</sup> Australian Elizabeth Blackburn won the Nobel prize for medicine in 2009



Not being in a level playing field, she says, means that ‘it is little wonder then that women might feel less confident—they are actually being less well equipped for their work’ (Quadrio 2001).

Quadrio (2001) makes two important observations. First, that the ‘othering’ of medical women within the profession itself is in parallel to what ‘othering’ does to women in society generally. This finding means that links might be drawn between discourses of gender generally and those within ophthalmology. Second, women’s relative lack of resources for professional work might be found translated, as Quadrio found, into a discourse of personal ‘lack’. Thus, within the field of ophthalmology, as was the case in psychiatry, a group identity might be constructed for women ophthalmologists in which personal ‘lack’ is a theme. Importantly, when it invokes the rhetoric of ‘special needs’, such talk of ‘lack’ might also be read as subversive of women’s status (Quadrio 2001:201). This has some implications for the training of women ophthalmologists as well as for the training of women psychiatrists.

This theme of developing subversive status within their profession is reminiscent of Gloria Steinem’s work. Steinem described women’s university education as sometimes being not, as one might at first glance expect, a source of empowerment, but rather a way to gain an A+ in ‘self-deprecation’. In making their contribution to the work of the profession, women doctors tend to follow different life courses from those of male doctors. Of relevance are international and Australian legal conventions, such as those banning discrimination against workers with family responsibilities (International Labor Organisation [ILO]:156), rules which would seem at odds with women doctors having seemingly narrower life ‘choices’ available, at least up until the late twentieth century.

Othering and impostor status are important factors when considering social change in the curriculum. Women’s existence as an ‘othered’ identity implies some fear within the professional community, fear which generates resistance to their full participation in professional life. At the same time, it provides some potential for change. Parallels can be made with the experience of women who are lawyers:

*There was a sense that the presence of women at the Bar—and indeed women who could command the support of the judiciary in their application for Silk—had dislodged the man’s entitlement, had compromised his property right. What was seen as justifiably belonging to the man had been taken from him—or, at least, its timeliness had. What lay behind the quip, in my view, was a belief that the legal system, while it might allow women lawyers to have a place, does so on the condition that women recognise that they owe their place to the grace and favour of men. It follows that they are not to take property which the men believe is rightfully theirs. (Tate 2005)*

Doll, Wear and Whitaker explicitly teach female medical students about this ‘imposter’ problem through set readings in their medical humanities subject. As they indicate, “‘imposter”—the fear of being found out—(is) so prevalent a feeling among professional women operating in hostile

patriarchies’ (Doll Wear & Whitaker 2006:100). One set story describes a doctor with this identity, and generalises the principle to all who are undergoing medical professional socialisation:

*She felt like an impostor, ‘a visitor from some other world dressed up like a doctor’. Both male and female students often express apprehension about blending their various selves of doctor, wife/husband, and parent. This story assures them that they are not alone, and that enacting their ‘doctor’ selves will not involve neat compartmentalization. (Wear 2006)*

Being ‘othered’ involves feeling like an impostor and feeling marginalised.

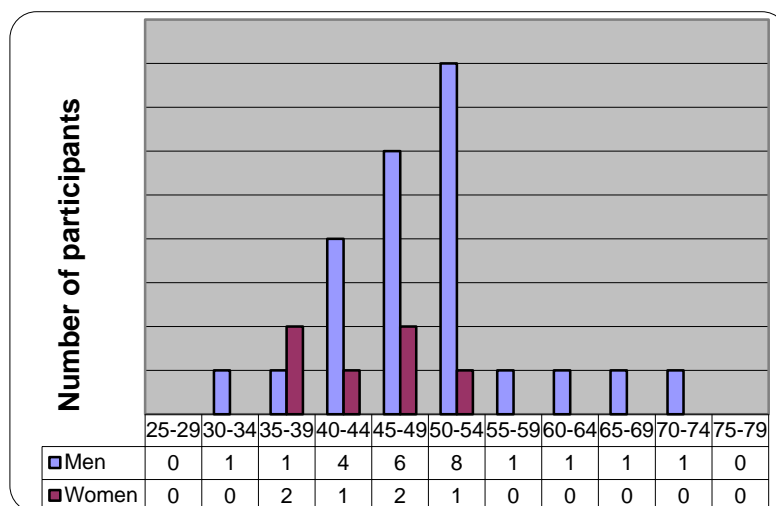
*Many explore their experiences with ‘impostor syndrome’: the acute concern that one has gained a status too elevated for ‘someone like me’, and that at any moment the referee will blow a whistle and ‘send me off’ for masquerading. (Delamont et al. 2009)*

One student described this as ‘re-negotiating my own sense of self’ (Delamont et al. 2009). Some women doctors challenge their profession from within the profession itself by the simultaneously being insiders and being resistant (Wainer 2005). Women may find that resistance can be much more effective if one is simultaneously an insider and an outsider. The above data shows that women both define their own professional identity and teach this professional identity to and with their trainees.

## 8.5 Women as leaders and teachers

Numerical equality between women and men has yet to be achieved in ophthalmology leadership.

Figure 8-2 shows the distribution of participants in the curriculum review meeting.



**Figure 8-2: Participants in the curriculum review**

Gender and identity can firstly be understood in light of part of Lave and Wenger’s (1991) formulation of the continuity-displacement contradiction. This contradiction allows for an understanding of the experiences of women teachers in ophthalmology. Lave and Wenger argue that within any community of practice, an essential tension exists between old-timers and newcomers around the issues of practice:

***Newcomers are caught in a dilemma. On the one hand, they need to engage in the existing practice, which has developed over time: to understand it, to participate in it, and to become full members of the community in which it exists. On the other hand, they have a stake in its development as they begin to establish their own identity in its future. (Lave & Wenger 1991)***

The paradox is that young women may possess both skills and insight to bring about much needed change, including taking into account gender difference in ophthalmology. However, according to the continuity-displacement contradiction, they may not feel empowered to act differently from the existing group norms. Clinical practice is an activity that is part of ‘doing gender’ by both male and female ophthalmologists. In apprenticeship based training, because the curriculum is defined by the work that is done as shared activities, a trainer may introduce an activity into the ophthalmic curriculum through practice and then simply include the trainee in any way suitable to the context. The trainee mimics that activity and in doing so incorporates this activity implicitly into their own skill set.

Traditionally, females are supposed to learn knowledge, not create it. However, in the apprenticeship model, shared practice and shared activities are the very knowledge being created. This principle can apply specifically to activities that women select on the basis of their experience as adult women in society. Women as teachers in the ophthalmology curriculum simultaneously hold to discourses connected to being women and to discourses connected to being an ophthalmologist. As such, they can be defined as ‘biDiscoursal’ people. As Gee, Hull and Lankshear (1996) explain, ‘it is biDiscoursal people (people who have or are mastering two contesting or conflicting discourses) who are the ultimate sources of change’. Women teachers can and do define their own curriculum, just as men do. This is influenced by their gendered experiences, by their ‘doing gender’ in their daily lives, as do we all.

Some female participants in this study described new aspects of medical practice they believed ought to be taught and that they have proceeded to teach. One described the importance of teaching her trainees how to give phone advice at a distance, doing and articulating the teaching of tele-ophthalmology, words for essential ophthalmic skills in her practice in provincial Australia that are yet to be incorporated into the written ophthalmic curriculum. Another described how she demonstrated to the registrar how to advocate for their patient’s well-being with cultural sensitivity at a local indigenous health clinic. She demonstrates a flexible attitude, and how to discard conventional assumptions held by the ophthalmic profession for the sake of blindness prevention. In addition, these women incorporated examples of how to juggle their family life with their professional life, and how to participate in College affairs that involved what they saw as their own way of thinking laterally, by communicating with one another and sharing ideas. These changes mirror Pringle’s (1998) findings that ‘collectively these women show what is possible and construct very different images of surgery from the dominant ones’.

A culture of no culture, discussed further in the next chapter, appears to extend to curriculum leadership in relation to gender. Obtaining positions on decision-making committees and achieving senior roles can be understood as the 'spoils' of the profession (Tate 2005). The curriculum review data in which there are far more men than women at the policy-making meeting are an example of the power of apprenticeship to replicate the professional attributes of the masters. That these roles are occupied far more frequently by men requires explanation. The number of women in educational decision-making roles appears to suggest that men may feel a moral justification in taking the property of females, that is, the prestigious jobs in the College, and educational roles. (Tate 2005).

Female curricularists in medicine have drawn up generic guidelines for gender-inclusive medical curriculum. Zelek, Phillips and Lefebvre (1997:1297), and the CanMEDS document on gender competencies (CanMEDS 2008)<sup>32</sup>, for instance, argue that there are significant adverse effects for women's health because of 'medicine's historical blindness to gender'.

Some areas in which tradition ought to be redressed are illustrated in the data about apprenticeship in this chapter. These are ensuring that:

1. women and men are equally represented, when appropriate,
2. men are not portrayed as the prototype of normal (and women as deviant),
3. women's health and illness are not limited to reproductive function.

Curriculum theorising such as this provides evidence that biDiscoursal individuals can act as change agents. By prompting dissonance in those around them, they provide some expansive potential to the organisation. In this case, women in a male-dominated culture may be able to avail themselves of the multiple discourses of which they find themselves to be a part. They can become teachers with the capacity to widen the discourses to which the profession more broadly has access. These types of interventions could theoretically be authorised in CBT rather than apprenticeship based training, while it is the apprenticeship model that may need to give the female trainer the authority and opportunity to implement her 'subversive' curriculum.

In conclusion, set within an apprenticeship curriculum form, ophthalmic training exhibits gendered features. Male-as-norm is evident in its training culture. The next chapter describes more about the culture of ophthalmic training more generally, including the implications that hold where apprenticeship is the predominant curriculum form. A 'culture of no culture' is described. There are significant features of apprenticeship in general that provide stability to its training culture. These

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<sup>32</sup> Source: [http://genderandhealth.ca/en/resources/Gender\\_Competencies\\_in\\_CanMEDS\\_Framework\\_10-2008.pdf](http://genderandhealth.ca/en/resources/Gender_Competencies_in_CanMEDS_Framework_10-2008.pdf)  
Accessed June 23rd 2011 (CanMEDS 2008 )

specifically may work against medicine being able to keep up with external cultural shifts in society at large.



## Chapter 9 Culture of No Culture

The study findings in this chapter are an extension of the more general finding that apprenticeship is the predominant form for training ophthalmologists. In asking how change might be possible in the curriculum, it is important to identify factors that enhance or constrict the potential for change in whatever curriculum form is present. This chapter presents data that show that a silence about training itself is present and that this silence hampers changes to training.

The data suggest that a culture of silence is found within the culture of ophthalmology itself. This area of silence can be termed the ‘culture of no culture’ (Taylor 2003). A ‘culture of no culture’ is ‘a community defined by the shared cultural conviction that its shared convictions were not in the least cultural, but, rather, timeless truths’ (Taylor 2003). In other words, evidence exists that members of the profession of ophthalmology share the cultural conviction that ophthalmology’s own shared convictions about teaching and learning are not cultural but are timeless truths. The importance of this finding is that if it were more recognised that training was based on cultural assumptions, there would be greater possibility of debate and of exploration that would reveal alternative methods and the possibility of change.

Taylor (2003) demonstrates the potential importance of the recognition of the ‘culture of no culture’ in theorising about medical curricula. She suggests that cultural competencies in curricula centre on this notion. The separation of medical knowledge from culture is problematic in curriculum frameworks such as the one governing ophthalmology:

***Medical students as a group may be forgiven for failing to take these very seriously as long as they perceive that they are quite distinct from the real competence that they need to acquire. To change this situation will require challenging the tendency to assume that ‘real’ and ‘cultural’ must be mutually exclusive terms. Physicians’ medical knowledge is no less cultural for being real, just as patients’ lived experiences and perspectives are no less real for being cultural. (Taylor 2003)***

Bringing the data together with theory enables identifying the myth that medical competence is acultural:

***Cultural competence curricula will, perhaps, achieve their greatest success if and when they put themselves out of business—if and when, that is, medical competence itself is transformed to such a degree that it is no longer possible to imagine it as not also being ‘cultural’. (Taylor 2003)***

The data in this chapter supports the argument that there is a culture of no culture in relation to ophthalmology training, and yet shows the reality that the training is embedded in a form behind

which there is much explanatory scholarship, predominantly that of apprenticeship (Lave & Wenger 1991).

This study's data contains contradictory views about ophthalmic education. The perception that ophthalmologists have of their own training does not seem to fit with classic dictionary definitions of education, which includes enabling trainees to 'question'. 'Education has two principal roles: that of passing on knowledge from one generation to the next, and that of providing people with skills that enable them to analyse, diagnose and thus question' (Hills 1982:136). Ophthalmic training seems not to be education in this strict sense, as it does not include learning to critique.

## 9.1 At work together

Teaching and learning occur in the natural course of events as part of the routine activities of the teaching hospital. Consultants and trainees work side by side. The focus is work; it is not on learning as such or on the development of the learner.

### 9.1.1 Work is the curriculum: 'They teach themselves'

Participant views of education were at times contradictory. Here, ophthalmic education is defined as the processes of education that form a discipline or professional body of knowledge in ophthalmology about the passing on of ophthalmic knowledge. On the one hand, there is a 'culture of no culture' in relation to teaching. This is exemplified by the following quotations in response to the researcher asking how learning happens. One teacher's response was that 'they teach themselves' (P302) and that 'they were just self-taught, to each other' (P302). In addition to providing further evidence that apprenticeship is the dominant form of education in ophthalmology, these remarks illustrate just how much in the background, rather than the foreground, the process of teaching is. Shared work among near-peers is emphasised here, as will be expanded on using Lave and Wenger's work later.

*[How does it matter what form the training takes?] No, it doesn't matter because] **they teach themselves**. I was impressed in [large Australian city] going around [inspecting] in seeing some average physical setups of clinics and some very variable attendance by consultants and really limited contact time; [I was impressed at] how good the trainees were. **They were just self-taught, to each other**. [male trainer, P302, emphasis added]*

This participant points out that trainees teach each other. Rather than being in the background, this is a central educational feature of apprenticeship. Lave and Wenger put it like this:

***It seems typical of apprenticeship that apprentices learn mostly in relation to other apprentices. (Lave & Wenger 1991:93)***

This data suggest that the curriculum form to train ophthalmologists is apprenticeship based, and that engaging in practice is a condition for the effectiveness of learning (Lave & Wenger 1991:93). The stability of practice and the stability of the curriculum are one.



*In apprenticeship opportunities for learning are, more often than not, given structure by work practices instead of by strongly asymmetric master–apprentice relations. (Lave & Wenger 1991:93)*

What this means is that the centrality of practice will be missed where educators are unaware of this core feature of apprenticeship. It will appear as though there is no educational culture, where in reality the educational culture is clear, and has in fact a century-old tradition behind it.

### 9.1.2 It just happens: it ‘goes on all the time’

The ‘culture of no culture’ in teaching in part rests on the apprenticeship nature of medical education in hospitals. One trainer explicitly called this the ‘almost master-apprenticeship type relationship’ that exists between the ophthalmic personnel in their teaching hospitals. The data contain a strong sense that learning is considered ‘day to day’ and is thus considered a simple matter. Lave and Wenger (1991) provide some context for understanding this day-to-day view of the educational process.

*Under these circumstances learners may have a space of ‘benign community neglect’ in which to configure their learning relations with other apprentices. (Lave & Wenger 1991:93)*

The participant data also provide a sense that teaching and learning are naturalised. Rather than the complex entities they are in lived actuality, ‘day-to-day’ learning is seen as being a natural part of all shared practice in the teaching hospital clinics. Participants in this study implied that learning happens as a naturalised, every day, common-sense occurrence that is simple and routine, part and parcel of teaching hospital work.

This ‘culture of no culture’ in relation to teaching is, according to one trainer, naturalised as something that ‘goes on all the time’ (male trainer, P206). This remark highlights that it is the work that is the focus, not the teaching. He further explains that the teaching ‘goes on all the time in the public hospital because you have your registrar and Fellow with you’. The trainer, Fellow, and trainee are working together on patient care.

*[Learning] occurs at many levels of course. There is the day to day, almost master–apprentice-type relationship which **goes on all the time in the public hospital system because you have your registrar and Fellow with you.** I see that probably as more important than the formal side of the teaching. I think that people learn a lot more, not just in terms of factual knowledge and practical experience in how to do operations and things, but the other important parts of patient care: how to communicate bad news to a patient and how to deal with other family members, all those sorts of issues, which they can observe by example and hopefully see it done, well hopefully, and from that move on, and pick up on what can be done better. So that’s one level of teaching [that] I guess is more important than the formal part of it, which is getting tutorial, lectures, and clinical teaching sessions which we do well. [male trainer, P206, emphasis added]*

This trainer sees the risks in maintaining a culture of silence around the quality of teaching itself. He notes that the trainees learn ‘by example’. In the clinic they can ‘see it done, well hopefully’. While powerful, learning is tacit, and therefore not open to scrutiny for its quality.

### 9.1.3 The ideal trainee is individualistic, ‘needs no interacting’

Individualism is idealised in this culture. People are people, and people do not change. This seems to be a prevailing myth within the ophthalmic culture. The ideal student learns alone. It is only the inferior majority of students that ‘need interacting’ (male trainer, P302). This is an example of a sometimes begrudging attitude to the necessity for education, where education, including lifelong learning, is understood to necessitate on-going interactions between trainers and trainee. The implication is that if one has been selected for desirable qualities, then interaction with others may not be necessary to attain a good education in ophthalmology. For instance, one trainer discussed a trainee who was ‘just so smart’ and became a trained ophthalmologist in a way valued highly by this trainer. The trainer valued this trainee’s educational experience because he ‘did it all on his own’, unlike ‘the majority’ that ‘do need interacting’ (male trainer, P302). The very fact that there is any question of the need for interaction is in itself a ‘culture of no culture’ in relation to ophthalmic training:

*But you see, I can remember when [respected senior ophthalmologist] was training, I think I can remember [that] he sort of **did it all on his own**. Some of them are just so smart—that he could just do it all on his own...but on the other hand, other people may, you know, not. They may have to interact, and the **majority of people do need interacting**. And they do need interacting ... throughout their professional life. [male trainer, P302, emphasis added]*

The individualism of the culture was also in evidence in the individual introductions at the curriculum review. The above quotation suggests that the higher the intellect, the less the need for interactive training. This belies the learning that occurs from interacting with patients and with peers and seniors in the community of practice. It appears to privilege the cognitive skills that a doctor needs over the social skills that a doctor needs.

There is evidence that the individualism and scientific basis of medicine are linked sociologically through the professional identity formation of a doctor (Willis 1989). Any emphasis of surgical or drug therapy for an individual ill as part of doctors’ work, over changing some of the social determinants of a condition, is an example of individualistic identity for the doctor who in this case is the ophthalmologist.

### 9.1.4 Personalities cannot be fixed and are not influenced by context

The respondents to this study commented that personalities cannot be changed, training is largely about personality issues, and personalities are not culture. Many study participants believed that selecting the right people for the training program is the main issue and that training subsequently will occur smoothly. If there are any problems, participants seem to believe these are the result of personalities rather than the training milieu.

The ambivalent treatment of competencies as selection criteria adds weight to this claim. It is as if there is a dilemma over whether it might be possible to simply select for the competencies, leaving the training period clear to teach only the technical side of ophthalmology. The idea arises that personality is a stronger determinant of what is learnt than the learning environment is.

*A good registrar can fix a dysfunctional clinic...There [are] a lot of personality issues in it. [male trainer, P302]*

An emergent theme in the data was that interaction between a trainee and consultant is patchy and inessential to learning, since trainees absorb knowledge with and from their peers. Some of the lack of interaction is put down to personality, as illustrated in the remark 'I think the fit between master and apprentice has a lot of personality issues in it'.

The degree of emphasis on personality is striking and appears to contribute to the culture of no culture in relation to teaching. Personality issues seem to be an acceptable excuse for a lack of awareness of educational strategies, rather than a reason to develop a teaching ethos. Personality issues are an integral part of any educational strategy rather than a factor that precludes any such educational strategies in the first place, as seems to be implied in the extract below. The implied belief is that without compatible personalities, there can be no exchange or sharing of practice. Without sharing of practice, there is no training. Although inexplicitly understood, exchanges between masters and apprentices around shared practice are the predominant mode of education.

*[Sometimes] I virtually have to bring the trainees to show them something. Well, it varies. It varies; some of them do come in and ask for you to have a look, but I think in a clinic with a number of consultants, it's very much the attitude of the consultant. Besides, granted [that there is] the isolation [and] everyone is busy [however], in others there may be perhaps an ethos in the clinic that everybody has to keep showing each other everything. I have been brought up in the latter and I like it, and I think the trainees like it. [male trainer, P302]*

*I found on some inspections where you've had two adjoining rooms separated by a sliding door when the second-year trainee, we've asked them, 'Well, how often would you take a case into the consultant', and they say, 'Well, I don't'. So [I say] 'What do you mean? Do you see the consultant during the afternoon?' [They say] 'The consultant might arrive late or I don't really feel the need to'. So here's a trainee who obviously doesn't know what they don't know and doesn't feel the need to communicate. The consultant may, for many different reasons, not feel obliged to slide the door open and keep contact up with the trainee, so I think **the fit between master and apprentice has a lot of personality issues in it** as well. When it is dependent on an interaction, the consultant might arrive late, might be annoyed that there is a huge pile of history waiting in the public clinic; the trainee may be simply snowed under. [male trainer, P302, emphasis added]*

This assumption that it is the personality of the trainee rather than the training program that produces ophthalmologists that could be a conservative force that makes it very difficult for the training program to welcome and manage trainees from diverse backgrounds.

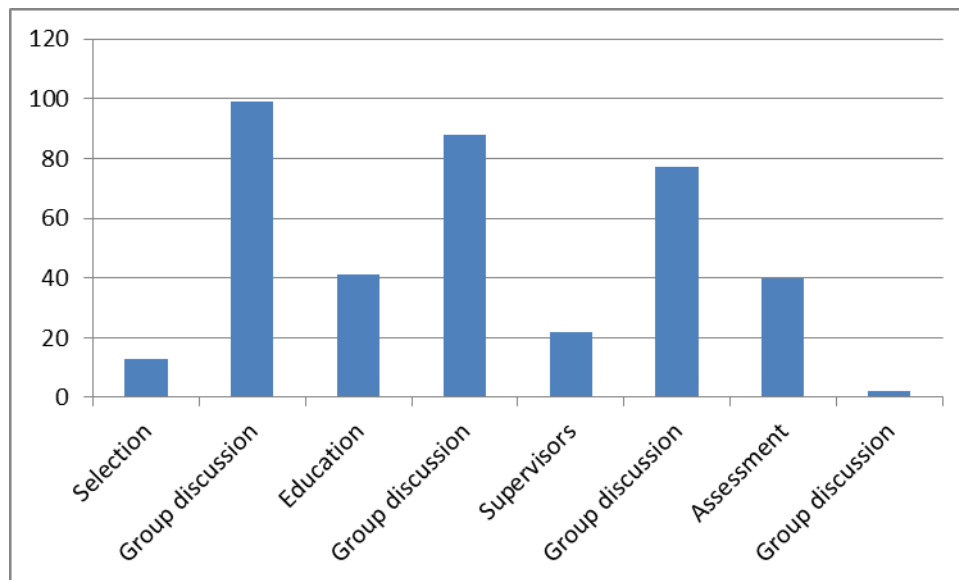
### 9.1.5 Selection is the focus, not training

Ophthalmologists in this study seemed to believe, to some extent that education is about who gets selected into training, rather than the processes to which they are subject thereafter. In other words, there is a sentiment that selection is of crucial importance, greater than the quality of training once selected. Training, in the sense in which it was generally used, appears to be an afterthought.

Another feature of this culture of no culture is found in the curriculum review meeting data, which shows considerable emphasis on selection at the cost of discussing teaching and learning during the course of the meeting. Several trainees initially said although they could see the competencies had merit, they had not thought about them as such since their successful selection interview into ophthalmic training. One trainee mentioned their use in training when pressed, but, as he put it, ‘not since I’ve prepared for the interview’ had he paid much attention to the College’s competency list (male trainee, P305).

A focus on selection into training, rather than on teaching and learning during the course itself, fits the institutional view that teaching is of lesser importance than the personality or skill base of the entry-level ophthalmology trainee. That selection has a high priority is manifested by the number of lines dedicated to this topic in the curriculum review meeting transcript. The transcript contained at least an equal number of lines of discussion about selection as about teaching and learning. This was true despite the presence of an educator who facilitated the meeting. Even when the topic was teaching and learning, there were frequent references to selection. The major decision made during the meeting was to alter the selection criteria for entry into ophthalmology. How to incorporate into ophthalmic training itself knowledge of the material once required as a pre-requisite was incompletely discussed.

Further evidence that selection is emphasised over teaching and learning can be found in the invitation to a state qualifications meeting, held twice yearly. It states ‘The main agenda item will be the presentation of the order of applicants for our first year registrar positions for 2010’ (Personal communication RANZCO, 2008). No comparable or commensurate reference is made to training. A graphical representation of the number of transcript lines occupied by various topics on the first day of the meeting is presented in Figure 9-1. Group discussion about selection was greater than about any other single educational topic.



**Figure 9-1: Lines dedicated to each topic on the first day of the curriculum review meeting**

## 9.2 There is simply no such thing as education

Cultural aspects of a community of practice (such as power and control over trainees' access to the full range of activities of the job) are influential upon training, so it is important to take them into account. Lave and Wenger emphasise that training and curriculum are profoundly cultural enterprises:

*Structural constraints in work organisations may curtail or extinguish ... apprentices' access to the full range of activities of the job, and hence to possibilities for learning what they need to know to master a trade. [There can be a] conflictual character of access for newcomers, the problems about power and control. [There are] implications when there is conflictual community practice in conjunction with identity development ... We need to turn the problems of access, of its embedding in the conflictual forms of everyday practice, of motivation, and of the development of membership/identity into objects of analysis. (Lave & Wenger 1991: 86–87)*

Changing the person or worker is not the central motive of non-medical apprenticeship training, although it is an explicit part of medical education that the student and junior doctor adopt the values and ethics of the profession.

The data in this study appear to show that the conventional view of education is too limited an explanation of the ophthalmic training program and therefore does not apply here. This is that education is 'providing people with the skills that enable them to diagnose' (Hills 1982:136).

### 9.2.1 Work is a condition of learning

The data suggests that ophthalmologists may believe the myth that medicine is a unique profession, that there is no such thing as educational expertise or a profession of education, and that there is simply no better way of doing training. This culture of no culture thus becomes related to the matter of the separability or inseparability of work and learning in adult learning settings. Masters and apprentices are largely unconscious of learning taking place. While it is inherent in apprenticeship

that there is a large tacit component to learning, it is important that medical educators are aware that this might be the case or training will suffer. Lave and Wenger discuss the apprenticeship form of education:

***If apprenticeship is a form of education in which work and learning are seamlessly related, it is nonetheless a form in which the work and understanding of newcomers bear complex and changing relations with on-going work processes: the structure of production and the structure of apprenticeship do not coincide as a whole [although they may do so for given tasks]. (Lave & Wenger 1991:86)***

Work is the focus, rather than learning, in apprenticeship. Further, work is not only the focus, engaging in practice is a condition for the effectiveness of the learning (Lave & Wenger 1991:93). This description of learning through apprenticeship matches well with the form of education that ophthalmic training takes as described by the participants in this study.

The implication here is that training and teaching are in the background. This culture of no culture defines what there is to be learned. The norm is that this is the technical side, not the non-technical. Furthermore, changing the person is not the central focus. It is the work that is the focus. Lave and Wenger explain apprenticeship as follows:

***The practice of the community creates the potential 'curriculum' in the broadest sense—that which may be learned by newcomers with legitimate peripheral access. Learning activity appears to have a characteristic pattern. There are strong goals for learning because learners, as peripheral participants, can develop a view of what the whole enterprise is about, and what there is to be learned. The central grounds on which forms of education that differ from schooling are condemned are that changing the person is not the central motive of the enterprise in which learning takes place. The effectiveness of the circulation of information among peers suggests, to the contrary, that engaging in practice, rather than being its object, may well be a condition for the effectiveness of the learning. (Lave & Wenger 1991: 93)***

The question of how much educational expertise is required to be a good doctor is problematic to the curriculum review group. Despite the culture of no culture in relation to teaching, the group invited an educator to facilitate a meeting about the very topic of teaching.

Early on in the meeting, the educator-facilitator emphasised that teaching is a profession. This was in response to the voicing of a seemingly ambivalent concern that educational conceptualisations and their implications for ophthalmology might go 'on and on' (male trainer, CR). The questioning in his voice suggests he wondered whether he was hearing a widely held myth by ophthalmologists—that there is no such thing as education at all. This myth appeared to reflect the culture of no culture. If so, there were many implications for ophthalmology. One is left with the sense that, to this reflective ophthalmologist, this concept that a curriculum meeting needed to talk about education seemed just too out of place to be truly relevant to ophthalmology.

In a culture of no culture around teaching, insiders are unlikely to reflect on the complexity of the College's educational processes. In saying that 'it goes on and on', the ophthalmologist speaking noted that teaching indeed seemed complex (male trainer, CR). The educator responded that teaching itself is a profession, implying that it is no surprise that it appears boundless to an outsider

such as an ophthalmologist for whom education was a previously invisible professional culture in which he discovered himself embedded.

In the text below the educational facilitator for the curriculum review meeting suggests that a culture of teaching was absolutely necessary when reacting to the implied suggestion that there was simply no better way to do training. To explain, ‘this thing’ was an educational policy document:

*Certainly in this thing that the College of Surgeons [have] circulated, the supervisor issue is addressed. They even go as far as to say that in each hospital where there are basic trainees, a supervisor would be appointed. It goes on in great detail. They proposed that the role and status of these supervisors should be significantly elevated [and even, that] supervisors’ will be offered educational courses on teaching techniques. It goes on and on. [male trainer, CR]*

*Of course, I mean it [teaching] is a profession! **You have responsibility in terms of the approach to training.** I mean, you’re talking here not only [about] the development of appropriate competencies, but their maintenance thereafter. [educational facilitator, CR, emphasis added]*

The educator was troubled, exasperated perhaps. He was trying to put forward the very notion of objectives into a curriculum form that has no language for, or cultural explicitness around, its learning objectives. As Lave and Wenger point out about the apprenticeship form, ‘a learning curriculum unfolds in opportunities for engagement in practice. It is not specified as a set of dictates for proper practice’ (Lave & Wenger 1991:93).

Not only was the educator trying to put forward objectives, he was also trying to introduce the role of objectives in competency based training. What seemed to be a simple task of giving an introductory rendition of this form of training turned out to present two contradictory aspects of competency based training.

The first was the reaction from participants on being asked to write objectives and competencies: they suggested their expertise simply could not be written about. Bringing the competencies into a group discussion about education raises issues of educational focus among ophthalmologists. On the one hand, there is the notion of competencies as a specification of what is desirable. It is problematic for ophthalmologists because reifying their practice, namely writing about it on paper, for instance, is alien to their culture. It does not fit with the apprenticeship form. The second is that at the same time competencies are a specification of what the minimal level of competence ought to be, and the trainers are dedicated to training competent surgeons.

A way of reconciling the two was found through agreeing that the competencies were indeed a specification of what was desirable, but only at the lowest level. In setting the task for the group of ophthalmologists, the facilitator proposed that the ophthalmic competencies they generated through the group discussion not be so aspirational that they were unachievable. While advocating in part that ophthalmologists bring lifelong teaching into the light of their day as utopian aims for practitioners, he also proposed that they be achievable. They must be achievable by all new graduates because they are intended, under CBT, to be measurable. Politically, the CBT objectives

are potentially a tool to set standards for graduates as well. Where recertification might be required some time in the future, these same objectives and standards might become mandated.

Competency lists are a reification of practice, an abstraction of practice that converts practice into a 'thing'. They require the breaking down of tacit and hitherto indeterminate tasks of ophthalmic practice into explicit objectives, roles, and competencies. Any requirement to produce lists of objectives poses a problem for practitioners. The subtleties of practice are difficult for practitioners to put into concrete form because the practitioners' reality is the participation in practice. They are unaccustomed to formalising or even naming the community of practice's activities. These practitioners relate largely to the complexities of lived practice, rather than to any description of such practice as it may exist in the competency lists.

At the same time that competencies are to be named, they cannot become so atomised as to be laughable. The educator cautioned moderation and suggested that the ophthalmologists have the modest goal of specifying some objectives, rather than breaking the tasks down until they reached a level where they were uncomfortable. The educator here cautioned the ophthalmologists against redefining and extending objectives. The educator explained that the task did not need to be daunting:

*I don't want you to go overboard in keeping on **redefining and extending objectives**. As I've said to a couple of people yesterday, I think the ultimate in insanity in the definition of objectives is in Indonesia, where the undergraduate course objectives are written in two volumes that takes over 1,650 pages. And it's written in English. I think it would take most of the medical students in Indonesia six years to read the objectives, by which time they should probably be qualified anyhow. [Laughs]. I think, again, as is implied, that most of these curriculum-type documents within the postgraduate medical arena, [are] not only a specification of what is desirable for trainees, I think they are also a statement of the minimal level of competence of practicing professionals within that area. That certainly is the approach that's been taken in the last seven or eight years. Those of you who know, for example, the anaesthetics training program [will be familiar with these notions]. That's the statement of their objectives in anaesthesia, being [from] what is now the College of Anaesthetics. [educational facilitator, CR, emphasis added]*

Rather than generating a set of detailed objectives, ophthalmologists proceed to generate only a simple list of non-specific competencies. Their course is set by the work that is done together rather than by a competency list. Lave and Wenger point out that the goals for learning are defined by observation and immersion in the community. The trainees see the patient care activities of their consultants in the next room; they assist them or follow up their patients based on the initial notes written by the consultant:

***Work, not teaching is at the heart of the ophthalmic curriculum. In all five cases of apprenticeship mentioned, researchers insist that there is very little observable teaching, the more basic phenomenon is learning. The practice of the community creates the potential 'curriculum' in the broadest sense—that which may be learnt by newcomers with legitimate peripheral access. There are strong goals for learning because learners, as peripheral participants can develop a view of what the whole enterprise is about, and what there is to be learned. (Lave & Wenger 1991:93)***

It is little wonder that ophthalmologists may have difficulty naming the objectives of their course. Rather than talk about these goals explicitly, they simply develop a gradually accumulating



knowledge of them through five years of lived experiences in the training program. Once they have gained these five years of experience, their embodied skills are too complex to name. Immersed in a culture of engagement in shared patient care work— medical practice—graduated trainees in turn, have no need to name the goals of their training in order to teach these skills to newcomers.

### **9.2.2 Professionalism cannot be at a basic level**

It is generally understood that professionalism is primarily about work, not about learning.

Ophthalmologists know that they are professionals; they just cannot describe what professionalism means. Professionalism is defined from within the profession. No place exists for engaging in dialogue about what counts as professional; instead, the term ‘curriculum’ is more used by ophthalmologists to denote reifications in the form of documents and reports than it is to denote the lived experience of practice. It is simply a matter of having a written pathway for documents to travel from committee to committee.

What are needed are new themes, not new structures (Duffy 2006). Until recently this was a tacitly received view of professionalism in medicine. Competency based training is a vehicle for the attempted articulation of what counts as being a professional. However, it is anathema to speak of basic levels of competency when the ethos of doctors is one of practicing with the highest standard possible in any given situation.

To talk of basic competencies is demeaning to professionals because being professional is to strive for excellence. The lifelong learning of doctors must be based on excellence in practice, according to Hilton and Southgate, to which reference was made earlier, in Chapter 2, Literature Review.

*Medical professionalism in today's society requires the exhibition of a range of qualities deployed in the service of patients, rather than more traditionally defined aspects such as mastery, autonomy and self-regulation. These qualities incorporate demonstrated clinical competence; aspiring to excellence in practice while demonstrating humility and recognition of personal limitations; exercising professional judgment; and maintaining a fiduciary relationship with patients by the earning and maintenance of trust... (T)he acquisition of medical professionalism...has...implications for educators across the medical education continuum, from undergraduate curricula to revalidation and continuing professional development. (Hilton & Southgate 2007)*

It is a finding of this study is that it is not possible for doctors to name minimum competencies when they are required to aspire to excellence.

### **9.2.3 Teacher development**

Within ophthalmic culture, teacher development does not have an established language. For instance, at the curriculum meeting the leader of the supervisor group expressed awkwardly and without familiarity with the appropriate language the need for supervisors to supervise, saying: ‘we (the ophthalmologists) are asking the supervisors to supervise the competencies that we’ve set out in the curriculum’(male trainer, CR). In contrast, there was considerable recognition that a

supervisor can facilitate a trainee's learning in many valuable and possibly new ways. This is demonstrated in the expanded quote below where he talks about all the issues surrounding training, and at the end mentions teaching skills:

*We probably need to look at the resources available, time resources, financial equipment, support resources, resources in terms of processes within the College, say for dispute resolution that the supervisors may be able to call on. We need to look at selection of supervisors and as we pointed out, that assumes there's a great abundance of them from which to select, but it is still an issue that needs to be looked at, and with that their training. To a large extent we are asking the supervisors to supervise the competencies that we've set out in the curriculum. We believe ophthalmologists should be able to do all those [competencies]. We do not all know [all] of those and we may need to lift our skills in all those areas, specifically, and then generally acquire the skills to be able to teach and train effectively. [male trainer, CR]*

The teaching and learning team made many assertions as to how the trainees might be taught the competencies. This is manifest in the internal RANZCO CRC document discussed in Chapter 4, called the Lancemore Hill 'Supplement to the Draft 1', circulated to all Fellows for comment in 1997, which lists the way the competencies might be taught. This document often proposed that the competencies should be taught through 'mimicking their seniors', suggesting that the general view is that the seniors already possess these competencies or will acquire them as part of the process of implementation of competency based training.

The goal of producing competencies, however, is to make part of practice less tacit so that those parts can be better laid open to scrutiny. The competencies can form the basis for better teaching and for more precise assessment tasks. They can also be converted into a form that can be counted by administrators. This requires that the culture of teaching become articulated, and that is another task altogether.

#### **9.2.4 Curriculum leadership is androcentric and Eurocentric**

The curriculum review meeting comprised 30 participants, one of whom was Asian and 23 of whom were male. The transcript demonstrated that approximately 70 per cent of the lines of transcript were spoken by only three senior white males from the group. These three men came from leadership positions in the College and in academia. This demonstrates that at this meeting, curriculum leadership was androcentric and Eurocentric, despite purportedly being representative of the entire body of ophthalmologists.

Male sociability is highly valued in ophthalmic leadership. The governing board and leadership committees in the College commonly comprise all-male membership. This homogeneity is likely to contribute to the difficulty of accepting a need to articulate the elements of curriculum and name the processes of teaching and learning. When the profession is made up of men from a monocultural background and similar social status, the shared values are unspoken and provide the foundation for the transmission of knowledge and skills. Difficulty arises when either the membership of the

profession, or the needs of the population, shift in such a way that shared tacit values and knowledge can no longer be assumed.

Reformers of medical education aim to break through some of the aspects of the culture that no longer serve the members of the profession or the populations they serve well. Freymann proposes that understanding the origins of how things came to be the way they are:

***is the essential first step toward rectifying the illogical aspects of modern medical education and health care. (Freymann 1981)***

Included in the origins of medicine is an element of Eurocentrism and androcentrism and understanding how this came to be and how it is different now must be taken into account when seeking to understand the forces operating within medical education debates.

## 9.3 Critique

Critique may be delayed in apprenticeship until the master is ready to allow the apprentice greater independence (Lee 1996). Through a lack of capacity to critique, a pedagogy of deferral is, potentially, something that might last well into the graduate's early experience (Lee 1996). Where this is a core feature of training, it can give stability, but at the same time it can confer insularity and stasis. A lack of capacity for critique is not only about the content of the work of patient care; it is also about the trainees' conditions as workers:

*They just rely on the fact that their trainees don't make a fuss. I think so. That goes to that apprenticeship/master based system where apprentices don't kick up a fuss because they [would get] kicked out. And then when they're masters they don't care. So the life of the apprentice never improves. But I think there's a lot of that in medicine, that people would like to make a fuss but it's all a bit too hard and they know they're only going to be here for a few years and just get through it. Get to the other end. I'd like to think that I would be a consultant that would support the registrars. When they say something's not working right or something needs to be changed, I think I'd like to be someone that supports them rather than goes against them. And there's certainly lots of ophthalmologists who tend to support us. But they're probably not in [the majority]. [male trainee, P307]*

Critique is not part of the culture. The apprenticeship form makes it difficult for trainees to challenge the values they are being taught, even if they can see them as needing reform. The training requires that they defer critique of the curriculum until they are consultants, and this part of the medical tradition poses problems for doctors who try to deal in complex chronic health problems. It seems that such a deferral is a theoretical feature of the apprenticeship system of mimicry of seniors, as described by Lee (1996:223) as a 'pedagogy of deferral', and confirmed in this study. There is a requirement for mastery of a surgical genre *prior* to its critique. The literature on mastery suggests that lack of critique may be inherent philosophically in the acquisition of mastery according to Nietzsche (Rikowski 1999). Inevitably, a conservative pedagogy of deferral results. If mastery of knowledge held by 'a senior' is a prerequisite for certification, and such mastery requires intensive prolonged training, significant deferral of critique inevitably occurs. This appears to be the case in ophthalmology.

In conclusion, where there is a culture of no culture, myths can mask institutional contradictions (Wodak 1996). These myths make it difficult for insiders to see how any change might occur in their own culture. The concept of 'the culture of no culture' is relevant to the question of any expansion of the competencies of ophthalmologists outside the clearly technical 'medical expert' competency. It is this 'medical expert' competency that the 'vast majority' of learning is about. The relevance of this point to the management of chronic disease, and to increasing flexibility of training, is that opportunities for change are narrowed through silencing of debate. It is a myth that there is no educational foundation for training. In reality, the educational basis of training lies in its basis around work, rather than around the individual worker.

The findings in this chapter were that a culture of no culture exists in the data in relation to teaching ophthalmology. These centre on the everyday notion of teaching based in shared work, a central tenet of apprenticeship based training form. Such a naturalisation of teaching and attempted neutralisation of culture in the work setting appears to be a striking feature that silences talk of learning itself within ophthalmic apprenticeship. Although there are individual exceptions to the 'culture of no culture', it appears to be a serious constraint on those individual ophthalmologists who might be drawn to improving their own teaching in order to become better trainers. They might otherwise be drawn to alter their work practice and thus to alter the curriculum to train ophthalmologists.

This section, Section III, is about contradictions in the ophthalmic curriculum that are the impetus for change. The next chapter in this Section, Chapter 10, completes the data chapters of the thesis. It deals with a potential curriculum form that has, at its core, the potential for change. This is complexity based training.

# Chapter 10 Complexity Based Training

It may be that curriculum forms other than CBT or apprenticeship would provide a solution to some of the curriculum problems identified in this thesis. This chapter is about how change might be possible. Specifically, it looks at the complexity based training form as a potential solution to the problem of change in RANZCO.

The complexity based training form holds at its core the notion of systematic change through adaptation (Fraser & Greenhalgh 2001). A key notion is that of the complex adaptive system:

***Complex adaptive systems are omnipresent. Examples include human bodies and organs and cells, trees, and hospitals. 'Complex' implies diversity—a wide variety of elements. 'Adaptive' suggests the capacity to alter or change—the ability to learn from experience. A 'system' is a set of connected or interdependent things. The 'things' are independent agents. An agent may be a person, a molecule, a species or an organisation, among many others. These agents act based on local or surrounding knowledge and conditions. A central body does not control the agent's individual moves. A complex adaptive system has a densely connected web of interacting agents, each operating from its own schema or local knowledge. (Begun, Zimmerman & Dooley 2003)***

For this chapter, the corpus of data was examined with the lens of complexity based training theory to ascertain how complexity might be evident in ophthalmic training. Qualitative analysis revealed evidence of several tenets of complexity theory (Fraser & Greenhalgh 2001; Sturmberg 2007; Engeström 2003). The question for this chapter is whether postgraduate ophthalmic education might contain evidence of complexity based training already in operation, with its utility being its focus on the potential for change.

Back in Chapter 5, activity theory was placed in an ophthalmic context. It was noted that Engeström conceptualises change management through 'expansive learning', for example in a Finnish children's hospital outpatient clinic. He draws on activity theory (Vygotsky 1978; Engeström 2003; Kerosuo & Engeström 2003). The three-way diagram generated in that chapter is applicable to any clinical ophthalmic setting (see Figure 5-2).

Engeström's strategy for change rests on a 'sideways move' that draws from the contradictions that a group of practitioners' identified:

***What followed was a sideways move. Instead of trying to merge the possibly incompatible worlds of the 'scientific concept' of critical pathways and the everyday experience of the patients, a group of practitioners presented a series of alternative conceptualizations. (Engeström 2003)***

Complexity theory takes a different approach. It considerably extends this notion of a 'sideways move'. Activity theory has its historical origins in learning theory and vocational education, whereas complexity theory has an intellectual tradition that arose from the application of science to complicated systems. In complexity theory, it is not only 'alternative conceptualizations' by practitioners, including contradictions, that are important for change, but also a larger set of named concepts that are brought to bear on the problem of organisational and individual change. For instance, the complexity list introduced in the Literature Review (Fraser & Greenhalgh 2001) includes the fact that neither the system nor its external environment are, or ever will be, constant, and that individuals within the system are independent and creative decision-makers. Uncertainty and paradox are inherent within the system.

Fuzzy rather than rigid boundaries, internalised rules, inherent non-linearity are further terms used in complexity theory. In complexity theory, what would be called 'contradictions' and sources of 'expansive learning' in activity theory would be treated as 'paradoxes' and 'inherent unpredictability'.

Complexity theory has been applied to the analysis of how medical education might respond to the increasing centrality of chronicity of disease (Plesk & Greenhalgh 2001; Sturmberg 2002). In brief, a complexity based training form would mean that the capability of trainees would emphasise adaptation, and there would be greater attention paid to the extent to which individuals can adapt to change, can generate new knowledge and can continuously improve their performance (Fraser & Greenhalgh 2001).

Finally, as well as holding great potential for moving forward on problems of chronic illness in ophthalmology, complexity theory might potentially address two further specific features that are at the core of this thesis: the student population and the student experience (Plesk & Greenhalgh 2001:803). Under traditional education and training, the student population was homogeneous, specifically 'young, intellectually elite and full time'. The student experience generally 'precedes definitive career choices and personal relationships'. By contrast, in the future for education and training, the student population is 'heterogeneous and shifting, with a wide range of ages, social and education backgrounds, abilities aims and expectations'. The student experience is of lifelong learning which means that 'education converges with, and is influence by, work, family and personal development' (Plesk & Greenhalgh 2001:803).

## 10.1 Adaptation

A major feature of complexity based training is adaptation. Since the core focus of education rests on both changing doctors as individuals and changing the profession as a whole, it is useful to divide this notion into adaptation by individuals and adaptation by the profession. Adaptation also occurs where there is external input, in relation to which the boundaries of the profession's activities are fuzzy.

The trainees in this study of ophthalmologists showed adaptation repeatedly. In the data they show that they adapt to their circumstances and continue to learn what they can on the job through whatever they experience at work as a trainee. However, there is also some evidence that the profession as a whole is adaptive. Most participants were silent on the need for change despite prompting in the interviews, but this was not universally the case.

Continuous improvement of performance is recognised as a collective trait by the profession of ophthalmology, which also fits with its embeddedness in multiple communities of practice, rather than a single community of practice alone.

*I think RANZCO has an opportunity to expand collaboration and communication with colleges that handle chronic diseases [in] understanding the differences. I think that RANZCO kind of led the charge here, and I think a number of other colleges have woken up to what's going on. I think the College of Surgeons has certainly woken up to it, [but I] don't see much cross-fertilisation occurring at this stage between other specialities which actually look carefully at chronic diseases. [male trainer, P321]*

This data shows that the profession does appear to self-organise and, there is evidence of adaptation to what other colleges are doing in relation to AMC accreditation. There are comparisons made, for instance, with the College of Surgeons, a closely related surgical college.

### 10.1.1 Fuzzy rather than rigid boundaries

Complex systems typically have fuzzy boundaries. In mechanical systems, boundaries are fixed and well defined. Unlike a patient care consultation, for example, knowing what is, and is not, part of a car is no problem. 'So I mean it's not sort of like learning to take your car apart' (female trainer, P313). 'Knowing what is and is not part of a car is no problem' (Plesk & Greenhalgh 2001:625). Professional systems are more complex than cars.

*Master apprenticeship? Yes. I would say that you see [a lot] and then decide what you would take on board and perhaps what you won't take on board or like to do differently. So, yes, it's not just learning tasks, its learning approaches to problems and approaches to people. So I mean **it's not sort of like learning to take your car apart** or paint, it's sort of a bit more complicated than that.*

*Because people are involved and if you've got people [involved] then it's not a thing, and I'm talking not just about the patients, the registrar, consultant and the patient, there [are] three people involved in those interactions so it's much more complicated than learning how to take the car apart and put it back together again. Because everybody will have different expectations and the registrar will come from a lot of reading but not much experience and the consultant will come from experience but not be able to take on the reading, so there's all these different things going on. I think it is very important, I think you as a pupil learn by watching the interaction between another doctor and patient. A perfect example. It's valuable, as you can see how people respond to different questions and you know just approaches. We've all worked for different bosses and people do things very, very differently. I think being exposed to a whole variety of different levels of approaches is really a good way to learn. [female trainer, P313, emphasis added]*

As another trainer put it more succinctly: 'There are toss ups (in ophthalmic patient care)' (female trainer, P301). Membership can change and agents can be simultaneously members of several systems. This can complicate problem solving and lead to unexpected actions in response to change.

Collective responsiveness to societal change on the part of the organisation to which the community of practice belongs was rarely explicit in practitioners' descriptions of their work, see below. They focussed instead on individual patients. This is specifically an area of teaching and learning to 'impart onto the registrar' (female trainer, P207). This responsiveness to the long-term welfare of the patient is a complex issue for ophthalmologists to manage. Its subtext is teaching complexity to the trainee, and it becomes translated into actual clinical practice through the topic of making good technical decisions while training together in the operating room and through adapting to operative and teaching challenges as they arise. 'I don't have a lot of complications that I am hassling with for years and they feel bad about' (female trainer, P203). The data highlights too the relative absence of public outpatients in some Australian states:

*We need to look at the whole patient and watch them walk in, be interested in what they are wearing and how they are walking and how they sit, how they speak to you, if they sound anxious or not, use our intuition a lot more I think. That's probably terribly sexist and you'll never use it but I do think that [as a female ophthalmologist] I bring a softer element to the practice. A lot of the patients that we see in Clinics I'd know because I've been there awhile and I would know what their background was and I could **impart onto the registrar** how important it was to consider the family background. [female trainer, P207, emphasis added]*

*But that's what's the patient is complaining about. That's what you've got to deal with. [female trainer, P309]*

*Well we don't have patients walking in off the street at [teaching hospital] into the Eye Clinic. We don't have a big outpatients. It tends to be a sort of tertiary referral type place [there] at the moment. It hasn't always been like that but it is as the moment. So that these patients are actually patients that come to my rooms and they choose to be public patients and so they have their operations done at [the teaching hospital]. They go to a pre-admission clinic and they come and have their operation and they are followed up at [teaching hospital training post] for three—four weeks after the operation. They don't keep going back there for years. The cataract operation does have a few natural steps so that the wound's got to be right. If I am not happy with it I'll make them make another one or else I'll start again, so the wound's really important.*



*Then the capsulorrhexis, if we're not happy with that I'll step in and then go step by step through the hydrodissection, the 'phaco' [phacoemulsification], and then the I/A and putting in the [intraocular] lens. Sometimes you'll get a short eye or the incisions in the wrong place and if you start off wrong it's never going to get better, especially if you don't know the registrar. I have found for us that works and I don't have a lot of complications that I am hassling with for years and they feel bad about. [female trainer, P203]*

There are a number of 'fuzzy' professional boundaries, such as ophthalmic skills that move from mainstream clinical practice into such areas as public health advocacy, policy-making and ethics. While these are essential for the profession to adapt to the evolving social environment, they are also ill defined by comparison with mainstream clinical practice. Competency based training is an attempt to bring these knowledges into ophthalmic training. The advantage of knowing that this data fits with complexity theory is that the ambiguities inherent in the fuzzy boundary of ophthalmic knowledge and practice point to areas where change to ophthalmic practice might occur in the future. Educators aware of such areas may include these explicitly in their teaching practices (Mulcahy 2000).

In summary, the statements from the trainer above fit the complexity model of training. They identify that professional boundaries are fuzzy rather than well-defined and that professional boundaries are being reassessed through the curriculum review process. The statements suggest that medicine is not a linear, predictable system with predictable outcomes. The following points about the complexity of practice also apply to ophthalmic work and its complexities:

***Our point of departure is this: medicine is not a coherent whole. It is not a unity. Instead it is an amalgam of thoughts, a mixture of habits, an assemblage of techniques. A heterogeneous coalition of ways of handling bodies; studying pictures; making numbers; conducting conversations. Wherever you look, in hospitals, in clinics, in laboratories, in ... practitioners' offices: there is multiplicity ... That medicine is full of diversity is not a novel observation. ... We proceed not just by exploring the ideals and ideas of medicine. We also investigate its practices and performances. The manipulation of fluids and numbers in the laboratory. The physical examination of suffering patients. The filling of forms, lots of forms. Doctors and patients who talk. Meetings where professionals make plans or draw conclusions - pointing their fingers at pictures or graphs. ... (There are the) disputes and resonances ... (The) partial connections (Mol & Berg 1998)***

Many of the variables are unknowable, and professional judgement occurs under conditions of uncertainty. The example of tele-ophthalmology below, conducting a medical consultation by telephone, demonstrates further that the boundaries of what counts as ophthalmic practice are fuzzy rather than fixed. These data suggest that ophthalmic training is usefully conceptualised as a complex adaptive system. A fuzzy boundary then is whether telephone consultations form part of the routine duties of the competent ophthalmologist or not, and what trainees ought to be taught about this topic.

One trainer believed that having skills in ophthalmic care for all ages was important. She also taught that providing care beyond those cases where remuneration was high is an ethical way to practice ophthalmology.

*I had a registrar who told me point blank that he would never look at a child under two in his practice, he didn't have to, he came from somewhere where he wouldn't have to do any paediatrics if he didn't want it. I really was disappointed in that because I think ophthalmology is such a wonderful profession, such a wonderful field that you should be interested in every aspect of it and it is a pity when a registrar already in his fourth year has made a decision without ever experiencing [something different]. I think that's a shame, I think they should be a little bit more open to looking at all the fields of ophthalmology and not just the cash flow ones which I suppose are anterior segment stuff. [female trainer, P207]*

Registrars learn to cater well with some contradictory and hence paradoxical messages, including about attitudes to communicating with patients. This registrar at the journeyman phase gave two examples taken from consultants she had worked with:

*How to deal with complications? You know there's different ways in which people deal with the same problem so the first thing [to know is that] management is definitely taught by seniors. A good example of this is raised intraocular pressure following cataract surgery. Be it from retained visco-[elastic] be it from another cause. I have worked with some people who have said to 'burp the wound' and other people have said 'never to burp the wound'. Like never release aqueous from the wound, in [order to] lower intraocular pressure because it's a transient effect. Different people I have worked with suggest different things and some people take a great deal of time to explain what they are doing to the patients and other people don't. [female trainee, P306]*

A city hospital specialist adapted her teaching to local needs. She indicated that she talked her trainees out of speaking on the telephone to patients (P301). Another disagreed:

*Right, I consider myself a generalist. That is, I do everything in ophthalmology as much as I can and I like them to have a good idea of problem solving skills and be able to deal with most situations. You know sometimes we have to transfer patients down to [city] and I like them to be able to understand when we should transfer and when we should deal with the problem. I also like them to understand, we get a lot of Flying Doctor service calls and people from outback who have no other contact, and how to deal with those GPs who are on their own and don't know what they are dealing with and **you've got to try and help them over the phone**. That's a real skill that you have to learn and I've always sort of opted for the conservative approach that is if they are worried get the patient down and we'll have a look at it together. I think I centre mainly on clinical skills rather than on theory. Theory for me is: they're better at it than me because they've just done the study and they've done all the hours in most cases. In some cases they are only junior and that's a real disadvantage I think. I think this position here in the country is really geared for people who need to have practical skills on top of their theory. So they have a sufficient base to really hone their clinical skills is that what you mean? What I am saying is that they've got the basic skills and they can go on from there and they can utilise them in a practical and good manner, a sort of everyday manner. [female trainer, P207, emphasis added]*

Medical practice is complex. Saying that the trainees learn to utilise skills in 'a sort of everyday manner' means that they are adapting their skills to the local setting. Seemingly trivial local variations can lead to a big difference in outcome. Because of complexity, there is an inherent unpredictability in the manifestation of the actual care that results locally.

There is a competing demand to see signs oneself and to take full professional responsibility, against relying on another doctor's experience of signs. This ophthalmologist saw her responsiveness to the community as a greater one than seeing the patient personally to confirm the signs herself. This would have meant the patient travelling a far distance, such as several hundred kilometres. The trainee is learning how to support another practitioner in providing good locally adapted care.

*[Can you tell me exactly how you take the registrars through that?] There are various ways, firstly I say to the registrar often, the first thing to do is to be approachable at all times. If they have any concerns they are to ring me and then get back to the GP involved so that they never have to make a snap decision that later on they regret. Say 'Look I'll think about this and get to my consultant: I'll come back to you with an answer'. Things I like to point out to them are that these GPs are alone and they need a lot of guidance and the things you shouldn't do are shut the door to them or refuse [to see] the patient or refuse to help or advise. Try to teach them to be tolerant and even if they really can't understand themselves, in that case they should opt for the path [of] at least 'Just send them down'. [That will] cost a little bit more but at the end of the day they will learn something. [female trainer, P207]*

She gave detailed examples:

*There are specific examples like in history taking from the GP often you have to guide the practitioner in—how to give a reasonable history, for example. They will say to you 'Oh this patient had a trauma and can't see out of the eye'. Now a common mistake is, and you'll laugh at this. You say 'Well could they see out of the eye beforehand?' and they'll say 'Oh I didn't ask that' and a few moments later 'They've always been blind in that eye'. That sort of alters the whole management and that has happened to me more than twice. [I teach them] to guide the GP through a reasonable history. They are ringing up often a little bit daunted and you just have to take your time and guide them through a proper history taking and proper examination to get an idea of what's going on. It can be very hard. So I try to talk to my registrars and say 'Look, take your time with them, start from the basics'. Don't forget to ask some basic fundamental questions like 'Have they had trauma beforehand?' 'How long has this been the case?' Just general history taking method that you learn in fourth year medical school. Sometimes we forget it when you are approached as a registrar or a consultant by another person, a colleague, you forget to go to the basics again because you assume it's already done and [yet] sometimes the vision hasn't even been properly taken. They haven't taken it with glasses on sort of thing. It's just pointing out the basics to them. And you also set some guidelines. For example, orbital cellulitis, you may not think it is necessary to go to [hospital], but sometimes you do. Orbital cellulitis: twenty-four hours on antibiotics, not getting any better, getting worse? Okay you'll have to start them on IV. 'You'd better send them down'. So it is just taking them through the basics and mak[ing] them aware that they've got to keep their door open for general practitioners to be able to refer down. [female trainer, P207]*

In the large teaching hospital, on the other hand, a different local adaptation is evident. It is difficult to develop a relationship with a patient over the phone and the consultant from the city hospital advises the registrar, contrary to the above local adaptation of work, against giving telephone advice:

*The patients seeking advice on the telephone? I think you have to be very strong in that **you shouldn't really give advice [to patients] over the telephone at all**. Or for that matter to colleagues. So I will always say that I would need to see the patient and no matter how much you think that you probably know what's going on, much better to insist that they come in and see you in your rooms or where you practise. And that particularly goes for colleagues and family*

*members who just want advice. Again, I think you'll run into trouble unless you actually treat them as a proper consultation and do it properly. So my advice to a registrar or trainee would be: Don't be prepared to give advice over the phone. And the other thing to remember is that there are a lot of confidentiality issues and you want to make sure that you're really talking about the person on the other end of the phone and they're not ringing up for a friend of a friend and you're going to get yourself into trouble by giving advice to **someone whom you shouldn't**. So I think it's again natural, to give advice over the phone rather, except for very basic advice, [but] I would not want people to do that. [female trainer, P301, emphasis added]*

In another setting, by contrast, the trainer above explicitly taught such skills to her trainee as a mark of good practice in a provincial region, to save patients having to travel long distances for a face-to-face consultation. Each trainer adapted her own interpretation of the professional norms to her local setting, and taught the registrar about these interpretations.

These examples suggest there are no rigid boundaries in curriculum development. The people involved may often be wearing several hats. The researcher, for instance, was wearing an 'evidence based medicine hat' in the eyes of some of the participants as she was known to have an interest in this topic. The following participant knew of this interest in curriculum development around evidence based medicine. He is himself interested in developing RANZCO curriculum, in ethics. Both evidence based medicine and ethics are examples of new aspects of curriculum, which we each believe to be currently under taught and under examined, both adopt a higher order approach to clinical practice, and both take high moral ground, ethics more clearly so. Both topics can be intimidating to a certain extent to some without these skills who might be expected to teach these topics.

To support the inclusion of these topics in the curriculum reminds teachers of a contradiction. They might be expected to teach new topics if they are introduced, but they may not feel adequately prepared to do so. For those advocating curriculum change this expectation is a bind. Simply rehashing old material is seen as serving no purpose and, frustratingly for those wishing to innovate from within: there seems little avenue for critique, novelty or growth. Competency based training does not seem to be the answer to the participant quoted below, because it fails to address this contradiction. The researcher had asked him how he envisaged change might happen.

*I need a little time to think about what could be a new way of doing it. What I want to know [is] 'Are we going to be any different from what we were before?' And, much of the areas that have been dealt with are what has been done before. It's the new areas, which you are attempting to do, the ethics and the others that are going to be make the curriculum a better process or the people at the end of it will be better products, if I can use that sort of word, because we have attempted to articulate ethics. They were doing that before, [although] they weren't doing it an*

*articulated conscious form. They were doing it all the time, as we all were. So in a sense I could say there are good things coming out of this [move towards CBT] because it [is] actually [following] what it is that we require or we think a good ophthalmologist should be. There's positives in that and if that's what it's about that okay, that's fine. But are we being driven by an external process? To me that means we have failed in the first place, why weren't we doing this before that? It's a little hollow that we have to be driven by the threat by the year 2006 or 2004 that we have to have everything in place. How sad. Why didn't we own the issue before that? [male trainer, P304]*

Despite apparent internal stability, the profession of ophthalmology is simultaneously complex and adaptive in some respects. For example, the College accreditation documents were prepared with external accreditation as their prime focus, which meant there was little pressure for much adaptation within the organisation itself:

*I think medicine is three dimensional or if you like four dimensional sort of experience; it's not just something you can put out two dimensionally on paper and pass it, because there is all that wisdom that you gain with experience. Managerialism says we can satisfy the requirements of the community to the Australian Medical Council by [saying] 'Oh yes you've got that there in place and therefore it should happen', but there is no guarantee it will happen. So, is the body of knowledge at the end of it any different from what the body of knowledge was before? Well we could argue here by looking at the curriculum that we have in past ignored such things as public health or advocacy or politics or whatever. [male trainer, P204]*

The trainer quoted above recognises that ophthalmic practice is 'four dimensional'. The multidimensional nature of a system fits with complexity theory. The emergent complex system which makes up ophthalmic practice needs more than laying out a prescription for practice in two dimensions, on paper.

### **10.1.2 Multidimensional and emergent**

Curriculum outcomes may remain stable even while the organisational documents satisfy an external body seeking internal change. Along with other factors, this points to the multi-dimensionality of the training program.

Apprenticeship theory would predict that it is the stability of the work done that is at issue, and the data in this study provides evidence of forces maintaining stability more than of forces for potential change. However, multidimensionality means that change is much more likely. Complexity theory describes curriculum as multidimensional and emergent, just as practice is recognised as multidimensional, live and emergent. The trainer's quote above: 'I think medicine ... is a four dimensional ... experience' (male trainer, P204), describes ophthalmic curriculum assessment explicitly as multidimensional, supporting the notion that complexity theory may have something to offer to ophthalmology.

He points out, for instance, that a lifetime of complex experiences contributes to a trainer's knowledge, and one gains the sense that he knows he is teaching and learning complex practice through repeated experiences in a complex, multi-dimensional and emergent environment. This experience is put into practice again and again. Despite its reiteration and complexity, much of this learning remains 'unsayable'. This does not mean it is unimportant, in fact such knowledge and expertise is clearly very important, but it does say that clinical practice is complex, and experience leads the practitioner to understand its complexity more and more fully over time. The next day's practice is always to some extent unpredictable, expertise is emergent, and 'predictably unpredictable'.

Neither trainer nor trainees know the exact future of ophthalmic practice. Trainers do however try to anticipate what skills trainees might need. This must happen even where trainees do not understand why they must learn such knowledge. Trainees must surrender to this, and must wait until they are qualified before they adapt the knowledge they have learnt to their own independent style of practice. There appears to be professional conservatism, a manifestation of forces for stability, within this complex educational system. The trainee quoted below describes himself simply as a 'mirror' of his bosses. He is told to defer refining surgical techniques into his own until after graduation as a consultant. The same principle seems to apply to critique of one's developing knowledge in general. This aspect of the culture appears to stifle critique by trainees, yet the trainee's presence is both a risk to, and a benefit to, the stability of the profession:

*Not that I am comparing surgery to carpentry or anything but it's a manual trade, its dexterity. You only get as good as you see from your bosses. You learn techniques from people who are better than you. I think right now I am just a mirror. I reflect what I see from the bosses. He had taught hundreds of registrars ... and knows me well. [He said to me]: 'Later on when you are by yourself, you might be able to refine the techniques into your own'. [male trainee, P303]*

Trainees face the contradiction that they will need to be prepared to be adaptable enough to face this future of unpredictability, while simultaneously learning professional conservatism. This is a complex task for them. They need sufficient grounding in a broad range of ophthalmic skills, including some of contentious skills at the boundary of mainstream practice, such as retinoscopy and paediatrics. It is as if they are learning to be members of a profession that looks at its own 'fuzzy' boundaries.

The process of curriculum development occurs in a complex adaptive system. The system is complex too in that it involves a large number of stakeholders including the trainers

and trainees, the hospital administrators, the patients and the public. Learning experiences emerge from complex input.

One of the trainers responded to external pressure to change the ophthalmic curriculum to include non-surgical skills by embracing the opportunity provided by external requirements for change. He saw the chance to provide ways of translating the input from outsiders into new forms of practice. ‘They probably need to be challenged with people who are not ophthalmologists but other groups so they get interaction ... they need to get some of the other public processes and thinking’ (male trainer, P204).

The trainer highlights the importance of balance in the curriculum: in his view, the trainees spend too much time learning cataract surgery when they need other skills as well. He believes that trainees reach a threshold of competence in one area, cataract, without even the most basic skills in another, public health advocacy. He also notes that challenge is part of the process of learning an important new skill. His point is that expansive learning about public health concepts will assist ophthalmologists in future to act more ethically because they have an awareness of resource allocation and other such areas of health policy that affect ophthalmic practice.

*In one way I think you need to do it and get people to think like that and give them projects. You don't just expose them, you give them things to do and they've got to then get challenged. **They probably need to be challenged with people who are not ophthalmologists but other groups so they get interaction**, whether they are other people doing a public health degree or whatever but **they need to get some of the other public processes and thinking**. I think that's important, more important than doing 300 cataracts, I mean once you've done 120 and haven't got it then you haven't got it! [male trainer, P204, emphasis added]*

The trainer is saying that a complex balance needs to be struck between the internal and the external drivers of the curriculum. There is a contradiction here that the internal norm may be a degree of complacency around learning the public health aspects of ophthalmology, and the systemic aspects of day-to-day clinical practice. These lessons are difficult for clinicians to learn. It takes emotional effort on the part of the practitioner to take up this pressure, to internalise it, and to adapt it into practice. Medical practice is not simply science applied to an object. In the quote below the consultant is encouraging the registrar to identify the rights of the patient to autonomy in their own health care:

*I think it's very important that we don't get defensive about when patients want to do that—a patient has a right to have a second opinion and so I would tell my registrar that if the patient is requesting that, then of course you should be very cooperative and offer an appropriate second opinion. And be prepared to write a letter to that person that they wish to go to because at the end of the day they do have a right to have a second opinion. It probably means that they're not happy with how you're going, so you might take an opportunity to ask them if there were a problem if there's any more that you could do so they were happy with your advice. And probably*

*take time to reflect about why the patient is asking for a second opinion, and so wonder whether you've actually managed to talk with the patient and explain what the problem was. [female trainer, P301]*

Here the consultant is aware of the complexity of medical practice. She has learnt how to encourage the trainee to use a prompt from the patient to reflect on his or her own care of the patient, and on the possibly defensive impulse that a doctor might have when a patient requests a second opinion from another ophthalmologist.

## 10.2 Agent's actions based on internalised rules

In a complex adaptive system, agents respond to their environment by using internalised rule sets that drive actions (Duffy 2006). At a human level the rules can be expressed as instincts, constructs and mental models. Learning to explore the patient's ideas, concerns and expectations is an example of an internalised rule learnt during training that might drive doctors' actions. These internal rules need not be shared, explicit or even logical when viewed by another agent. For example, another doctor might act according to the internalised rule that patients come to the doctor for a scientific diagnosis.

Some examples of possible internalised rules in the data might be that the curriculum ought to run like a machine, that the College needs to protect itself from outside influences, or that patient's voices ought to be heard, and that public health approaches ought, or ought not, be included 'they need to get some of the other public processes and thinking' (male trainer, P204).

According to Ruth Wodak, one of the common myths present in teaching hospitals is that the patient is an insider. She demonstrated that the patients are in general bewildered by the complex goings on in the teaching hospital, and feel uncomfortable and disempowered. The general point is that contradictions are a clue to competing values that the community of practice must both live with, and also capitalise upon. These contradictions contain the potential for change.

*Institutions have their own value systems, which are crystallised in the form of particular ideologies. However it is important to distinguish between the explicit demands and expectations of an official institutional ideology and the implicit rules underlying everyday behaviour. These two sets of norms often lead to contradictions. Such contradictions are disguised by 'myths', and in this way become legitimised. ... Both insiders and outsiders are expected to believe [these myths] ... which mystify reality. A second reality is thus constructed and naturalised. A striking example of this in medical institutions is the great knowledge that doctors are assumed to possess and their alleged infallibility. (Wodak 1996:10)*

Agents and the system are adaptive in the systems described by complexity theory.

Because the agents in it can change, a complex system can adapt its behaviour over time.



Adaptation can be for better or for worse, depending on whose point of view is being considered. Rees & Richards (2004) point out that clinicians understand the need to educate for capability in addition to competency and suggest this is transmitted via role modelling. One of the aspects of role modelling is in learning how to perform procedures.

In the quotation below the trainee is describing how he adapts his own technique from seeing several others. He is not just mirroring or role modelling one single supervisor, but making a selection of role modelling from an array that is constituted from a whole system of supervisors. The trainee's ultimate skill set is not strictly predictable. In this sense, the trainee is learning in a complex adaptive system.

*[So the mirror?] I hope so... I don't know. I mean I ask them to show me how they do it and then I try and do what they do and then I might take little bits of one particular technique and then add it into my technique so it's like a mirror in some ways. [In some ways? How does it differ to a two-way mirror?] I guess it is different because I am going back to a baseline to add to. So I am building on something. On your own sort of idea about what I think I am doing. I think that's what I do with most of the consultants. I take bits of everyone's. [male trainee, P303]*

According to complexity theory, systems are embedded within other systems and co-evolve. The evolution of one system influences and is influenced by that of other systems. Any health centre is embedded within a locality and the wider society, and these also play a part in the patient's behaviour. Our efforts to improve the formal system of medical care can be aided or thwarted by these other, more informal, 'shadow systems'. Since each agent and each system is nested within other systems, all evolving together and interacting, we cannot fully understand any of the agents or systems without reference to the others.

While in clinics, the trainees see numerous aspects of variation in clinical practice, and in teaching practice. The trainee in the quotation below points out that not all teaching hospital consultants teach, and that not all consultants will bother teaching about all patients, and that what you can learn from a simple case of 'dry eyes' varies enormously. The point here is that even though there are internalised rules that consultants must teach as it is a duty, they do not, in reality, all do so. The 'culture of no culture' in relation to a teacher identity for ophthalmologists appears to suppress open discussion of this factor.

The trainees are adaptive in that they know and act on this knowledge, and continually test out the consultants with this in mind. They also know that simple problems are scoffed at by some consultants, whereas other consultants will teach them about seemingly simple problems. This is an example of a curriculum as a complex adaptive system because a dynamic, emergent, creative and intuitive view of the world is at work,

rather than a reductive system that simply reduces and resolves problems in clinical care, service organisation and the hospital's teaching role (Plesk & Greenhalgh 2001).

*I'm second year. And I think that's where you see how some of the other registrars would go about things, what they do, how they talk to the patients, how they give advice, the particular advice that they give. So for a dry eye some people just tell the patients take some lubricants and go away. Other people will explain in quite an amount of detail about lid hygiene and gland dysfunction and going into it as a sort of a five-minute spiel. Even one of the consultants in a general eye clinic actually got me in just to, I guess watch how he explained dry eye to one of his patients and he told me that was how he did it. That was I guess my lesson for the day. [But how did that consultant know that you wanted to know about it?] I don't think he did know. He just assumed that I was a first year trainee and that was something I needed to know about and he was just going to show me what he did and how he explained it to patients and let me see if that was something that I'd take on board. And I don't think there was any expectation that I would think that that was the right way or the only way, it was just an expectation that [that] was one of many possible ways to deal with a common problem. [male trainee, P307]*

There are many complexities to the expectation that ophthalmologists will keep teaching in mind in the teaching hospital. One trainee notices that, despite some professional pressure to do so, for a number of reasons unknown to the registrar, they do not all teach. Sometimes they will and sometimes they will not. This is a complex system.

*[And what surprised you? What did you learn?] What surprised me about that was that, unfortunately that was someone that was interested enough to bother to do that. It didn't really take much of their time. [How so?] I guess not all the people working in the clinics would think to talk to you about something that's perceived as being simple or even sometimes interesting things. Not all of them will do much teaching. There's probably a fewer group of consultants that do the majority of the teaching. [What proportion would you say?] I'd be completely guessing. There's certain consultants that will regularly get you in to do short cases and teach you about things in most clinics. And I know probably 25 per cent of the people do the vast majority of the teaching. And then there's others that if you go up and ask them a question they'll certainly expand on it and that would be the majority and then there will be a few people that are a bit grumpy and you don't really bother with too much. [Do they ever call you in?] No. I think there's probably three groups. There's a group of people that call you in regularly, so uninvited teaching, they just grab you and say 'What's this?' 'What do we do about it? What [do] you think?' and then explain what you didn't know. Then there's a whole, a large group which is probably the majority that if you go and ask them questions will explain the answer and use it as a bit of a teaching door. And there's probably a small group that are a bit—either don't like it or don't feel good at it or [are] just not really interested for what [ever] reason. They will just tell you the answer and that's it. [male trainee, P307]*

Tension and paradox are natural phenomena, not necessarily to be resolved. In complex systems, the seemingly opposing forces of competition and cooperation often work together in positive ways. Fierce competition within an industry can improve the collective performance of all participants. There is also an insoluble paradox between the need for consistent and evidence-based standards of care, and the unique predicament, context priorities and choices of the individual patient. Whereas conventional reductionist scientific thinking assumes that we shall eventually figure it all out and resolve all the unresolved issues, complexity theory is comfortable with and even values such inherent

unresolvable tensions between different parts of the same system. This suggests that complexity theory has great possibility to expand the capacity of the ophthalmic curriculum to deal with change.

### **10.3 Inherent non-linearity**

There are a number of competing demands placed on trainees in the training program. It becomes evident to them that the teaching hospital lies embedded in a complex way within the ophthalmic community's wider networks. Even in their early years, trainees are put in the role of providing a second opinion for patients whose first opinion was from a fully qualified and often very experienced ophthalmic practitioner out in the community.

This occurs to a first or second year trainee, late at night, in the least supervised part of the hospital, the emergency department, and where the most senior person 'on' may well be another trainee only one year ahead of the trainee in the program. It could even be that the trainee is pre-training, a non-accredited trainee.

The point is that such non-linearity is not necessarily incorporated into the teaching program. The system is complex. There may be a paradox. The following is an example of a contradiction faced by the profession, the registrars and the training scheme.

Cataract surgery is performed for failing vision. Failing vision occurs gradually and asymmetrically, due to cataract. There is no precise right time for the operation. Cataract can be detected on slit lamp examination even while the vision is still normal, 6/6. 'The 6/6 cataract' problem means that patients are offered surgery, and not uncommonly operated on, by surgeons before their cataract operation is clearly necessary. The vital point is that the patient may not be informed of this elective nature of the cataract procedure. Sometimes there is no cataract at all, yet the patient is offered cataract surgery. This constitutes fraud. Sometimes, it seems, the registrar is the one to inform them of this situation, late at night, without senior peer support.

On the one hand, the trainees are perhaps not even meant to know about 'the 6/6 cataract' problem within the profession. However, the trainees soon discover that they are entering a profession where such fraud is a perpetual problem, noted back more than a century ago in 1858 in Australia (Winton 1992:147). On the other hand, they are asked to provide a second opinion about it in their first year of training by patients seeking a second opinion, at night, in the emergency department, with no explicit preparation for such a predictable

event, professionally supported at the time of the consultation by someone in the same workplace who is perhaps at most only one year above them in the hierarchy.

*I've had a few patients that have come into the emergency department sometimes late at night seeking second or occasionally third opinions. [Late at night?] After hours, and that's something I generally don't like doing. I try to explain to the patients that it's inappropriate to come to an emergency department and see a junior doctor for a second opinion and if they want to do that they should be going into a clinic and seeing [a consultant]. And these are for non-emergency type things. A more distressing one is when patients have been seen by a private ophthalmologist and been told they need to have cataract surgery when sometimes they might have very good vision and limited cataracts and they can't afford it and they come into the public hospital system and we've got to explain to them that actually we're not even going to offer surgery, let alone do the operation, which they've been told is urgent. [male trainee, P307]*

The registrar expressed his frustration at being in this dilemma. The researcher asked what he learnt from this experience of being asked to provide a second opinion. He learns the importance of being 'honest with the patients' and to be responsive to the patient, saying 'patients don't ask for surgery that's inappropriate'. The ethical principles of professionalism and respect for the autonomy of the patient are able to be translated into day-to-day language useful to members of the community of practice of ophthalmology through the example of a clinical teaching case:

*[And what would you say you've learnt from seniors about doing that management?] I think just **being honest with the patients** and sticking to the principle that **patients don't ask for surgery that's inappropriate**. The hospital offers surgery and then patients choose whether or not to have it. A patient can't come in and force the hospital to do something that's not safe. You can't walk in and say 'Take my arm off because I don't like it'. The hospital first has to offer a procedure and if someone doesn't need a procedure because it's not going to make them better and it might in fact make them worse then it's not clinically appropriate, then you don't even offer it. So you've got to explain to the patient why that situation is. [And how have you managed that and what's the reaction of the patient been?] Mostly the patient has been grateful because they don't want to have surgery. I mean that's something I think I've learnt a lot [about in] being a surgeon, is that I used to think that patients came to hospital because they wanted to have an operation, but the reality seems to be that most patients don't actually really want to have surgery. They're happy to have surgery if they think they need to but if they're told that actually they're probably going to be okay and they may need surgery later but they don't need it now, generally they seem relieved and happy with that. [male trainee, P307]*

This is a topic that requires mutual trust in order to discuss with their consultants. There is a paradox here. This is that the registrar needs some knowledge of the culture in order to provide the patient a good second opinion, and yet the registrar is not yet in a position to have learnt this knowledge.

*[And why after hours? You mentioned late at night.] I think that's just probably the ones that I recall because they seemed inappropriate a bit, that patients would come into the emergency department after hours for something unimportant like a second opinion. And just try to point out to the patients that it's an emergency department not a second opinion place and that we're junior doctors and the people that gave the first opinion are the people that we're learning from and getting advice from. [And what's the reaction you've had from patients about that?] One patient particularly got quite angry. At me. For saying that what they were doing was inappropriate. But other patients have sort of been quite accepting and saying 'Oh sorry'. They*

*didn't really understand the rules and are happy to be given an appointment to go up to the general clinic where a specialist can [see them]. I don't think I can give a second opinion for [in place of] a specialised ophthalmologist. I don't know if they turn up. I haven't followed up but I presume if they've bothered to come into emergency department and they want the second opinion they probably went. And obviously there are other options to go and see someone [in] private. [male trainee, P307]*

Another situation is where the patient is not satisfied with their ophthalmologist.

Considerable experience, which the registrar does not have, might be necessary to sort out whether it is an ophthalmologist's mistake, or a complex condition. The trainee to some degree faces a paradox. He has to decide whether to lean towards the primacy of patient benefit, or to lean towards loyalty to his chosen peer group. His lack of knowledge places him in a predicament.

*[And the angry person? Why were you mentioning that?] She wasn't particularly angry, she didn't swear at me or anything. I felt she got a little bit upset. She was actually coming in for a third opinion. She had one ophthalmologist, started treatment, seen another ophthalmologist, started a different treatment and continued both treatments and then come in to me for a third opinion. Saying that things weren't getting better and that the other ophthalmologist hadn't done their job properly. And I sort of tried to explain that you kind of get yourself in trouble if you do two different things. It's best to stick with one person. And they'd asked you to come back in this time and you didn't so you can't really blame their initial management. I guess they got a feeling that I was protecting my own or something like that, I don't know. [Your own?] As in looking after the other ophthalmologists I guess. [male trainee, P307] ...*

The trainee must face a patient directly and state honestly how much their loyalty to their peer group might be influencing their opinion. The trainee posits the problem as not knowing as much as a consultant would, rather than judgment in conditions of uncertainty being an inherent problem in medicine no matter how well qualified or experienced one becomes. The contradiction is resolved in the mind of the trainee as a pressure to continue training to avoid such dilemmas.

Tricky professional situations arise where there is no singular truth. The work the trainees do is difficult and poses conflicts.

*... [And were you?] I don't think so. [And what do you imagine an ophthalmologist that you [most] admire would do now in that situation?] I think that's a bit different because they probably would just give their second opinion, being a specialist. And I think if it was something that I was confident on enough to give a second opinion I probably would but I don't think there's really any area that I would be. Perhaps I would be confident to say someone who has been told they need cataract surgery and doesn't need cataract surgery if their vision is still good and I couldn't see a cataract and there's no sort of other reason. Like they didn't have particularly shallow angles or anything like that. But you know, I think if someone comes to a second opinion and you feel able to give a second opinion I think you have to. People are entitled to that. [male trainee, P307]*

The above transcript provides some evidence that would support the existence of complexity based training by describing non-hierarchical learning environments where

junior trainees are asked to evaluate and act on the management of their seniors using their own judgement as prime, rather than that of the seniors.

## 10.4 A complex adaptive system involves some feedback

The matter of feedback is also important to trainees. It illustrates that there is the further potential to conceptualise ophthalmic training as a complex adaptive system. Rather than it always being a trainer's role to initiate the process of feedback, one trainee noted that a trainer had suggested to him the advantages of actively seeking feedback. The suggestion was that the trainee himself ought to think about how to seek, receive and act on feedback; in fact, how to frame the potential interaction primarily with the purpose of learning for the individual trainee, or of the professional organisation as a whole:

*I mean the benefit for us is that we learn and in some situations where you'd think 'Gosh I hope I can get through this', and, you do. You have learnt from that. You've learnt more from that than saying 'Well can you please take over from me now'. That does slow your learning. But on the flip side there's also dangers to that sort of thinking. [So have you thought about this as you're training?] Definitely, [yes] because I tend towards being... I tend towards over-confidence than under-confidence. If there's ever a situation where I can choose to put my foot forward I'll put my foot forward. And I have had trainers caution me on that and just gently say 'Always ask yourself when you're in a situation, do I need to ask somebody else about this? Could there be another answer? Do I need to have another opinion?' And if I'm questioning those things then [I] do that, you know, [I] ring and I get advice. And I think that was good because those comments came to me in my first year and a half of my training. We don't take criticism lightly as trainees. Like it really affects us, well it really affects me anyway. I go home and I really think about it for probably three weeks at least, just tossing it over. And I go through this whole process of 'Why did they say that? Is it true, is it false, do I believe it, do I not?' [male trainee, P305]*

*The one thing they want is feedback, they don't mind as much as you would think if that feedback is not entirely positive. They want to work at their deficiencies. And I am very bad at giving people bad news. I acknowledge that, I accept that. I like to give everyone a pat on the back as they leave the training post, but I know I need to learn to do things differently. And I think our supervisors have to take on that responsibility. [male trainer, CR]*

*But we are not throwing the baby out with the bath water. ... That is why it has given you the impression in being more specific - that it has happened in tiny areas of what currently exists. But in fact what has been tackled has been built on what was done last September [at the prior curriculum review meeting in 1996] which was widely disseminated. But the mind set has not been to take what exists and modify it, the mind set has been to start afresh, and that's really the direction we're going. There may well be conclusions that we arrive at that what we do now in certain areas is quite fine and certain areas needed to be modified slightly, and other areas it needs to be modified radically. [male trainer, CR]*

The conservatism of the medical profession is exemplified in this quote (Lee 1996), as is 'a pedagogy of deferral' of critique. In a complex adaptive system, such conservatism is a force for stability. At the same time the trainees recognise that it is largely through their training experiences with more experienced colleagues, that enable one to work out 'what you're going to do in your practice when you grow up' (male trainee, P307). A lack of

experiences with explicit and authentic exchange of views may be evident, despite the trainee's attempts (P305). This state of affairs appears to be a feature of apprenticeship, rather than of complexity.

Outpatient care plays an important role in training ophthalmologists. Theoretical work on outpatients as a teaching site provides evidence of ambiguity where feedback is generative. These ambiguities are also called the myths of the institution. Outpatient clinic data has provided a large amount of data for this thesis. It is useful to speculate how feedback data from an ophthalmology outpatient setting might improve outpatient teaching. Room layout referred to in the discussion about the open clinic setting in Chapter 6, Apprenticeship in the Outpatient Department Clinic, was relevant to patients overhearing teaching in Wodak's study of myths in a Viennese hospital outpatient clinic.

*The hierarchy inside the hospital exposes the young doctors who staff the outpatient clinics to many pressures. Owing to the values and myths of the institution, they are expected to live up to the image of omniscience, although they are actually in training. Their roles require them to exercise, and embody, authority when they do not have the corresponding expertise. In many situations it is nurses who often will have worked in the clinic for years, who possess the requisite knowledge, yet they are required to package their greater expertise in a way that does not threaten the doctors overall authority. The young doctors are also subject to supervision by the senior doctors, who often enough revise decisions made initially. Misunderstandings of all kinds also occur constantly. To cite but one example, doctors confer about the conditions of the previous patient while another patient is waiting to be examined. This latter patient gets more and more nervous because he or she does not realise that the conversation is about someone else. Again it takes time to clear up such a misunderstanding. (Wodak 1996:171)*

Where misunderstandings of all kinds occur, there is uncertainty, ambiguity and complexity. Finally, then, the point of this quotation is to demonstrate that junior doctors, nurses, senior staff and patients all have a stake in an analysis of the complexities of outpatient teaching, and that useful sources of data for a complexity based analysis for ophthalmology are accessible, such as this study's interviews.

In conclusion, where practice is tacit, and education for such practice is also tacit, it is inevitable that some of its complexity is difficult to pin down. The data favours apprenticeship as the predominant model. However, an understanding that practice must not always be tacit, and awareness that individual and group change is possible in future, is also evident in this discourse analysis of the data. Rather than CBT's reductionist approach, anti- reductionist approaches to understanding curriculum appear potentially fruitful in also understanding potential for change.

Trainers give feedback to trainees. Trainers know that there are some areas of ophthalmology that are at the border zone of its domain of practice. Instances of

paediatric ophthalmology, refraction skills, giving telephone advice and second opinions, are examples of border zones. Some trainers taught these areas to provide their registrars with potential areas of expansion in their future careers. Additionally, the trainees learnt these areas because they saw those areas of practice as useful ones to the profession's future adaptation as a whole. These are examples that are indicative of complexity, and evidence that formal consideration of complexity based training may deal more effectively with the problem of adaptation. Neither apprenticeship nor competency based training seem as inherently oriented to change as complexity theory based training might be.

Ophthalmic training can be seen as having nascent evidence of being a complex adaptive system. Features of a complex adaptive system have been enumerated in this chapter. These include contradictions, paradoxes, individual as well as institutional adaptation to local conditions, inherent non-linearity, multiplicity, fuzzy boundaries, emergence and that feedback is essential in the training program. As such, some sources of potential future changes are evident in the data.

Complexity theory sheds some light on the training of ophthalmologists, showing up adaptation and complexity. While study data were evident about conservatism, stability, and a tendency to individual rather than systemic embrace of change, the possibilities opened up by complexity theory also exist and might warrant further theoretical exploration.

This chapter has demonstrated that complexity theory based training lies nascent in the ophthalmic data. This chapter was the final data chapter. It concludes this section about contradictions. The next section, Section IV, comprises one chapter, Chapter 11, Conclusions.



## **Section IV: Conclusion**

The next section is the Conclusion. It comprises Chapter 11 which is the final chapter in this thesis. This final chapter summarises the findings and the implications of curriculum form. The study's contributions to theory are also described.



# Chapter 11 Conclusion

This final chapter outlines the study findings from the analysis of the data described in the thesis. The analysis showed that, in the ophthalmic training curriculum form, apprenticeship is dominant, that apprenticeship's pervasiveness is underestimated by the profession, and that change is needed because of insufficient teaching about chronic disease management and insufficient attention to androcentrism. Apprenticeship stifles the very critique that could lead to the expansive learning necessary to respond to these drivers for change.

At the beginning of this project the researcher believed that ophthalmology training was largely apprenticeship based, and that this was accepted both by the profession and the outside world. The researcher was aware that the competency based training approach of CanMEDS was being introduced from outside the profession of ophthalmology and saw that the prospect of competency based training offered fresh vision for the outcomes of medical care. This study has revealed that contrary to the official view now held that ophthalmology training is competency based; it continues to resemble theoretically based descriptions of apprenticeship even more than was imagined by the researcher. This was a surprise finding in the research.

The greatest implication of the apprenticeship form for the ability of the curriculum to change is that for curriculum to change, practice must change. That change should occur is demonstrated in the findings on the topics of chronic disease and of androcentrism. That change is possible is suggested through evidence of contradictions between the official view and what is really going on. There is also evidence that trainees and trainers resist some aspects of the prevailing epistemology of practice and manifest considerable local area variations in both clinical practice and teaching and learning practice.

It is a useful finding that the community of practice holds values and understandings about learning and practice that can be elicited by careful research. Questions simply need to be relevant to the doctor, and asked in a safe environment.

These findings have important implications in the mission to support the ophthalmic curriculum to become more flexible and to be able to change in response to changes in the environment in which ophthalmologists work.

## 11.1 How are ophthalmologists trained?

The answer to this primary research question is that ophthalmologists in Australia and New Zealand in the first decade of the 21st century are trained through a mix of curriculum forms. What is really going on is an intensely apprenticeship based training form, in which the features of apprenticeship have far-reaching, yet underestimated, implications for curriculum and curriculum change. Apprenticeship is the dominant form, and there are elements of competency based training.

## 11.2 What is the official view?

The official view is that the ophthalmic curriculum form is that of competency based training. This view is modified at the most detailed level of description to reflect core elements of apprenticeship based training.

Competency based training is an outcomes-based training form based on a set of externally derived, clearly articulated learning objectives. Its focus is on specific, measurable competencies, rather than generic goals. Industry-wide standards rather than peer comparisons are the final arbiter of the standards of good practice. As a general rule, competency based training draws on specific competencies. It is a finding of this study that ophthalmologists resist defining basic competencies because their mission is excellence; hence they resist the process required by competency based training to list specific competencies.

Competency based training is based on sound chronic disease care management principles. These include patient autonomy, patient safety and using prevention strategies that draw on the social determinants of health. Competency based training, as introduced under the CanMEDS auspices into Australian medical training, aims towards improving medicine's responsiveness to societal needs. Even though it was unclear how the proposed overlay of competency based training upon existing ophthalmology training practices was to happen, competency based training held promise toward changing ophthalmic training to reflect changes in the pattern of disease from acute to chronic, and in the composition of the ophthalmic workforce.

This study found there is a wide gap between the rhetoric (or discourse) of competency based training, and its translation into actual teaching and clinical practice. Competency based training contains an explicit language for teaching doctors, which is incongruent

with the existing training form, that is work-based. Classical educational theory assumes talk about outcomes of training will be productive and to lead to improvements in training. This assumption was not confirmed in this study. There is only a small amount of evidence in the study data that the attempted introduction of competency based training, and its promotion for accreditation purposes, beneficially influences ophthalmic training and the work of medical practice in patient care.

### **11.3 What is really going on?**

The experience of ophthalmic training in Australia and New Zealand is that it is undertaken through master/apprentice relationships within a community of practice. These are core components of the apprenticeship form of curriculum. Apprenticeship is a time-based training form. It involves, at its core, situated learning using a process named legitimate peripheral participation. Apprenticeship's three key features are learning through work, master-apprenticeship relations, and a community of practice that defines its own epistemology. The focus of apprenticeship is good craft. Craftsmen are created, and recreated, through the apprenticeship system, and the work is defined by the masters who are experienced in the craft.

Apprenticeship in ophthalmology includes features of collegiality, a community of practice, and working together in close proximity in both the operating theatre and outpatients that lead the trainee to acquire an increasing sense of belonging to the community of practice. Shared participation in the ophthalmic community of practice defines the epistemology of clinical practice of ophthalmology held by trainees.

Work was found to be the focus of the curriculum, not teaching and learning. A focus on work is consistent theoretically with apprenticeship based training rather than competency based training being the core curriculum form in ophthalmology. The evidence gathered supports the contention that ophthalmology training is practice based, taught through shared practice, has a curriculum defined by the work performed, and has no clear-cut teacher identity for the practitioner. Nevertheless, the apprenticeship form of training is an effective training system for transmitting technical knowledge and skills and for transmitting the culture of medical practice. These all fit with apprenticeship theory.

Nineteen of twenty interviewees named apprenticeship as the model that underpinned training. The remaining participant lamented apprenticeship's persistence as being a deep-

seated historical remnant of the past that is still embedded in ophthalmic training, affirming its stranglehold on ophthalmic curriculum.

Apprenticeship based training is extremely effective in achieving its focus of technical competence. The trainers concentrate on the goal of reproducing surgical skills. This is embodied in the thesis title of **‘We Need You to be Able to Do This Operation’**, which summarises the clear and consistent focus in the curriculum on the technical skills of the surgeon as medical expert, and that it is the very work performed by ophthalmologists collectively that constitutes the curriculum for their trainees.

The data suggest that if apprenticeship were officially embraced and named, it could be conducted with greater effectiveness. Acceptance and use of apprenticeship theory would support identifying the phases of learning ophthalmology. The journeyman stage of learning, for example, has a particular flavour and naming doctors as being at this particular phase would be helpful to their education. The two journeymen in the study were interested in quite different aspects of curriculum from trainees, or trainers. The specific educational needs of journeymen are not well articulated in the curriculum.

There are differences and commonalities between competency based training and apprenticeship. The two are not dichotomous. Participants were aware of the components of competency based training, and used them idiosyncratically.

## **11.4 Should change occur?**

The existing curriculum form is effective in its declared primary mission of training doctors to be able to conduct ophthalmic surgery. However change in curriculum form is required to adapt to changing patterns of eye disease and changes in the ophthalmic workforce. The study found that apprenticeship training falls down in training for chronic disease management; the evidence from the study is stark in the special case of chronic medically unexplained disease. This negatively affects training, and the care of chronic eye disease.

The curriculum form that is in place, apprenticeship, prevents adaptation to support women in training through its lack of capacity for critique. The masters are a particular kind of male, and when women want to participate, there are problems. Women struggle to find ways to live a female life course while training to become ophthalmologists, and they do not feel welcome to practice in ways that reflect their values. There was little

evidence that the training programme initiated changes to support women as trainees, and to include senior women in leading educational roles. Data from this study demonstrated that female trainees experienced stress in attempting to reconcile the College's tacit claim to gender-inclusiveness with the implicit requirement that they coerce their female bodies to behave as though they were male.

The culture of no culture that makes critique of curriculum, and thus curriculum change problematic, extends to curriculum leadership. Obtaining positions on decision-making committees and achieving senior roles can be understood as the spoils of the profession. The curriculum review data in which there are far more men than women at the policy-making meeting are an example of the power of apprenticeship to replicate the professional attributes of the masters. That these roles are occupied far more frequently by men requires explanation. The small number of women in educational decision-making roles appears to suggest that men may feel a moral justification in taking such 'spoils', namely, the senior roles in education, for themselves.

## **11.5 Is change possible?**

Contradictions in the values and experiences of trainees compared with trainers, and in what patients expect from their doctors, are drivers for change, yet the apprenticeship form of curriculum is stable and ill-suited to introduce change. Despite the need for change and the potential for change, there is a culture of no culture in ophthalmology that provides stability to the curriculum and that stifles critique of ophthalmic work.

The finding that the dominant training form is apprenticeship means that to change curriculum, practice must change, yet change requires a capacity to critique the existing form. A capacity to critique is a traditional component in education that appears lacking in the culture of no culture, and the study found there is a lack of expectation among trainees and trainers of a capacity to critique practice.

The curriculum forms of competency based training and complexity based training are better suited to adapt to change than that of apprenticeship.

## **11.6 Other key findings**

There are seven additional key findings from the study: ophthalmic work is the curriculum, there is a discrepancy between the focus of the training College and of the

accrediting body, complexity theory may be a way forward, the design of clinical space affects training opportunities, there is contradictory evidence of flexibility, and there is a policy-practice gap.

### **11.6.1 The work is the curriculum**

The first is that ophthalmic work is the curriculum. Competency based training curriculum theorists claim that to change work, or practice, you must change curriculum. The findings from this study turn this claim on its head and find instead that in order to change curriculum, work must be changed. Ophthalmologists principally described their medical practice work in patient care when asked to describe the curriculum. This patient care work is the curriculum. This is consistent with apprenticeship theory, as is the finding of the lack of an external entity that holds curriculum; the curriculum simply is the lived experience of training.

The implications of work as the curriculum apply particularly in relation to teaching. While there is a literature about the culture of no culture in relation to medical curriculum form, the study provides more detail than has been reported previously in relation to teacher-identity in the postgraduate arena of medical education. The lack of attention to explicit exchange of views about teaching is not simply a matter of being time-poor; it is far more related to this lack of teacher identity. The data suggests that it is a myth that trainers are simply too busy to teach. The truth is that they find themselves to be too distant from the identity of teacher. Work so constitutes the identity of the ophthalmic practitioner that any residual potential identity of 'clinician as teacher' is insufficiently mapped and taken up.

The educational aspect of this training system is kept in the background so there is no clear-cut identity for the post-graduate medical teacher in the ophthalmic curriculum. This makes a pathway for the medical teacher difficult to define or to train for and results in lack of transparency about who become teachers and in what circumstances. If it is not clear how clinical teachers are created or appointed then it is seemingly impossible to change the composition or skills of those who become masters to the apprentices.



### **11.6.2 The work or the worker?**

A policy implication emerges from the data, that the worker is the focus for accreditation bodies, yet the work is the focus for the College. Recognition of this discrepancy may assist both parties.

Accreditation bodies such as the Australian Medical Council may overestimate the influence of classical educational elements such as learning objectives and underestimate the power of work, as a determinant of learning in the medical workplace as a result of their adoption of competency based training as the preferred Australian and New Zealand model of medical education.

The Australian Medical Council policy is to include the non-technical competencies into medical practice through the implementation of competency based training. However because they operate under an apprenticeship based program, doctors will only change their practice if they see how such change will improve their own practice and therefore improve their own care, of their own patients. If educational proposals are perceived as failing to improve practice they will be seen as incomprehensible and doctors will not be attracted to them.

There is a policy–practice gap and the gap must be addressed better. Where outsiders to the profession feel that change is necessary, it is important that those outsiders pay heed to honouring doctors’ drives to be the best doctor that they can be. This study found that change occurred where insiders felt that change was necessary, and they would change their own practice accordingly.

The profession’s most dominant discourse is centred on work, whereas the accreditation’s dominant discourse is oriented around the worker. The conclusion is drawn that these perspectives ought to come together in order to achieve better standards. This would mean that the profession would take a more ‘functional’ rather than ‘practical’ approach to training, while the accrediting body, the Australian Medical Council, could take a more ‘practical’ approach, rather than a ‘functional’ one.

### **11.6.3 Complexity training form**

The emerging curriculum form of complexity based training for capability, rather than competence, is worth considering as a possible solution to the problems identified in the ophthalmic curriculum form. The study was not set up to explore this explicitly and the

data in this study are incomplete in relation to ophthalmology and complexity based training. The data however do demonstrate that features of the complexity form exist in the curriculum talk of ophthalmology trainers and trainees. These include contradictions, paradoxes, individual as well as institutional adaptation to local conditions, inherent non-linearity, multiplicity, fuzzy boundaries, emergence and the importance of feedback.

There is some evidence that the emerging curriculum form of complexity based training may be the way of the future. In the medical literature, attention to complexity based training as a curriculum form has appeared to provide an answer to problems with making significant curriculum change in medical schools, general practice and paediatrics.

This study did not provide sufficient data to recommend complexity as a training form for ophthalmologists although there were indications it may hold the promise.

#### **11.6.4 Clinical space defines learning opportunities**

One of the implications of work as the basis for curriculum is that the design of clinical spaces (such as outpatient clinical room layout) appears to affect the quality of apprenticeship based training. Clinical space design in teaching hospitals, for instance, emerged in the study data as a factor that predicts how effective apprenticeship training is in a given setting. This study's data suggest that the importance of the design of clinical spaces in supporting teaching should be taken into account when hospitals are built.

The physical environment was found to influence power relations, and hence learning, at the teaching hospital. If patients knew that their health care may be jeopardised by room layout designed for their privacy, they may not settle on the side of privacy for their relatives and themselves as eagerly as they appear to do at present. More adequate supervision of personnel through greater indirect surveillance in the workplace, not only by and for doctors but for all staff, might turn out to be a better predictor of good outcomes for the patient.

#### **11.6.5 No evidence of flexibility**

The findings of this study confounded the researcher's hopes that competency based training would easily allow for shorter, more flexible training that included chronic disease management as a core skill focus. Flexibility of training is neglected under the apprenticeship curriculum form. Professional socialisation into the community of practice includes learning to be complicit with the culture of no culture and privatising to the

individual the task of fitting the trainee to the culture of training. This provides no support for ophthalmologists and trainees whose lives do not fit into the existing procedures for apprenticeship based training. Reducing the time of training remains contentious, although the human cost of the present form in terms of the impact on the lives of trainees and the delayed entry into full practice must attract attention by funders and policy makers at some point in the future.

### **11.6.6 Bridging the policy-practice gap**

The study found that there are things that can be done on both sides of the accreditation–College relationship in improving responsiveness to societal needs. Responsiveness to the needs of workers with family responsibilities who are undergoing College training is relatively neglected at present. The Australian Medical Council’s accreditation standards might become less individualistically focussed. They could be phrased and adjudicated in a more general fashion. Significantly, they could be revised to shift the balance towards holding the profession as a whole to account for its covenant with society. In turn, the College’s use of competency based training might become more worker-focussed, in order to individualise training and become focussed on the learner’s personhood which is currently lost in the focus on the work done, rather than on the worker doing the tasks, in the apprenticeship-dominated training form.

## **11.7 Limitations and further research**

Much valuable data gathered for the study is not presented in full in this thesis. It is intended that further analysis of this data will be published separately in peer-reviewed journals.

### **11.7.1 Limitations**

Gaps exist between verbal accounts of a lived experience and observations of that same lived experience. Talk about activities that inform researchers about curriculum form is not the same as observations of those same activities. A limitation of this study therefore is its reliance on ‘talk’ captured in interviews.

According to standpoint theory, there are multiple perspectives on a data set and often this is unacknowledged in research generally. It is freely acknowledged in this research that the findings emerge from the perspective of the researcher. Other perspectives on this

same data set are possible. It is hoped that taking the standpoint that neutrality is an obstacle to understanding what is going on has been productive to the research.

The study findings are limited by the focus on those already engaged in teaching and learning, and the self-selected sample on which the interviews were based. The study recruited only those who were explicitly engaged in the educational processes of the College. One participant stated that some 25 per cent of staff at the teaching hospital were disinclined to teach. Such ophthalmologists are an obvious comparison group who may be investigated regarding practice change, because they would inevitably participate in some changes in practice without directly teaching about such changes. They may be a natural 'control group'. Their importance is that they may not self-identify as teachers and therefore may have different views of practice change.

Most of the interviewers knew something of the researcher's interests in curriculum prior to the commencement of the study, which means that recruitment bias may have played an unknown role in the findings. A stratified random sample of participants was considered when the study was being planned, but the strategy of purposive sampling was chosen as being more in keeping with the exploratory nature of the study, and has proved to be fruitful.

### **11.7.2 Further research**

Actual observations of teaching and learning practice may be more revealing than their representations in talk. This potential could be explored by the videotaping of teaching and learning experiences. More than half the interviewees (13/21) agreed in principle that videotaping could be feasible in ophthalmology without significant interruption to the work carried out by ophthalmologists and trainees. The participants also volunteered that research conducted using video observations was likely to yield useful additional information about the curriculum beyond information they could provide in their interview. Video-taping of teaching and learning in practice could therefore be feasible in future to clarify modern apprenticeship in this postgraduate setting, and perhaps to explore complexity.

The findings of this study are limited to an analysis of curriculum form. The data are open to other analyses, such as more detailed explorations of each of the contradictions identified (chronicity, androcentrism and culture of no culture). The potential for change that might result from corresponding change management strategies may need empirical

exploration, perhaps using participatory action research theory, and a wider range of participants.

## **11.8 Contributions to theory**

Some contributions that this thesis makes to theory about medical education, learning at work and in vocational education, and including women, are presented here.

### **11.8.1 Medical education**

Postgraduate medical training is neglected in comparison to medical school education in curriculum theory and research. This study contributes three facts in support of this contention. Firstly, such neglect is in keeping with the culture of no culture that this study identified. Secondly, methods used in this study such as discourse analysis and semiotic analysis are relatively little known in postgraduate research, yet appear to be affirmed in value through this study. These methods could be extended not only simply to communication skills training and handovers among specialists, as are already found in the literature, but also to more detailed attention to otherwise neglected areas, such as the educative value of corridor conversation in both wards and outpatient departments.

Thirdly, initially asking participants directly about learning itself was unproductive. This is in keeping with the relative lack of postgraduate research generally and may be in part the reason for such neglect. It was only through asking initially about practice in outpatients in relation to chronic disease, for instance, that trainers then would give useful information about training. It is in keeping with the nature of qualitative research that this initial blockage to proceeding with the research pointed to the very nature of the problem being researched. The existence of a ‘culture of no culture’ appeared in retrospect to have been blocking exploration of the research question.

While insider knowledge was useful for getting started in the present study, full insider knowledge is not essential for this to be carried out successfully. Further, bearing in mind the problem of perspective already alluded to earlier in this chapter, there would appear to be advantages if outsiders to each profession conducted such research in parallel with insider research. The study confirms that encouraging vibrant conversation among practitioners, such as happened in the study interviews, can be fruitful in accessing research data about training.

Methodologically, discourse analysis was useful in this setting, as it has been in other curriculum studies where ideology and tacit knowledge are implicated. This study demonstrated that discourse analysis can be a useful method of exploring postgraduate medical curricula. It is reasonable to infer that future studies of other aspects of curriculum such as individual curriculum elements in isolation, rather than curriculum form as a whole, could draw upon the research method pioneered in this study of ophthalmology.

### **11.8.2 Vocational education theory**

Further theoretical understanding of apprenticeship could assist ophthalmic training. The value of Lave's notion of 'practice' (work) rather than 'function' as the organiser of curriculum is confirmed in this study. In contrast, another contention of vocational education, that immersion in a craft group automatically means that 'you get the meanings for free', is unsupported by the study data. Gee contended that this was so, but both Gamble's findings, and this study, refute this claim.

This thesis suggests that not all trainees hold full legitimacy. This is a contradiction of Lave and Wenger's socio-cultural theories of learning which imply that every participant learns through immersion in the culture. This thesis finds that some participants appear to be more peripheral and less legitimate than others. Even though socio-cultural theories are appealing, they do not have full explanatory value. Legitimate peripheral participation is truer for some than it is for others. Some are more peripheral than others. Far fewer women, for instance, progress to full participation in educational and political leadership. Lave and Wenger's theory of legitimate peripheral participation may need to be revised in the light of the findings in this thesis.

Identity issues play a role in the hierarchy of the community of practice and its maintenance. It would seem that if the identity of the trainee does not sufficiently match that of the existing group of practitioners, despite full immersion in the work of the community of practice, full and central participation does not always result. The study findings suggest that Lave and Wenger's theory ought to be revised in order to accommodate this study's additional data about socio-cultural induction into a community of practice.

This study supports Willis' theoretical work on medical dominance in eye health care workers, indicating that what Willis calls the 'ideology of indeterminism' applies in

particular to ophthalmology. This ideology is related to class. This study contributes to the debate about a divide between higher education and vocational education. The study confirms that this is a class divide. It can easily be demonstrated that this craft group learn by the apprenticeship based training form. Trainees use their hands, trainers aim to achieve dexterity among trainees, and yet their educators appear to bypass the step of drawing upon vocational education theory to inform their teaching. Vocational education and workplace theories are ignored by the medical profession. Calling the process 'vocational education' is not sufficient. Missing theoretical contributions to good training because of the problem of lack of attention to class appears to be what is happening.

Organisational contradictions and myths are confirmed to be present in a further medical context that involves outpatients. This study therefore extends Ruth Wodak's work on outpatients by identifying explicitly that trainees go about engaging their trainers inclusive of the constraints of time and hierarchy through identifying the conditions of a suitable patient, suitable consultant and a patient with signs. This knowledge is a form of pedagogical content knowledge held by this community of practice.

Theoretical work on power and on the material conditions of teaching hospital clinics is tested in this study. The physical environment was found to influence relations of power and control, and hence learning, at the teaching hospital. This study extends Billett's research into workplace affordances by identifying the importance to training of the physical layout of the consulting rooms and clinics. The physical layout of the consulting rooms and clinics has not specifically been studied in this way before. This study indicates that this is a potentially fruitful field of study, with immediate practical implications in improving the engagement between trainers and trainees.

### **11.8.3 Feminist research method**

This study looked at women learning in the paid workforce of medicine. The study identified ways in which their comparatively recent addition to the ophthalmic community worked against some female trainees and female trainers. The study extends theories of women in the workplace by looking at a small group who are well paid and highly educated and who do work that is highly valued by the community. The link was made in the study between women's health and women doctors' occupational health and well-being. This study confirms connections between women doctors' occupational health and women's health at large. In common with women generally, female doctors in

their own organisational context experience the power of androcentrism. Women in androcentric organisations face dilemmas about where to put their resources.

Gender was difficult to explore in the study as it appeared that it is a silenced topic for ophthalmologists. Little about gender in teaching and learning came forward easily. Conducting one interview rather than several was probably contributory. This silencing is itself data, and cannot be taken to mean that there is no significant effect of gender on the curriculum. Gender inclusiveness is subtly implied where there is silence on gender issues and it could be mistakenly assumed that gender issues are fully addressed in the curriculum. This study appears to affirm that doctors need to feel safe and trusting to provide data on the more problematic gender aspects of how they are trained. Such conditions are not easily created, particularly in a single interview.

## **11.9 Conclusion**

While the researcher cannot be certain that all of the study factors have been measured precisely, these findings are real to the extent that there is evidence of a qualitative nature that they are true. It is useful to remind the reader that the critical realist position was taken as the epistemological stance.

This study is drawn from reflections on the implications of differing views of the curriculum forms that influence ophthalmology. Change stems from contradictions. Altered practice can come from rendering contradictions visible. Change comes, further, through the elaboration of these contradictions by those practitioners who have noticed and then acted upon contradictions that exist in their own professional lives. These practitioners can act too on contradictions that exist between their own teaching practices and the educational policy environment in which they practice. This research has demonstrated that this process is happening and can be locally productive. The challenge appears to be to broaden this local work to improve ophthalmic training and health care more extensively.

The findings support the College in its mission to provide the highest achievable level of eye care by making their processes of education more explicit.



# Afterword

Science is a way of understanding the world, yet without the energy of ideas, feelings and intuition science would be dead. To conduct this research, I spent ten years learning social science methods. I did so because I believed that such methods would lead me to the stage where I could gather qualitative data, analyse and present it in a scientific way, and turn intuition into science. The meaning derived through this research appears to me to have made this task worthwhile.

This thesis grew out of a hunch that took me more than four years to bring to fruition. The hunch was that asking ophthalmologists questions about work, that is, their ophthalmic practice, was the answer to the puzzle of how to elicit data about teaching from my peers in the profession of ophthalmology. I tested out this hunch and this thesis is the result.

The participants show that compassion, empathy and altruism can endure into the future and, with imagination, can contribute to changed structures that are of their own creation as a community of practice. The data in the study were all contributed by members of the community of practice of ophthalmologists. I have enabled their experiences to see the light of day, but it is the ophthalmologist participants whose words speak in this thesis. It is important that their knowledge becomes ‘sayable’. When asked in a safe space, they describe what is going on. When asked in a safe space, they express their deep concerns about patient care and that they do not want to neglect the diversity within their profession.

To provide a good world for those who follow after us is simply within the power of the existing community of practice. Experiencing what it is like to train under a particular structure doesn’t mean that such a structure must be perpetuated. If no-one is talking about the long term consequences of what these structures mean, copying the existing structures leads to a certain outcome rather than players making choices that are informed.

Training is not just learning about skills and techniques, it is also learning about power. The goal of this research is to contribute to the establishment of conditions making it possible to build a world reconfigured differently from the present one. It includes looking critically at the official view, and breaking down the unequal power between professional and patient. It is important that trainees learn how they may become the

master-builder of their own future by participating in the ophthalmic curriculum. To identify what this future will be, we need to understand what we are doing now. Although familiar structures give us a sense of control and power, newer ones may be an improvement on the old.

I wanted to explore some potential changes to the ophthalmic curriculum in a theoretical context. I had decided that I did not want to stand by and see impulses for change curtailed. The question to be asked was ‘Should there be the possibility to “organise” the world (of curriculum) over again, how might this happen in the best possible way?’

The problem of ophthalmic curriculum seemed important enough to deserve a closer look, and hence I embarked on the study. Remaining silent was not an option for me. As I believed that some long-term enduring good was possible if I myself was willing to grow, and if I was willing to listen to what my peers had to say, I set out on a journey. In this journey I attempted to be as open and reflexive as I could, making myself as willing as possible to grow.

This thesis is dedicated to trainees. They may find it useful to think of some of the material in this thesis as a manual of the ‘unthinkable’ from which trainees may make their own choices. They might be more informed thereby about the long-term possibilities that their curriculum might provide for them. They might choose to reconfigure their own work, teaching and learning from the basis of conceptualising and experiencing a broader set of possible futures than otherwise. I hope that trainees find themselves enabled to explore these possibilities for change.

This thesis is dedicated all those trainees who may wish to bring about such a reconfiguration.

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# Appendices

## Appendix 1-1: Recruitment poster (2 sides)

### Vocational Training Program VTP

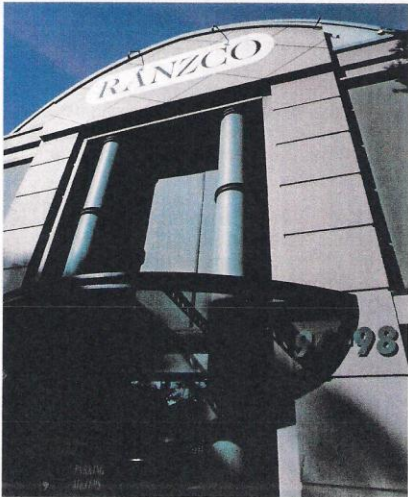
The Royal Australian and New Zealand College of Ophthalmologists (RANZCO) is the specialist medical College responsible for the training and accreditation of ophthalmologists.

The purpose of the VTP is to produce specialist ophthalmologists who on completion of their training can undertake safe, unsupervised, comprehensive general ophthalmology practice.

The training takes place over five years and is divided into three stages: two years basic training, two years advanced training and a final year. The training takes place in one of eight networks across Australia and New Zealand. Each network consists of a number of posts in different hospitals which trainees rotate through.

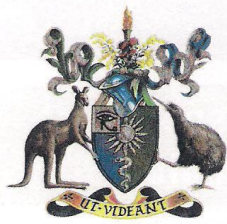
Assessment during the VTP utilises a variety of methods, including examination and work based assessment. The purpose of assessment is to determine the satisfactory development of knowledge and skills, and to ensure that a trainee reaches the College standard.

For more information please visit the College website [www.ranzco.edu](http://www.ranzco.edu).



### Pathway to specialist ophthalmology

- Satisfy pre-requisites**
  - Complete MB BS
  - Complete at least two years pre-vocational training
  - Have full medical registration
- Obtain a place on a training program**
- Complete five years training**
  - Complete two years basic training in accredited posts
  - Complete two years advanced training in accredited posts
  - Complete a final year in an approved program
  - Satisfy continuous work based assessments
  - Satisfy all examination requirements
  - Satisfy research requirement
- Apply for Fellowship of the College**



**RANZCO**

## The Royal Australian and New Zealand College of Ophthalmologists

### Ophthalmology as a career

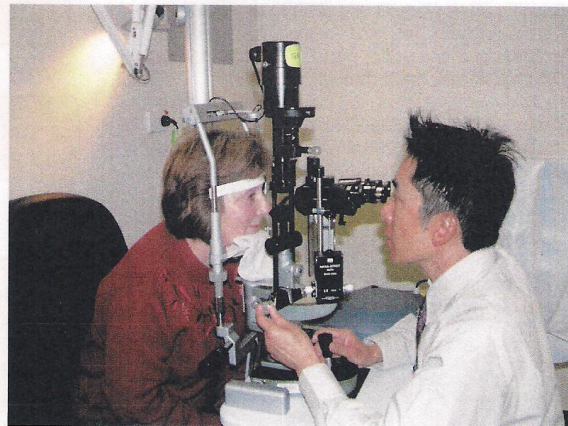
An ophthalmologist is a medical practitioner with specialised medical qualifications and skills in the diagnosis of disorders of the eye and related structures, and of their medical and/or surgical management.

The practice of ophthalmology includes prevention of blindness and the promotion of eye health.

Ophthalmological practice includes both medicine and surgery, treatment of paediatric and adult patients, and the provision of primary care as well as highly specialised treatment. For most doctors cataract removal is the most commonly performed surgical procedure. Given the nature and wide prevalence of eye problems, a patient's relationship with an ophthalmologist may continue over many years.

Scientific and technological advances offer possibilities for diagnostic precision in ophthalmology, and a wide range of clinical and research opportunities in a number of sub-specialities. These include cornea and external disease, glaucoma, neuro-ophthalmology, ophthalmic pathology, ocular inflammation, oculo-plastics, orbital surgery, paediatric ophthalmology, vitreoretinal disease, and developing world ophthalmology.

Those considering the field should be aware that certain visual and motor abilities are necessary. An ophthalmologist should have fine motor skills, adequate hand/foot/eye coordination, and stereoscopic depth perception. Impairment of these abilities may limit the performance of surgical skills, and interfere with the



effective use of essential ophthalmic instruments, such as the indirect ophthalmoscopes and the operating microscope.

As well as these technical and manipulative skills, today's ophthalmologist requires a range of humanistic, professional and managerial skills in order to fulfil community expectations and to deliver excellence in ophthalmological care. Communication skills - essential in the conduct of effective relationships with patients and families, medical practitioners and other health professionals - include empathy, patience, collaboration, and a respect for patients' rights.

The ophthalmologist is also a decision-maker in daily practice issues, and an advocate in health promotion. To master their domain of professional expertise, ophthalmologists commit to lifelong learning, and demonstrate scholarship in appraising health-care knowledge and facilitating the education of students, patients and others in the community. Finally, in personal and interpersonal professional behaviours, the ophthalmologist should be self-aware, ethically responsible, and accountable.



## Appendix 2-1: Colville D (1999) Independent Practice through Training with a Master HERDSA

### **Independent practice through apprenticeship training with a master: a vocational education approach to the RACO values and curriculum policies for training ophthalmic surgeons in Australia and New Zealand**

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A contextual analysis of the predominant styles of ophthalmic work and of most training for ophthalmic practice reveals the observation that among the competencies expected of the entry level clinical ophthalmologist-practitioner, there is a strong emphasis placed on becoming fit to practice 'independently'. For practicing public health ophthalmology, by contrast however, the capacity to practice 'collaboratively' may be more needed. For future ophthalmologists to be capable and prepared for careers that contribute in a major way to public health ophthalmology, more than at present, the curriculum for training ophthalmologists would need to include skills that befit trainees to work in collaboratively organised health care settings, including participation in inter-sectoral health policy making and emphasizing inter-institutional links. Often there is tension between roles of independence and of collaboration in health care work, and training that recognises such tensions as part of ophthalmic practice may better prepare Fellows for future ophthalmic workplaces.

This paper discusses the Australian ophthalmic medical college curriculum as compared to that of a university. Its basis is a case study about curriculum planning of the Royal Australian College of Ophthalmologists. An audiotaped group interview with the College curriculum review planning group provides the brief transcripts below about the development of professional identity for predominantly independent doctor-patient clinical practice, and the necessity for an intense immersion experience as an apprentice. I will also present evidence of the perceived external threat to the preservation of 'training with a master' that threatens the continuation of this instructional mode in the future.

#### **Introduction**

Knowledge-making and clinical care, including eye health care, are both enduring and valued human activities. My thesis work concentrates on a critical analysis of the tension between independent and collaborative professional identities in ophthalmic work using the methodological frameworks of critical ethnography (Carspecken 1996) and critical discourse analysis (Fairclough 1992). The data thus far consists of transcripts of curriculum planning group interviews and contextual materials.

#### *Ophthalmic work*

Ophthalmologists work as the medical specialists who provide surgical and medical eye care for eye diseases, such as cataract, glaucoma, diabetic retinopathy, and age-related macular degeneration. Ophthalmologists operate, give expert advice, prescribe drugs, and teach trainees, who are called Eye Registrars. A typical week's work of 10 sessions might comprise two private sessional operating lists, on each of which would be three patients for cataract removals with implants, another for a glaucoma procedure and a fifth for a strabismus operation, for a child with crossed eyes.

<sup>1</sup> Sponsorship acknowledgement: This work is supported in part by the Royal Australian College of Ophthalmologists/Sigma Fellowship 1998.

The remainder of the working week consists of providing consultations at private offices, and, in at least one-third of ophthalmologists, a public hospital commitment of an outpatient session weekly and a public operating list. It is predominantly during the latter public hospital attendance that teaching and learning for Eye Registrars takes place. Each registrar is employed full time by the hospital to clerk in patients, plan surgery, provide peri-operative inpatient care and handle emergencies on a 24-hour roster basis.

There are 600 ophthalmologists in Australia, with a total annual Fellowship (exit) graduation of 30 Fellows per year. Approximately 300 ophthalmologists have some contact with ophthalmic registrars each week, whilst teaching hospital experience comprises the bulk of Eye Registrar training that lasts 4 years, working over 50 hours per week at the hospital. The vocational training path is outlined in the College Handbook (Royal Australian College of Ophthalmologists 1998)

### Researcher perspective

The purpose of this research is to improve the training of ophthalmologists in accord with justifiable social change regarding the role the medical practitioner takes in public health work. The term 'public health' has multiple meanings, but is taken to refer, for this paper, to a community approach, rather than an individual patient approach, to the cure and prevention of eye diseases. Such a 'community' metaphor for analysing medical practice might also be called 'ecologic', as distinct from, for comparison, a 'market' or a 'military' metaphor.

The author takes an 'insider' approach, to the extent of being a practicing member of the profession being researched. My professional life as an ophthalmologist includes clinical care, performing surgery, teaching Eye Registrars, general practitioners and medical students, and educational policy work in two closely allied specialist surgical colleges. In addition, the researcher is a higher education student in both education and in public health, which provides opportunities for what could be called 'boundary brokerage' between the ophthalmic profession and the community of university scholars with whom I come in contact and with whom I learn. Finally, the author is a female practitioner in a non-traditional area of medical practice - that is, surgery, implicating theories of gendered knowledges as a further research theme.

### Analysis

#### *The link between professional identity and curriculum*

Firstly, in this research study group of ophthalmic teachers, clear links emerge between professional identity formation and curriculum planning. The extract below provides evidence that the 'fundamental' basis of professional identity formation is both essential to, and acquired through, the training programme for professional ophthalmic practice.

**Peter, an elder:** 'What we are doing- all of this is based on the fundamental bedrock of what (does) it mean(s) to be an ophthalmologist? What are the knowledge, the skills, and the attitudes that we want to have ourselves and that we want to have our young trainees to develop and maintain throughout their professional lives? That is the bedrock. We are now in the process of saying, "what are to be the learning strategies and evaluation strategies that we are now going to take out of that and start to apply?" If you think about everything we do in qualification and education activities from selection of trainees onwards, (it) is all on this bedrock.'

*The meaning of being an ophthalmologist*

Secondly, being a professional ophthalmologist means 'independence, integrity and impartiality'. The following extract relates to the group discussion topic of the definition of an ophthalmologist.

Walter, the facilitator: 'Just in a general sense, does anybody have any burning reactions to the draft curriculum document?'

Ian, an elder: 'I do not see that the document makes clear enough that we are a profession and as a profession'... 'I know it goes further on in the small print down the end (but) a professional is a person who has gained a high degree of knowledge and also has a high level of training apart from academic knowledge. And it also implies independence, integrity and impartiality, I think those are the very fundamental things that we should have as a head of what we are.'

The emphasis given to valuing independence also occurred in the context of the introductory remarks, the brief oral biographies of the participants, and the history of education in the college.

*Being a profession frames the delivery of training*

Thirdly, clinical professionals value, in their training, teaching in a one-on-one, authentic clinical setting, by a master, a senior, and not just the acquisition of 'academic knowledge' as shown in the following quote.

Ian, an elder (continuing): 'You should state that you are a professional first of all because that is the main thing. It also has a very big implication on training because it is not just acquiring academic knowledge, it is also training, that people need to be trained in a one on one situation by a master, a senior. I think that it is extremely important and is one of the things we all had and should be very careful not to lose. And we can easily lose it.'

The notion of professional identity formation as a conceptual basis of training for professional practice is reinforced by the quote about 'training with a master, a senior, whereby an 'old-timer' (Lave & Wenger 1991) supervises closely. Ophthalmology training is a 'craft-based' apprenticeship to a large extent, where 'legitimate peripheral participation' (Lave & Wenger 1991) is a predominant pedagogic model.

*Town and gown*

Fourthly, examples of medical education discourse shown above about the tension between 'training with a master' and acquiring 'academic knowledge' are relevant to the general question of what is valued in education, and such discourse draws attention to some comparative differences between what is valued in medical college training and in university education.

The professional knowledge of medicine generally is strongly influenced by a biomedical knowledge paradigm, as compared to a psycho-social or socio-technical knowledge paradigm, so links with academic disciplines of anatomy, physiology, and optics for example are close, as they are also with biologic sciences, pharmacology and veterinary sciences.

A strong, contrasting contextual influence is that the ophthalmic community, like other professions, engages in both 'town' and 'gown' activities, with links to 'captains of HERDSA Annual International Conference, Melbourne, 12-15 July 1999



industry'. This can be illustrated by the phenomenon of the 'Collins Street specialist'. The phrase 'town or gown' here brings to mind a multi-faceted, fluid, simultaneously co-existing and composite account of medical college leadership, capturing the joining of the profession both to 'captains of industry' (town) and to 'the university' (gown). The exemplar of a 'Collins Street specialist' is thus a useful local phrase that refers to a street well-known for its medical specialists in Melbourne's central business district, itself geographically quite close to the university. In Melbourne the Eye Hospital is located within walking distance of the 'top end' of Collins Street, itself a stone's throw away from Victorian State Parliament House.

As regards implications of 'town and gown' for training, an ophthalmic colleague described the benefits of a dual influence as reflecting the 'broad based knowledge, from the coalface, where in non-teaching hospital practice we see patients from all walks of life'. Those in 'town', therefore, see patients from both the most privileged and the most impoverished members of our society, and pass on this experience to their trainees. They also pass on the social culture of professional life, including being 'well connected' to business and government.

#### *Higher education, medical colleges and social change*

Lastly, institutional and societal changes shape, and in themselves reflect, changes in the medical colleges and the universities. The medical colleges must have sophisticated expertise in educational delivery, in continuous professional development, and a strong and dynamic disciplinary knowledge base from the universities. The medical college training programmes require new locations, as yet unexplored in current ophthalmic or surgical college modalities of instructional design, where trainees can benefit from the tradition of 'one-on-one training' with a master while at the same time training in a community setting where most will ultimately practice, rather than in a 'tertiary referral hospital'-based university department, as is the case at present. Recognition of the need for closer relevance of clinical practice to public health generally is also a trend recognisable in the policies pursued by governments, university departments of public health, and health 'consumers' interest groups.

#### **Conclusions**

Links between an independent professional identity and curriculum delivery have been discussed, and the common values held by the medical profession and academia pointed out in the areas of foundational disciplinary knowledge, and of academic, educational expertise required for professional development and training. Maintaining the juxtaposition of professional practitioners strong in academic disciplines and with values aligned to university teaching culture alongside the Eye Registrars' clinical service posts that may become geographically scattered 'into the community' will be a major challenge to both universities and medical colleges. This is of particular challenge since the relevance of the some currently used government and community measurements of 'outcomes' of university activity and of health care economic reforms is questionable.

One can suggest that this case study of contextual influences on training in an Australian specialist medical college is informative about the notion of the trends toward a 'revised curriculum' of the university, generally, and of higher education academic staff development more specifically.

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### Appendix 3-1: Phase 1 letter of invitation to participants (2 pages)



#### The Royal Australian College of Ophthalmologists

A.C.N. 000 644 404  
27 Commonwealth Street, Sydney, N.S.W. 2010  
Telephone: (02) 9267 7006  
Facsimile: (02) 9267 6534

9 July, 1997

Dr DJ Colville  
PO Box 210  
HEIDELBERG VIC 3084

Dear Deb

The second Curriculum Review Weekend has been arranged at Lancemore Hill Conference Centre, about one hour's drive north of Melbourne Airport, commencing on Friday evening 15 August through to Sunday 17 August 1997. With this letter, I am inviting you to attend as an active participant. If you are willing and able to contribute, you will need to arrange to arrive at Melbourne Airport by about 19:00 on Friday August 15 so that we can be bussed together to Lancemore Hill. We aim to conclude by 15:00 on Sunday August 17, permitting late afternoon flights home. The detailed arrangements can be addressed in due course.

At the first Weekend, Draft 1 of the document *Ophthalmologists for the New Millennium* was commenced, with the Preamble, Introduction and Table of Essential Roles delineated, along with the definition of an ophthalmologist. For each of the seven essential roles (Ophthalmic Expert and Clinical Decision-Maker, Communicator, Scholar, Collaborator, Manager, Health Advocate, and Professional) statements were elaborated covering Definition, Competencies and Specific Objectives.

The tasks for this second weekend include:

1. Reviewing the initial draft developed so far in the light of feedback from additional Fellows not present;
2. Directions for Learning in Training (What to Teach?, How to Promote Learning?, Where to Learn?, and Who Should Teach?) and Educational Strategies for Implementation of the Essential roles (including Learning Environment, Bedside Teaching, Cognitive Instruction Structure, and Workshops);
3. Evaluation Strategies for the above;
4. Development of Relevant skills to achieve these goals ("Faculty Development");
5. Assessment Strategies for the entire system.

Neil Paget, Director of Education at the Royal Australasian College of Physicians will be our facilitator. With his assistance, we will break into working parties to tackle the separate



components above, and then meet as a group to hammer together a further draft for dissemination. Once you have indicated your availability, reading material will be forwarded on to you to facilitate the progress of the weekend. Even with this, we may not complete the task. But we shall certainly try to do so!

There is no accompanying person's programme, but if your partner wishes to accompany you, s/he will be very welcome - provided there is enough room on the bus! Once we have numbers, and know how many Melbourne Fellows will be able to assist with transport (the airport is *en route* from Melbourne to Lancemore Hill), we will be able to make specific arrangements. Your partner will need to attend at your own expense. The College Office will let you know the cost of the meals.

Looking forward to hearing from you at your earliest convenience,

With kind personal regards and best wishes

Yours sincerely



**IVAN GOLDBERG**  
Censor-in-Chief

### **Appendix 3-2: Phase 1 and 2 covering letter to participants**

University of Melbourne letterhead  
Dr \_\_\_\_\_ (Ophthalmologist)  
Dear Dr \_\_\_\_\_

Re: Educational research project: RACO Curriculum Review August 1997

I am writing to seek your help with an educational research project for a Master's of Education by thesis, about curriculum development in RACO.

The title of my project is 'Public health aspects of the curriculum for training ophthalmic surgeons in Australia and New Zealand'. The aim is to learn about the professional identity of practicing ophthalmologists, especially in relation to issues of clinical practice and health promotion. From this I would like to develop some educational resources about health advocacy suitable for the RACO Registrar training program.

To carry out this project I would like to tape some group discussions of our forthcoming meeting in August. In addition I am hoping that you as an individual participant are agreeable to a face-to-face interview lasting 15 minutes during the weekend or shortly afterwards. I will be asking you to give your views about the best ways for RACO to teach future ophthalmologists about eye health promotion. The aim of taping the meeting and interviews is to refresh my memory afterwards about how the discussion developed over the course of the weekend meeting.

The final outcome will be a more comprehensive description of the professional identity of ophthalmologists and comment about its implications for training. A better understanding of our identity is likely to lead to a better training program. This project is thus of potential value to RACO in clarifying our professional identity and translating this identity into our training program, and has the approval of the Censor in Chief.

Should you choose not to participate in this project your choice will in no way alter any other form of participation in this RACO curriculum review group meeting, but please return the attached consent form (signed or unsigned) prior to the meeting so that I can plan the interview schedule to fit into the weekend. You are free to request temporary cessation of taping if you wish, and to withdraw from the study at any time. Should you so request, you

will have the opportunity to correct or delete from the transcript or record any statement you have made that appears in the transcript. Once transcripts are made and the University auditing has been done, tapes will be destroyed. After this date there will be no means of identifying the names of the speakers. All data thus will remain confidential in that only the text will be transcribed, without attribution to an individual in the group discussion. While participants are known to each other, any identifying information including such identifiers as references to each other or yourselves by name, title, location or institution will not be included in the transcripts.

I am hoping you are willing to participate, and would be pleased to discuss any further details you might be interested in, through my pager on 61-3-9387 1000 or Ivanhoe rooms on 9499 6085.

Yours sincerely

Deb Colville, Ophthalmologist

(Dated early August 1997)

### Appendix 3-3: Phase 3 letter of recruitment to RANZCO trainers and trainees

Assoc Prof Deb Colville, FRANZCO Ophthalmologist  
PhD student, Monash Institute of Health Services Research  
Level 1, Block E Locked Bag 29, Monash Medical Centre, Clayton, Victoria, Australia 3168  
FAX +613 9594 7554  
Email [deborah.colville@med.monash.edu.au](mailto:deborah.colville@med.monash.edu.au)  
Telephone contact: +61 3 9387 1000 Mobile [REDACTED]  
Friday 29 August 2008

Dr Flossy Footpath  
Royal Victorian Eye and Ear Hospital

Dear Flossy,

Re: 'Forms of Ophthalmic Curriculum' Study.

This letter is to introduce you to an important research study about medical education. We hope you will take up our invitation to contribute to the study by offering to be a participant in a research interview by telephone in the next six weeks.

Your copy of the explanatory statement is attached. Participating in this study will inform your own thinking about ophthalmic education. This covering letter asks you to please return the attached 'one page participant response sheet'.

Regarding your response, there are three alternatives:

1. **Please circle YES** (I agree to be contacted), sign consent to interview and audio-taping, and return the sheet adding your preferred mode of contact. We will contact you shortly to arrange your interview time.
2. **Please circle YES** (I agree to be contacted) and return the sheet as an expression of interest, letting us know your preferred mode of contact. We will contact you shortly to clarify your concerns about the study with a view to proceeding with an interview if you consent. Rather than sign consent at this preliminary stage, you may thus simply wish to register your agreement to being contacted about your interview.

3. **Please circle NO** (if you are sure you do not wish to participate) and return the sheet. Returning your sheet lets us know that you do not wish to be contacted further regarding recruitment into the study.

You may return the sheet by mail using the enclosed stamped envelope addressed to us, or by fax, or by sending an email message: details are found on the sheet itself. Please do not hesitate to contact us for clarification.

Yours sincerely

Deb Colville

Ophthalmologist, Melbourne

## Appendix 3-4: Phase 1 and 2 letter of approval from Human Research Ethics Committee

01-AUG-1997 15:11 FROM D U E T

TO

094965334 P.02



31 July 1997

Dr S Strong  
Department of Vocational Education and Training

Dear Dr S Strong

Thank you for providing the additional information about your project.

I am pleased to advise that the Arts and Education Human Ethics Subcommittee approved the following project at its 5/97 meeting.

**Public health aspects of the curriculum for training ophthalmic surgeons in Australia and New Zealand**

Dr S Strong  
Dr D Coville & D Mulcahy  
HREC No. 970191

The Project has been approved for the period: 12/6/97 to 31/12/97

It is renewable annually for a maximum of 5 years. A copy of the signed title page is attached.

Would you please note that the following standard conditions apply:

- (a) **Limit of Approval:** approval is limited strictly to the research proposal as submitted in your application.
- (b) **Variation to Project:** any subsequent variations or modifications you might wish to make to your project must be notified formally to the Sub-Committee for further consideration and approval. If the Sub-Committee considers that the proposed changes are significant, you may be required to submit a new application for approval of the revised project.
- (c) **Annual Report:** Please be aware that the Human Research Ethics Committee requires all researchers to submit an annual report on each of their projects at the end of the year, or at the conclusion of your project if it continues for less than a year. Failure to submit a progress report at the end of the year will mean approval for this project will lapse.

If you have any further queries on these matters, or require additional information, please do not hesitate to contact me on telephone no. 9344 7507.

On behalf of the Sub-Committee I wish you well in your research.

Yours sincerely,

[Redacted signature]

Kate Murphy,  
Executive Officer,  
Human Research Ethics  
e-mail: k.murphy@research.unimelb.edu.au

enc.

cc. Head of Dept, Vocational Education and Training  
Chair, DHEAG

Office of the Deputy Vice-Chancellor (Research)  
The University of Melbourne Parkville Victoria 3052 Australia  
Telephone: +61 3 9344 7114 Fax: +61 3 9347 6739

TOTAL P.02

## Appendix 3- 5: Phase 3 letter of approval from Human Ethics Committee



**MONASH University**

Standing Committee on Ethics in Research Involving Humans (SCERH)  
Research Office

### Human Ethics Certificate of Approval

**Date:** 21 February 2008  
**Project Number:** CF08/0304 - 2008000109  
**Project Title:** Forms of ophthalmic curriculum  
**Chief Investigator:** Dr Joanne Wainer  
**Approved:** From 21 February 2008 to 21 February 2013

#### Terms of approval

1. Approval is only valid whilst you hold a position at Monash University.
2. It is the responsibility of the Chief Investigator to ensure that all pending information (such as permission letters from organisations) is forwarded to SCERH. Research cannot begin at an organisation until SCERH receives a permission letter from that organisation.
3. It is the responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval and to ensure the project is conducted as approved by SCERH.
4. You should notify SCERH immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.
5. The Explanatory Statement must be on Monash University letterhead and the Monash University complaints clause must contain your project number.
6. **Amendments to the approved project:** Requires the submission of a Request for Amendment form to SCERH and must not begin without written approval from SCERH. Substantial variations may require a new application.
7. **Future correspondence:** Please quote the project number and project title above in any further correspondence.
8. **Annual reports:** Continued approval of this project is dependent on the submission of an Annual Report. This is determined by the date of your letter of approval.
9. **Final report:** A Final Report should be provided at the conclusion of the project. SCERH should be notified if the project is discontinued before the expected date of completion.
10. **Monitoring:** Projects may be subject to an audit or any other form of monitoring by SCERH at any time.
11. **Retention and storage of data:** The Chief Investigator is responsible for the storage and retention of original data pertaining to a project for a minimum period of five years.

  
Dr Souheir Houssami  
Executive Officer, Human Research Ethics (on behalf of SCERH)

Cc: Dr Rosalie Aroni; Dr Deborah Colville

Postal – Monash University, Vic 3800, Australia  
Building 3E, Room 111, Clayton Campus, Wellington Road, Clayton  
Telephone +61 3 9905 5490 Facsimile +61 3 9905 1420  
Email [scerh@adm.monash.edu.au](mailto:scerh@adm.monash.edu.au) [www.monash.edu/research/ethics/human/index/html](http://www.monash.edu/research/ethics/human/index/html)  
ABN 12 377 614 012 CRICOS Provider #00008C

### **Appendix 3-6: Phase 3 ethics application—explanatory statement**

Monash University Letterhead  
Explanatory Statement for RANZCO Trainers  
Title: 'Forms of Ophthalmic Curriculum' Study

This information sheet is for you to keep.

My name is Assoc Prof Deb Colville, Ophthalmologist, from Melbourne. I am also now a PhD student, conducting research from the Monash Institute of Health Services Research at Monash University in Victoria. You are invited to participate in an interview as part of this Monash University doctoral research study.

The study is investigating the curriculum used to train ophthalmologists in Australia and New Zealand. The Monash University Standing Committee on Ethics in Research Involving Humans has approved the study. With the help of RANZCO, a total of 283 Trainers were identified and are being asked to consent to agreeing to an interview. The College has no knowledge of who takes up the offer of participation in an interview. The College has assisted this study by agreeing to distribute correspondence between the researcher and supervisors and Trainees. The research is not otherwise supported by the College, and the College has not had, and will not have, a role in the design, analysis or publication of this study. The overarching objective is to identify any factors that could potentially improve ophthalmic training in accord with best practice in vocational education and training at large. Curriculum change informed by innovative theories of workplace learning could potentially have a great impact on ophthalmic training. Competency based training as a form of medical training is widely and productively debated in this literature. Curriculum form is important because it encompasses both the experiences of teachers and learners, and the outcomes of that training. Better training is the possible benefit from the study.

#### **Purpose**

The purpose of your interview is to gain an understanding of the characteristic features of the form that curriculum currently takes, according to RANZCO Trainers and Trainees themselves. Your interview will focus on the experiences of Trainers in relation to current policies based on curriculum forms such as competency based training and apprenticeship-



based training. Participants will be asked how the policy of competency based training framework influences (or potentially influences) training and clinical practice. Information from current RANZCO Trainers is one of a number of sources of information in the study. Your responses will be used to draw up an account of ophthalmic training from the perspective of Trainees and Trainers, in an academic thesis, and in peer-reviewed publications in the medical education literature.

The research aims are to determine:

- the form that curriculum takes for training ophthalmologists in Australia and New Zealand;
- the potential basis for changes in curriculum form in response to evolving community needs in eye health care practice, and policy pressures within postgraduate medical education and
- the influence of gender (of Trainer, Trainee and patient) on the current form that ophthalmic curriculum takes.

### **What does the study involve?**

The study involves an interview by phone or face-to-face. Interviews will be semi-structured and responses will be recorded by hand. With your permission, interviews will be digitally audio-taped so that we can make an accurate record of your responses. The questions ask your experiences of what happens in training, of dilemmas in clinical ophthalmic practice, and of how these relate to curriculum form and structure according to your own experiences or observations while working as a Trainer. You will be asked your experiences of how gender of Trainer, Trainee and patient plays any role in influencing clinical training. The questions also ask about your educational background, country of origin, and first language spoken.

### **How much time will the research take?**

The interview (by phone or face-to-face) will take about fifty minutes and can be scheduled at a convenient time for you, either during the day while at work or out-of-hours.

### **Can I withdraw from the research?**

Being in this study is voluntary and you are under no obligation to consent to participation. You can withdraw from the study without being penalised or disadvantaged in any way. However, if you do consent to participate, you may only withdraw prior your data being included in the analysis.

### **Confidentiality**

You will be asked to give written consent to involvement in the study after you have read and understood this Explanatory Statement (ES). Any information obtained in this study will be kept in a separate, password-protected computer file and we will remove any references to personal information that might allow someone to guess your identity. Voice recording will be destroyed once transcribed and the transcripts will be identified by using pseudonyms only. Participants' privacy will be protected in any publication of the information by using pseudonyms. In reports of the study, specific quotations will not be attributed to potentially identifiable individuals.

### **Storage of data and use of data for other purposes**

Storage of the data collected will adhere to the University regulations and be kept on University premises (the Monash Institute of Health Services Research) in a locked cupboard/filing cabinet for five years. All the materials collected from this study can be accessed only by the investigators of this study to protect confidentiality of each participant. At the conclusion of the study, the material developed by the research team will include all generated data and processes for the collection, analysis and reporting of study information. To comply with AVCC regulations, a record of their location will be filed with the Head of the Institute and a copy with the Secretary at the Monash Institute of Health Services Research.

### **Results**

If you would like to be informed of the aggregate research finding, please contact the Chief Investigator, Dr. Jo Wainer at +61 3 9594 7532, jo.wainer@med.monash.edu.au or by fax at +61 3 9594 7554. The findings will be accessible once the final report arising from this research has been completed, around March 2009.

## Debriefing or stress

The contact details for the Doctors' Health Advisory Service in each Australian state and for New Zealand are appended, and may be accessed if participation in this research caused you any difficulties.

If you would like to contact the researchers about any aspect of this study, please contact the Chief Investigator:	If you have a complaint concerning the manner in which this research (Forms of Ophthalmic Curriculum, Project number CF08/0304 – 2008000109) is being conducted, please contact:
Chief Investigator: Dr. Jo Wainer Monash Institute of Health Services Research, Monash Medical Centre, Locked Bag 29, Clayton VIC 3168 Australia Phone: +61 3 9594 7532 Fax: +61 3 9594 7554 Email: <a href="mailto:jo.wainer@med.monash.edu.au">jo.wainer@med.monash.edu.au</a>	Human Ethics Officer Standing Committee on Ethics in Research Involving Humans (SCERH) Building 3e Room 111 Research Office Monash University VIC 3800  Tel: +61 3 9905 2052; Fax: +61 3 9905 1420 Email: <a href="mailto:scerh@adm.monash.edu.au">scerh@adm.monash.edu.au</a>

Thank you very much.

Assoc Prof Deb Colville MBBS FRANZCO FRACS Dip Epi. MPH Cert Ed Training (Vocational Education & Training) PhD student. Monash Institute of Health Service Research Monash Medical Centre, Locked Bag 29, Clayton, VIC 3168 +61 3 9594 7532 FAX +61 3 9594 7554

May 16th 2008.

**Appendix 3-7: Phase 3 appendix to the Explanatory Statement Doctors' Health  
Advisory Services**

**AUSTRALIA**

**New South Wales**

PO Box 422 St Leonards NSW 2065  
Helpline (02) 9437 6552  
Admin (02) 9902 8135  
<http://www.doctorshealth.org.au/>

**Queensland**

PO Box 123 Red Hill Qld 4059  
Helpline (07) 3833 4352  
Admin (07) 3872 2222

**Australian Capital Territory**

'Colleague of First Contact'  
PO Box 560 Curtin ACT 2605  
Helpline 0407 265 414  
Admin (02) 6270 5410

**Tasmania**

Helpline 62 232047  
A/hours TasCall Page 62 354165

**South Australia**

Parkland Medical Practice  
Hughes Plaza, University of Adelaide SA 5005  
Helpline (08) 8273 4111  
Admin (08) 8303 5050

**Western Australia**

PO Box 604 Leederville WA 6007  
Colleague of First Contact - (08) 9321 3098

**Northern Territory**

PO Box 41046 Casuarina NT 0811  
Admin (08) 8927 7004

**Victoria**

Victorian Doctors' Health Program  
Level 8 Aikenhead Building  
27 Victoria Pde Fitzroy Vic 3065  
Admin (03) 9495 6011

**New Zealand**

PO Box 812 Wellington NZ  
Helpline (04) 471 2654

## Appendix 3-8: Phase 1 and 2 consent form for participants Melb Uni

### Attachment 2: Consent Form for subjects

University of Melbourne  
Department of Vocational Education & Training, Hawthorn Campus

Consent form for persons participating in research projects

Name of participant: .....

Project title: Public Health Aspects of the Curriculum for Training Ophthalmic Surgeons in Australia and New Zealand

Name of Investigators: D Colville S Strong D Mulcahy

1. I consent to participate in the above project, the particulars of which - including details of tests or procedures - have been explained to me and are appended hereto.
2. I authorize the investigator or his or her assistant to use with me the tests or procedures referred to under (1) above.
3. I acknowledge that:
  - (a) the possible effects of the tests or procedures have been explained to me to my satisfaction;
  - (b) I have been informed that I am free to withdraw from the project at any time and to withdraw any unprocessed data previously supplied;
  - (c) The project is for the purpose of research and/or teaching and not for treatment;
  - (d) I have been informed that the confidentiality of the information I provide will be safeguarded subject to any legal requirements.

Group discussion

Signature \_\_\_\_\_ Date \_\_\_\_\_  
(Participant)

Face to face interview

Signature \_\_\_\_\_ Date \_\_\_\_\_  
(Participant)

### Appendix 3-9: Phase 3 consent form Monash University

Consent Form—Trainers and Trainees

Title: *Forms of Ophthalmic Curriculum Study*

NOTE: This consent form will remain with the Monash University researcher for her records.

I agree to take part in the Monash University research project specified above. I have had the project explained to me, and I have read the Explanatory Statement, which I can keep for my records. I understand that agreeing to take part means that:

1. I agree to be interviewed by the researcher ☐ Yes ☐ No
2. I agree to allow the interview to be audio-taped ☐ Yes ☐ No

I understand that my participation is voluntary, that I can choose not to participate in part or all of the project, and that I can withdraw at any stage of the project without being penalised or disadvantaged in any way. I understand that if I do consent to participate, I can only withdraw prior to my data being included in the analysis.

I understand that the project is a doctoral research project for the degree of PhD from Monash University for Associate Professor Deb Colville.

I understand that any data that the researcher extracts from the interview for use in reports or published findings will not, under any circumstances, contain names or identifying characteristics.

I understand that any information I provide is confidential, and that no information that could lead to my identification will be disclosed in any reports on the project, or to any other party.

I understand that data from the interview and audio-tape will be kept in a secure storage and accessible to the research team. I also understand that the data will be destroyed after a **five**-year period unless I consent to it being used in future research.

**Participant's name**.....

**Signature**.....

**Date**.....

### Appendix 3-10: Phase 3 letter offering mailing list



#### The Royal Australian and New Zealand College of Ophthalmologists

A.C.N. 000 644 404

94 – 98 Chalmers Street,  
SURREY HILLS NSW 2010 AUSTRALIA  
Telephone 61 2 9690 1001 Facsimile 61 2 9690 1321  
E-mail: [ranzco@ranzco.edu](mailto:ranzco@ranzco.edu)  
<http://www.ranzco.edu>

4 February 2008

Associate Prof Deb Colville  
Ivanhoe Eye Clinic  
9 Ivanhoe Pde  
IVANHOE VIC 3079

Dear Deb

Thank you for your letter of 28 January 2008 regarding your proposed PhD research.

The College does not endorse any research undertaken by researchers as part of postgraduate degrees but it in certain circumstances it does lend administrative support, on a fee for service basis, to assist researchers in the conduct of their research.

As requested, the College will organise a mailout for you to trainees, supervisor and clinical tutors on a fee for service basis. However, the letter to sample groups must be altered so that it commences with the statement 'The College has assisted this research project by agreeing to distribute correspondence between the researcher and supervisors and trainees. The research is not otherwise supported by the College, and the College has had and will not have a role in the design, analysis and publication of this project'. It must also be stipulated in the letter addressed to these sample groups that all responses are totally voluntary. Furthermore, the correspondence to the sample groups will need to be altered so that it is signed off by either you or your PhD supervisor rather than by me or any other office bearer or employee of the College. Correspondence must be printed on Monash letter head and will not include the RANZCO logo.

In addition, regarding the suggested wording of the letter to Dr Souheir Houssami, Executive Officer of the Monash Human Ethics – Standing Committee on Ethics in Research Involving Humans, the text will need to be altered so that states that 'the College supports the conduct of the research in terms of assisting with the distribution of correspondence between the researcher and members of the College regarding the researcher's PhD research. The research is not otherwise supported by the College. The College has had and will not have a role in the design, analysis and publication of this project'.

I wish you all the best with your research.

Regards



Malcolm Capon  
Chair, Curriculum Committee

The College is a Partner of VISION 2020 Australia



## **Appendix 3-11: Phase 2 interview schedule**

University of Melbourne

### **Questions for Semi-Structured Interview**

#### ***Preliminary remarks and questions***

*This interview aims to explore the professional identity of ophthalmologists, firstly in general, and then focusing on might be called ‘public health’ ophthalmology. You will have a chance for free comments at the end.*

*Some would say this is about an ‘eye health advocate’ role for ophthalmologists; others might call this eye health promotion. Some further terms might be public health ophthalmology, and sometimes, ophthalmic epidemiology. Teaching these skills to Registrars in RANZCO’s curriculum is under consideration. The focus of this educational study therefore is your views about ophthalmologists having professional skills in this area, in contrast with other topics in the curriculum.*

- 1. Please tell me what year you became (or will become) a Fellow of RANZCO.*
- 2. Please tell me about your involvement in the RANZCO Curriculum Review process, and some of your reasons for participating*
- 3. What do you see as your own main professional roles as an ophthalmologist?*
- 4. Thinking more broadly, what do you see as the main roles of the ophthalmologist, in general, for which we ought to be training Registrars in the future?*
- 5. Regarding the roles of the ophthalmologist in general, can you provide me a few examples of the most satisfying aspects of your role as an ophthalmologist, and of the least satisfying aspects*
- 6. What are your main concerns about the future of ophthalmology? Can you tell me some of your predictions about the future of our profession of ophthalmology, and the implications for our future roles as ophthalmologists?*

#### ***We come now to some questions concerning public health:***

- 7. As a doctor, what do you think is meant by the terms public health, health promotion and health advocacy? (It is OK to give overlapping meanings to these terms. If you wish, you can ignore any meanings specific to ophthalmology at this stage. )*
- 8. Public health? Health promotion? Health advocacy?*



9. *As an ophthalmologist, can you provide some examples of aspects of ophthalmology related to 'public health' specifically in ophthalmology (such as eye health promotion, or eye health advocacy?)*
10. *Can you elaborate on the role of 'eye health advocate' etc. in relation to the work that ophthalmologists do now or may do in the future?*
11. *Please tell me about what you consider as your own health advocacy roles as an ophthalmologist?*
12. *And what do you understand to be some of the roles of the College (RANZCO) and the profession itself with respect to eye health advocacy?*
13. *Please can you provide me some further examples of 'eye health advocacy' that you are aware of. These might be things that other ophthalmologists may have done or may be doing as part of their work as an ophthalmologist, or for RACO. Examples might be policy work, working on consensus panels for preferred practice protocols or guidelines, serving on committees of non-RACO bodies, consultancy with government departments, reporting clinical case studies and clinical trials.*
14. *Please tell me what roles or competencies you think that Eye Registrars should learn about eye health advocacy, and what learning experiences might be appropriate for Registrars. (Roles or competencies mentioned) (Learning experiences)*
15. *What in your view are the priorities for teaching our Eye Registrars the tasks of health advocacy? (Most important) (Less important) (Least important)*
16. *Do you have any further other comments to make about health advocacy in general, in your field of ophthalmology, the College's role, or reflections regarding teaching Registrars yourself?*

***Thank you for your help. We can stop now if you wish.***

17. *Do you have other comments about this project, the Curriculum Review itself or future RACO educational research that you feel should be considered?  
(The research project?) (Curriculum Review itself?) (Other comments?) (Future RACO educational research?) (Other issues raised by interview participants?)*

## Appendix 3-12: Phase 3 interview schedule

### Monash University

#### **Introduction**

Thank you for agreeing to see me today. As you know, I'm here to talk with you about ophthalmic education. In the time we have together, I just want to ask you four questions.

(Check Consent Signed. Check Consent for audio-tape. Tape ON Record date. Interviewee ID).

#### **Question 1 PRACTICE**

Ophthalmology is a complex area of clinical practice. Even the apparently simple like whether to prescribe drops for a borderline hypertensive patient can seem unnecessarily complex. Can I give you an example now?

Say (show or list these aloud):

1. The four dioptre surprise (refractive surprise)
2. Itchy burning eyes
3. Moving from you to another ophthalmologist
4. Telephone advice

Could you tell me what you might answer a Trainee/Trainer if they ask you about this?

(Prompt questions: Do you see any dilemmas? How do you manage toss-ups? How do you deal with uncertainty in clinical practice? How does patient preference impact on your management?)

#### **Question 2 FORMS OF TRAINING (*Apprenticeship and Competency based training*)**

Thank you. I am puzzled generally when I think about how we train, and what it rests on in our hearts and minds, in our convictions?

##### **2A Apprenticeship:**

Some researchers say that ophthalmic education is predominantly master-apprenticeship. Does that sound right to you?

(Prompt questions: What aspects of this model do you see? Moving from novice to expert? One-on-one teaching relationship with a master. Continuity, continuous full time training? Delay till master is ready for you to pass. Serving time?).

##### **2B Competency based training:**

Another way of teaching is using a competency based training form or model.

Show table / CanMEDS Flower with features of apprenticeship- and competency based training compared.

Apprenticeship	Competency	Other
Explicit	Implicit	
Measurable	Intangible	
Parts	Holistic	
Outside control of master	Controlled by master	

Do you use / do your Trainers/Trainees use any CBT in your training?

(Prompt questions: Do you use any of these? Show/list aloud CanMEDS flower competencies)

***Question 3 FORMS OF TRAINING – GENDER***

This might not be something that gets a lot of attention when we think about education. Could we just talk about gender and education (briefly)?

Can you see any advantages or disadvantages for men/women as Trainers with either CBT or apprenticeship models?

(Prompt: You as Trainee, You as Trainer, Your Trainers, Your Trainees, You as clinician, Patients)

***Question 4 CLOSING***

Would you mind telling me your age?

Do you have an ophthalmologist in the family, and how has this influenced you as a Trainer/Trainee?

This has been valuable experience for me. What about you?

What would be your reaction to being asked consent to video tape or conduct observations of teaching and learning in your setting, e.g. unit meetings, ward rounds, theatre? Under what conditions do you think you might agree? What difference do you think it would make to be observed by a curriculum researcher?

Is there anything else you'd like to discuss?

I need a diversity of people to contribute to my research. Any suggestions for other registrars whose views might be similar or dissimilar to yours?

Thank you. The next step is that I transcribe the interview and analyse the data.

### Appendix 3-13: Transcript analysis files, with sample of researcher diary entries<sup>33</sup>

THE RESEARCH DATA TRYPTICH Transcript, Personal and Analytic				
The transcript triptych				
Transcript and technical remarks about the transcript itself, and notes on the content			Personal File	Analytic file
Technical points about the taping go on the left hand side	Transcript itself	<p>Researcher notes on the content of the transcript, as it progresses in time</p> <p>A box for overall comments, these appear on the cover page of each interview. There might end up being several for one participant e.g. informal meeting with participant whom I met with today. He has agreed to an interview.</p>	Personal comments overall	Analytic comments, coding emerging, ideas for conceptualisation, the content analysis that emerges into the analytic theory of what is going on about competence and gender
<p>Point in tape over time e.g. 0 minutes,</p> <p>5 minutes etc.</p> <p>Last five minutes</p> <p>Closing, at 50 minutes</p> <p>(Could turn minutes into another column that is line of transcript, as I have done for the curriculum review transcript)</p>		<p>For example, five minutes in. he paused here, was he puzzled?</p>	<p>Personal comments in diary or free flowing form, as it comes to mind along the time of the study</p>	<p>At the level of the study; At the level of the individual participant; At the level of analysis such as sentence, or answer to one of the research questions:</p> <p>I need to tease out how I am going to analyse this data. First it will be an overall content analysis, and then various codes will come. See the hierarchy diagram I put in the confirmation document, perhaps for the ladder of analytic abstraction concept. At present mine are competency, gender and curriculum forms.</p> <p>The curriculum forms are technical, and social reconstructive in one frame (Eisner &amp; Vallance 1974) and apprenticeship (Societal Needs Working Group 1996- CanMEDS) competency based and complexity based in another level. Since then I have been wondering about competence as male as norm as competence, (also known as androcentrism) and competence as essentialism as competence. Here this would mean that competence is understood as an essential rather than a developed competence. For example, if you are male you are automatically a good and well trained ophthalmologist if you go through the system for the required number of apprenticeship years, if you are a woman, this is by no means certain. This would be an example of essentialism.</p> <p>Working less well, but I don't want to drop yet, might be gender polarisation as competence as gender polarisation, or more correctly, skills at gender polarisation. These use the three main gender paradoxes noted by Bem (1993), which are elaborated by Lorber (1994).</p>

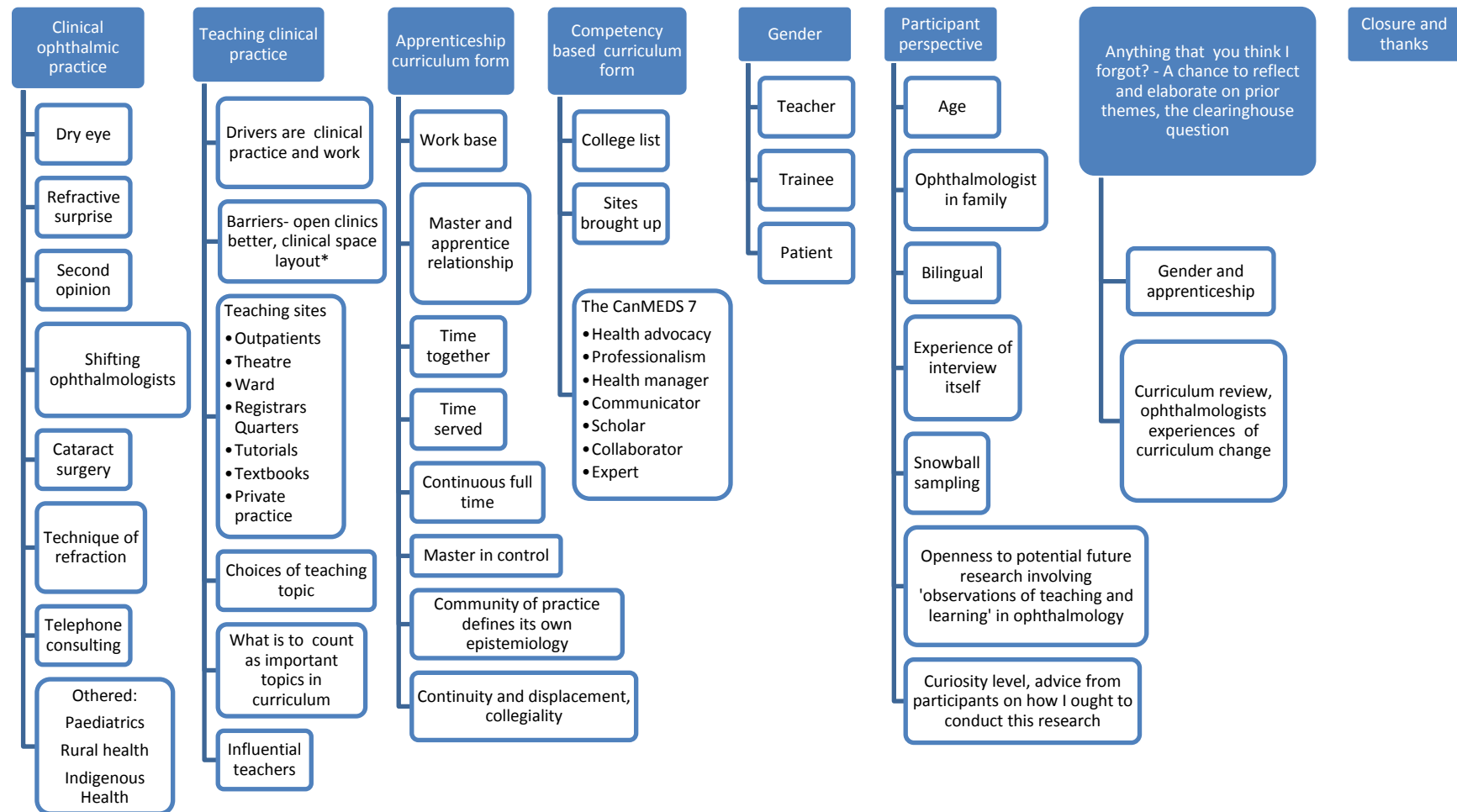
<sup>33</sup> Adapted from Minichiello et al. (1990:218–219)

### Appendix 3-14: Within-case analysis

Theme	Clinical Ophthalmic practice	Teaching about clinical practice	Master App	CBT	Gender
<b>Data comprises verbatim quote from interview transcript</b>	<i>[Dry eye?] Look obviously it's a common presenting problem in general ophthalmology and well really it's a common presenting problem even in subspecialty practice because it could be concomitant with other problems. So it is not unusual for patients like that to present in clinics and the registrars, well sometimes they're a little reluctant to mention it to the consultants. I suppose because they think 'Oh no, this is beyond them'. [male trainer, P308]</i>	<i>[What burns you to teach them about these things?] I suppose because my subspecialty interest is in refractive surgery, I'm keen to teach that. I keep being told that they don't get refractive surgery, it's not a major part of our curriculum, probably because there are no excimer lasers in the public hospital system. But we shouldn't stop them from thinking about it and I think [private] practices should make their laser room available for registrars to see and even possibly to use. I think that will [at some time in the future] be the case, certainly the [Australian city capital] program is looking at that and I hope it won't be too long before it happens. But look cataract surgery these days is refractive surgery of sorts too so they're all interested. They know that more and more people are expecting at least distance vision without spectacles after cataract surgery and they know that their private practices will demand that of them, that keeps them interested. [male trainer, P308]</i>	<i>[What about the teaching relationship with the master? Would you say that your trainees are your apprentices and that you're the master, do you have that picture in your mind?] I guess so, not in an arrogant way but I guess they do respect your experience and so on. A master suggests to me that you're by far superior to the student, to the pupil, and that varies on their level of expertise. The other thing is that the term is usually three months long, you've got a limited time in which you can develop that sort of respect I suppose from the registrars. [male trainer, P308]</i>	<i>[Do you use any list of competencies?] Yes I do. I mean even if I can't list them for you because I don't have them in front of me to coincide with the College competencies, basically yes. I mean I tell the registrars that <b>we need you to be able to do this operation</b> and that operation. We also need you to be able to communicate information; be able to communicate to the patient; be able to establish rapport show compassion and so on; be able to do searches; be able to put information together; be able to keep accurate records and so on. These are all competencies. [male trainer, P308, emphasis added]</i>	<i>I suppose I could say that to a girl too but if I say 'Listen love your tits are hanging out' that wouldn't be appropriate, do you know what I mean? So you'd have to be very careful. [male trainer, P308]</i>

<b>Manifest content analysis</b>	Dry eye is a common, ophthalmic clinical problem that falls low down on the scale of prestige of medical conditions	The consultant is motivated to teach registrars because registrars need to know the clinical knowledge involved in his subspecialty within ophthalmology. He teaches them not only what is needed in public hospital practice, but also to be aware that they will need certain expanded skillset for their later future in private practice.	A master suggests you are far superior (but this isn't true in my case). You've got a limited time (to develop) that sort of respect	Competency based training gives teachers a language for making previously tacit teaching points more explicit. This form of training is becoming a teaching and learning tool. This trainer sees the competency lists as a useful way of expanding talking about practice. It is not only teaching surgery that is important, although this comes first, but it is also important also to reiterate that communication and relationships are relevant to training too.	Teaching in the presence of women requires being guarded, being careful. Content of jokes told in the presence of women are an issue. To use humour in teaching in front of women which is his usual way is a problem to him. He has to curtail his usual teaching practice when women are present.
<b>Latent content analysis</b>	The dry eye patient appears to be an ophthalmic example of what is termed in the literature about general practice as a 'heart sink' patient (O'Dowd 1988; Malterud 1995). These patients are also called 'crockers' in the medical sociology literature (Becker et al. 1961) The registrars quickly learn the ophthalmic hierarchy of conditions. They also learn to match this hierarchy with the level in the hierarchy of the community of practice to which they must pitch their approaches in clinic in order to learn about the condition. In the case of dry eye patient, registrars learn not to ask senior clinicians about patients with the conditions outside exceptional circumstances. Instead of having a wide range of options to choose from, by sharing knowledge with near peers who, like them, are low in the ophthalmic community of practice hierarchy, they learn about this common, unremitting, frustrating condition mainly only early in their training.	The teaching hospital or 'medical gaze' (Foucault 1984) excludes certain technologies because they are too expensive for hospital patients, and for certain chronic problems because they do not assimilate well with the acute biomedical model for patient care. Trainees learn from their training context that any patient who is too poor for private treatment is not to receive it. There is a divide between public and private treatment. They must face the dilemma that the patient with the same condition but in another context, a private office, might receive considerably variant treatment. There are considerable geographic variations in clinical ophthalmic care. On the one hand, teaching hospital ophthalmology defines their curriculum; on the other hand, their community of practice delivers care outside the public hospital system too. To become a full member of the community of practice, they must learn about all of it. This learning is very peripheral, yet is nevertheless strongly motivated by a concept of future practice that will require this knowledge. In the teaching hospital, registrars come in daily contact with ophthalmologists who work both in public and private practice. Being in contact with ophthalmologists from private practice means that the registrars gain a picture of the work of the profession as a whole, not just that performed in public hospital. This fits with the theories of apprenticeship training, in which gaining a picture of the entire 'production process' is a key aspect of the situated learning. The trainee's role is one of 'legitimate peripheral participation' (Lave & Wenger 1991) in the ophthalmic community of practice.	<p>The degree of power symmetry between master-apprentice depends primarily on differences in level of expertise (Lave &amp; Wenger 1991). There is a high degree of asymmetry between experienced practitioners and those beginning trainees who have only recently been selected onto the program. The training relationship in an apprenticeship depends on the trainee developing respect for their superiors, but the time this takes to develop may not always be long enough to engender a traditional relationship of respect for one's elders.</p> <p>The apprenticeship model is being attempted to this day. However the highly specialised nature of modern teaching hospital medicine, requiring frequent roster changes so that trainees can become acquainted with their entire range during their training years, precludes the development of a relationship of respect that might be necessary for sufficient mutual trust required for a deeper level of teaching and learning to occur. Trainees don't always get all the 'meanings for free' (Gee 1992)</p>	What is spoken about first is given the highest priority by the culture. When talking curriculum, teaching technical aspects of surgery comes first, invariably (Swanwick 2005). Cognitive learning about the technical aspects of the craft is held to be of the highest priority in the culture of this community of practice. To ophthalmologists, it would be unthinkable to reverse this ordering. Next in priority come the other competencies. In the literature these are called the non-technical competencies. They are always mentioned second, if at all; they are always mentioned after the technical competencies, not before.	The mere presence of women in the workplace curbs how men behave, in resonance of a phrase uttered by men in Australian shearing sheds on the arrival of a woman, to warn against swearing: 'ducks on the pond'. (Summers 1999).

### Appendix 3-15: Between-case analysis identifies clinical space layout\* as an unexpected theme



## Appendix 3-16: NVivo8 printout

The screenshot displays the NVivo8 software interface. The main window shows a transcript of an interview with 20 participants. The transcript is organized into sections for Interviewer (I:) and Participant (P:). The text is as follows:

I: Great I have got it here. Okay so I'll just post that, are you happy just to post it back to me?

P: Sure.

I: So now there's just four questions and we're going to start with practice so these are questions about things that might be seemingly simple like itchy burny eyes, that your registrars might have asked you about. So I'm really after what your experience has been with trainees and these seemingly simple problems. So do you mind if we start with something like itchy burny eyes might be a good one for you. So can you give me an example of what you might have taught a trainee about this?

P: Look obviously it's a common presenting problem in general ophthalmology and well really it's a common presenting problem even in some speciality practice because it could be concomitant with other problems. So it is not unusual for patients like that to present in clinics and the registrars sort of ... sometimes they're a little reluctant to mention it to the consultants I suppose because they think oh now this is beyond them but sometimes not. And so I'd look at the patient and I'd say 'look sometimes you can see something, sometimes you can't'. We'll look at the ocular surface and we talk about tear film break up time, we talk about [03:05], we'll talk about Meibomian gland disease and we'll talk about the treatment of blepharitis if there's anything there and sometimes if there are no signs we'll say it's probably just a little bit of mild ocular surface dryness and so we'll talk about lubricants. If I'm convinced it is dry eyes I might even recommend a trial of punctal plugs. So in response to your question, yes registrars do ask about it, obviously we all see these patients and that's generally speaking my response to them.

I: What surprised you in how they've approached it?

P: Well I guess the only surprise is sometimes if they think itchy burny eyes, let's just dismiss this as being insignificant and move onto the next patient. For the patient it is a problem and it surprises me that they don't see it as something that requires attention to make the patient look for something else.

I: So there's a couple of other ones I've got on my list but you can make up your own one if you like. These are things like the 4 dioptr surprise.

On the right side of the interface, there is a list of codes (themes) that have been applied to the transcript. The codes are:

- Age of Participant
- Speaks language Other than English
- Theatre
- Inspiration
- Teaching/Practical advice
- Awareness of 8 Framework
- Experience of Interview
- Naïveté/Naïve
- First one
- Trainee experience of Apprenticeship
- Love of teaching
- Interview mood
- Trainee Gender
- Knowledge
- Guided/Spoken Training
- Gender of Apprenticeship
- Consultant Gender
- Learning
- Teaching
- Curriculum Review/Meeting
- Coding Density
- Apprenticeship (3) Best fit on this - combination of three
- Patient care - different

The bottom status bar shows the following information: DJC 103 Items, Nodes: 32, References: 118, Read-Only, Line: 1, Column: 0. The system clock in the bottom right corner indicates 9:29 PM on 10/02/2010.



## Appendix 4-1: Curriculum Review Committee ‘Supplement to Draft 1’

### LANCEMORE HILL 1997 ‘OPHTHALMOLOGISTS FOR THE NEW MILLENNIUM SUPPLEMENT to DRAFT 1’

#### OPHTHALMIC EXPERT AND CLINICAL DECISION-MAKER

##### Competencies—Specific Objectives

1. Elicit a history that is relevant and accurate.
  - a. **Educational Strategy:** Taking a thorough medical history is taught to all medical practitioners from undergraduate level upwards. Eliciting a history tuned to the needs of an ophthalmological expert is learned by mimicking histories taken by senior colleagues. Both mentor and self-directed learning should refine the Trainee’s ability to take a history and supervised clinical practice is required to assist in this. Self-directed learning would include accessing literature and information technology as well as communicating with colleagues at all levels of training.
  - b. **Assessment:** An allocated mentor can assess a Trainee’s ability to take a history during supervised clinical practise.
  - c. **Evaluation of Assessment:** This can be assessed using a long case, OSCE and supplementing them with supervisors’ reports.
2. Perform an examination that is appropriate.
  - a. **Educational Strategy:** The ability to perform a general examination, assess visual acuity, perform a refraction, assess extra-ocular muscle activity, colour vision, pupillary reaction; to perform slit-lamp biomicroscopy, keratometry, retinoscopy, direct and indirect ophthalmoscopy, exophthalmometry and visual fields are skills which can only be acquired through supervised clinical practise. This can be supplemented through self-directed learning using available literature and information technology as well as mentor tuition.
  - b. **Assessment:** This skill can be assessed through long cases, OSCE, mentor evaluation and supervisors’ reports.
  - c. **Evaluation of Assessment:** Assessment methods can be evaluated by monitoring supervisors’ reports and surveying both supervisors and Trainees from year to year.
3. Use relative investigative or diagnostic tools in a cost-effective and ethical manner.
  - a. **Educational Strategy:** Repeated observation in clinics, attendance at didactic lectures and self-directed learning should allow a Trainee to use investigative and diagnostic tools effectively. These would include radiology, ultrasonography,

electrophysiology, automated perimetry, fluorescein angiography, contrast sensitivity testing, corneal topography, blood analysis, microbiological analysis, cerebrospinal fluid, sputum and urine analysis, and perhaps other tools that gaining acceptance as diagnostic tools.

- b. **Assessment:** Supervisors' reports, written exams, long case, OSCE and mentor evaluation.
  - c. **Evaluation of Assessment:** Monitor supervisors' reports and survey both supervisors and Trainees from year to year. Attempt to correlate specific assessment strategy with overall performance of a candidate during their training.
4. Assemble all derived data to formulate diagnosis/es.
- a. **Educational Strategy:** The Trainee should be encouraged to be able to create a 'decision tree' or a map of all pertinent courses of action and their consequences. They should be encouraged to be able to assign utilities to each of the potential outcomes shown on the 'decision tree' and to be able to pick the decision that leads to the highest expected utility. Repeated observation in clinics, attendance at case presentations, didactic presentations, self-directed learning (examination of the literature and accessing information technology) and mentor-directed learning should assist with this.
  - b. **Assessment:** Supervisors' reports, written examination, long case, OSCE and mentor evaluation.
  - c. **Evaluation of Assessment:** Monitor supervisors' reports, survey supervisors and Trainees, attempt to correlate a specific assessment strategy with overall performance of a Trainee.
5. Formulate and implement effectively a management strategy that may incorporate medical and/or surgical components.
- a. **Educational Strategy:** The Trainee is to be taught to be able to identify the ultimate objective of treatment, e.g. cure, palliation, prevention of recurrence or prevention of later complications. The Trainee needs to be educated in the ability to select a specific treatment and to be aware of alternatives. This can be achieved through repeated observation in clinics, attendance at case presentations, didactic presentations, self-directed learning (examination of the literature and accessing information technology) and mentor-directed learning.
  - b. **Assessment:** Supervisors' reports, written examination, long case, OSCE and mentor evaluation.

- c. **Evaluation of Assessment:** Monitor supervisors' reports, survey supervisors and Trainees, attempt to correlate a specific assessment strategy with overall performance of a Trainee.
6. Perform specified ophthalmic procedures at a high standard.
  - a. **Educational Strategy:** Basic microsurgical techniques, cataract surgery, corneal surgery, glaucoma surgery, strabismus surgery, ocular plastic and lacrimal surgery, laser surgery and administration of regional anaesthesia are basic pre-requisites for successful completion of training in ophthalmology. The techniques are to be mastered through repeated observation and instruction by a supervisor in clinics and operating theatres, through supplementation with knowledge gleaned from attendance at lectures and through self-directed learning.
  - b. **Assessment:** Supervisors' reports, surgical Log Book.
  - c. **Evaluation of Assessment:** Monitor supervisors' reports, survey supervisors' and Trainees, attempt to correlate a specific assessment strategy with overall performance of a Trainee.
7. Have a sound working knowledge of the principles, applications, potential benefits and side effects of other ophthalmological surgical procedures.
  - a. **Educational Strategy:** The Trainee should be exposed to (but without necessarily having complete mastery of) such surgical techniques as advanced vitreo-retinal surgery, complex ocular plastic and orbital surgery.
  - b. **Assessment:** Supervisors' reports, written exams, long case, OSCE and mentor evaluation.
  - c. **Evaluation of Assessment:** Monitor supervisors' reports, survey supervisors and Trainees, attempt to correlate a specific assessment strategy with overall performance of a Trainee.
8. Assess management outcomes—medical and surgical—by suitable means.
  - a. **Educational Strategy:** The Trainee is to be taught how to maintain an on-going audit about outcomes of all procedures or to compare them against published results and the results of colleagues. The skills required to do this can be taught by mentor direction, observation of formalised audit activities and attendance at case presentations.
  - b. **Assessment:** Supervisors' reports, surgical Log Book and observation of active participation in hospital audit activities.

- c. **Evaluation of Assessment:** Monitor supervisors' reports and survey supervisors and Trainees year to year, and attempt to correlate a specific assessment strategy with overall performance of a Trainee.
- 9. Demonstrate effective consultation skills in presenting well-documented assessments and recommendations in written or oral form.
  - a. **Educational Strategy:** The Trainee is to be encouraged to make oral and written case presentations. The skills needed to do this are gained through repeated observation of senior colleagues and perhaps some self-directed learning.
  - b. **Assessment:** Supervisors' reports, mentor evaluation.
  - c. **Evaluation of Assessment:** Monitor supervisors' reports.
- 10. Demonstrate the attitudes and skills needed to retrieve and use information required to provide eye healthcare services to patients, and the community including low vision and blind care.
  - a. **Educational Strategy:** The Trainee is to be able to identify resources available through the Departments of Social Security, Community Welfare, Department of Aboriginal and Islanders Affairs, such non-Government organisations as: the Glaucoma Foundation, Retinitis Pigmentosa Society, Guide Dogs Association and Public Health authorities. Self-directed learning and information technology are the primary educational strategies to enable this to be done.
  - b. **Assessment:** Mentor assessment, written exams and long case.
  - c. **Evaluation of Assessment:** Monitor supervisors' reports and survey supervisors and Trainees year to year, and attempt to correlate a specific assessment strategy with overall performance of a Trainee.
- 11. Access, retrieve, and apply relevant information to problem-solving.
  - a. **Educational Strategy:** The Trainee should be encouraged to use library facilities and consult texts, journals, computerised data bases and internet and email services. These skills are acquired by repeated observation of more experienced colleagues, attendance at didactic presentations, self-directed learning.
  - b. **Assessment:** Supervisors' reports and mentor evaluation.
  - c. **Evaluation of Assessment:** Monitor supervisors' reports and survey supervisors and Trainees year to year, and attempt to correlate a specific assessment strategy with overall performance of a Trainee.
- 12. Introduce properly assessed new therapeutic options to clinical practice.
  - a. **Educational Strategy:** the Trainee should be prepared to be able to acquire the ability to learn new therapies beyond the period of training. Self-directed

learning, attending seminars or workshops on the subject, watching video material and observation of more experienced practitioners are techniques commonly used in this regard.

- b. **Assessment:** a supervisor to report on the perceived capability of a candidate to assess new information and apply new treatments.
- c. **Evaluation of Assessment:** Mentor assessment.

13. Demonstrate medical expertise in situations other than those involving direct patient-care.

This includes the ability to give testimony as an expert medical witness and to be an effective educator.

- a. **Educational Strategy:** This expertise can be acquired by attending seminars on medico-legal issues or by observation of more experienced colleagues. The issues of alleged negligence and malpractice need to be incorporated into the education of ophthalmic Trainees. This can be arranged in conjunction with the AMA and could be presented simultaneously to Trainees in all disciplines, not only ophthalmology. (This would make it more cost-effective).
- b. **Assessment:** Supervisors' reports and written examination.
- c. **Evaluation of Assessment:** Monitor supervisors' reports, survey supervisors and Trainees and attempt to correlate a specific assessment strategy with overall performance of a Trainee.

14. Demonstrate insight into limitations of expertise by self-assessment.

- a. **Educational Strategy:** The Trainee must know when to seek help either from experienced ophthalmologists or from other medical practitioners. Repeated observation, didactic presentations and self-directed learning assist with this.
- b. **Assessment:** Supervisors' reports, written exams, long case, OSCE and mentor evaluation.
- c. **Evaluation of Assessment:** Monitor supervisors' reports, survey supervisors and Trainees and attempt to correlate a specific assessment strategy with overall performance of a Trainee.

**Note:** This is a further extract from the document called Lancemore Hill 1997 'Ophthalmologists for the New Millennium, Supplement to the Draft 1'. It provided several sources of data for this study. Figure 4-1 is its Preamble, Figure 4-9 is an extract from the above section, and Figure 4-8 is a further extract.

## Appendix 6-1: Log book statement, three-year program, 1980-1982

DR. DEB COLVILLE		DECEMBER, 1982	
LOG-BOOK STATEMENT			
	Surgeon	Assist	Total
<b>EYELIDS AND PLASTIC SURGERY</b>			
Suture Lacerated Lids	4		4
Excision of Lid Tumours & Reconstruction	4		4
Blepharoplasty (Bilateral U.L.)	3		3
Tarsorrhaphy	5		5
Ptosis Repair	5	1	6
Correction of Entropion	8		8
Correction of Ectropion	8		8
<b>LACRIMAL</b>			
Canalicular Repair	1	1	2
Lacrimal Duct Probing	4	4	8
Dacryocystorhinostomy	6	1	7
<b>EXTRAOCULAR MUSCLES</b>			
Strabismus Correction	69	20	89
<b>CONJUNCTIVA, CORNEA AND SCLERA</b>			
Excision of Conjunctival Lesions	9		9
Gundersen Flap	1		1
Excision of Pterygium	2		2
Penetrating Keratoplasty	1	3	4
<b>IRIS AND CILIARY BODY</b>			
Peripheral Iridectomy	12	2	14
<b>LENS</b>			
Intracapsular Cataract Extraction	60		60
Unplanned Extracapsular Cataract Extraction	5		5
Planned Extracapsular Cataract Extraction	3	11	14
Cataract Extraction with I.O.L. Implant	2	3	5
Secondary insertion of I.O.L.		2	2
Combined Cataract Extraction & Trabeculectomy		1	1
Combined Cataract Extraction & Penetrating Keratoplasty		3	3
Capsulotomy	3		3
<b>GLAUCOMA</b>			
Molteno Implant			
Cyclocryotherapy	2		2
Trabeculectomy	3	1	4
Cyclodialysis			
<b>RETINA, CHOROID AND VITREOUS</b>			
Repair of Retinal Detachment	1		1
Injection of Silicone Oil +/- Buckle			
Vitrectomy (Ocuteome)	1		1
Retinal Cryopexy	1		1
<b>TRAUMATIC SURGERY</b>			
Enucleation/Evisceration	8		8
Repair Penetrating Eye Injuries	2		2
Removal of Intraocular Foreign Bodies	2		2
<b>ORBIT</b>			
Temporal Artery Biopsy	3		3
Exploration of Orbital Floor	1	2	3

## Appendix 6-2: Training networks and posts<sup>34</sup>

### TRAINING NETWORKS AND POSTS

5. A training network (or scheme) is usually based in a major metropolitan hospital. There will be individual training posts within that hospital, and other training posts in other hospitals and sometimes in private practices. Any training post needs to be part of a training network. (There are some stand-alone posts for final-year Trainees, but these are not dealt with in this document). In Australia, the existing networks are:

- a) The Victoria Network
- b) The Sydney Eye Hospital, NSW Network
- c) The Prince of Wales Hospital, NSW Network
- d) The Queensland Network
- e) The South Australia Network
- f) The Western Australia Network

6. In New Zealand, the existing networks are based at:

- a) The Auckland City Hospital and Waikato Hospital Hamilton
- b) Wellington Hospital
- c) Christchurch Hospital and Dunedin Hospital

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<sup>34</sup>Source of Appendix 6-2 RANZCO (2008) This is a public document from the RANZCO website, as are some of the webpages presented as data in Chapter 4. <http://www.ranzco.edu/training/10-accreditation-of-training-posts/College-standards-for-training-networks-and-posts/trainingnetworkstandards/document.2005-05-23.5872356856> Accessed July 9<sup>th</sup> 2008

### Appendix 6-3: Sample Roster of Trainers and Trainees<sup>35</sup>

POST No.	POST TITLE	SUPERVISOR	TERM1a 22/1/07	MID-TERM 1b 30/4/07	TERM 2a 23/7/07	MID-TERM 2b 22/10/07
2201	Prince of Wales (Prof Snr)	Names of head of unit and ophthalmologists in unit	Name of Eye Registrars	Name of Eye Registrars	Name of Eye Registrars	Name of Eye Registrars
2202	Prince of Wales (1st–3rd) (Rural)	“	“	“	“	“
2203	Prince of Wales (1st–3rd) (Occ/plastics Prof Jnr)	“	“	“	“	“
2204	Prince of Wales (1st–3rd) (Retinal)	“	“	“	“	“
2205	Prince of Wales (1st–3rd) (Paediatrics)	“		TBA (dependant on maternity relief)		
2206	Prince of Wales (1st–3rd) (Glaucoma / Cornea)	“		Names of Eye Registrars		
2207	Sutherland & POW (1st–3rd)	“			(Return date from mat leave not confirmed)	
2134	Broken Hill (Senior)	“			Names of Eye Registrars	
2135	S.E.H. Cas (1st–3rd) /Paediatrics	“	“	“	“	“
2106	S.E.H.	“	“	“	“	“
2102	S.E.H.	“	“	“	“	“
2105	S.E.H.	“	“	“	“	“

**Note:** Training scheme rosters show a dispersal of trainees across the training years and across the three training schemes. Across the jurisdictions, there is variation in the length of terms. This example shows three-month terms. The terms range across Australia and New Zealand from three terms of four months, four terms of three months, and two terms of six months. The shortest is three months duration, the longest is six months.

<sup>35</sup> Source of Appendix 6-3 :Personal communication Julie Gustavs RANZCO, July 9<sup>th</sup> 2008)



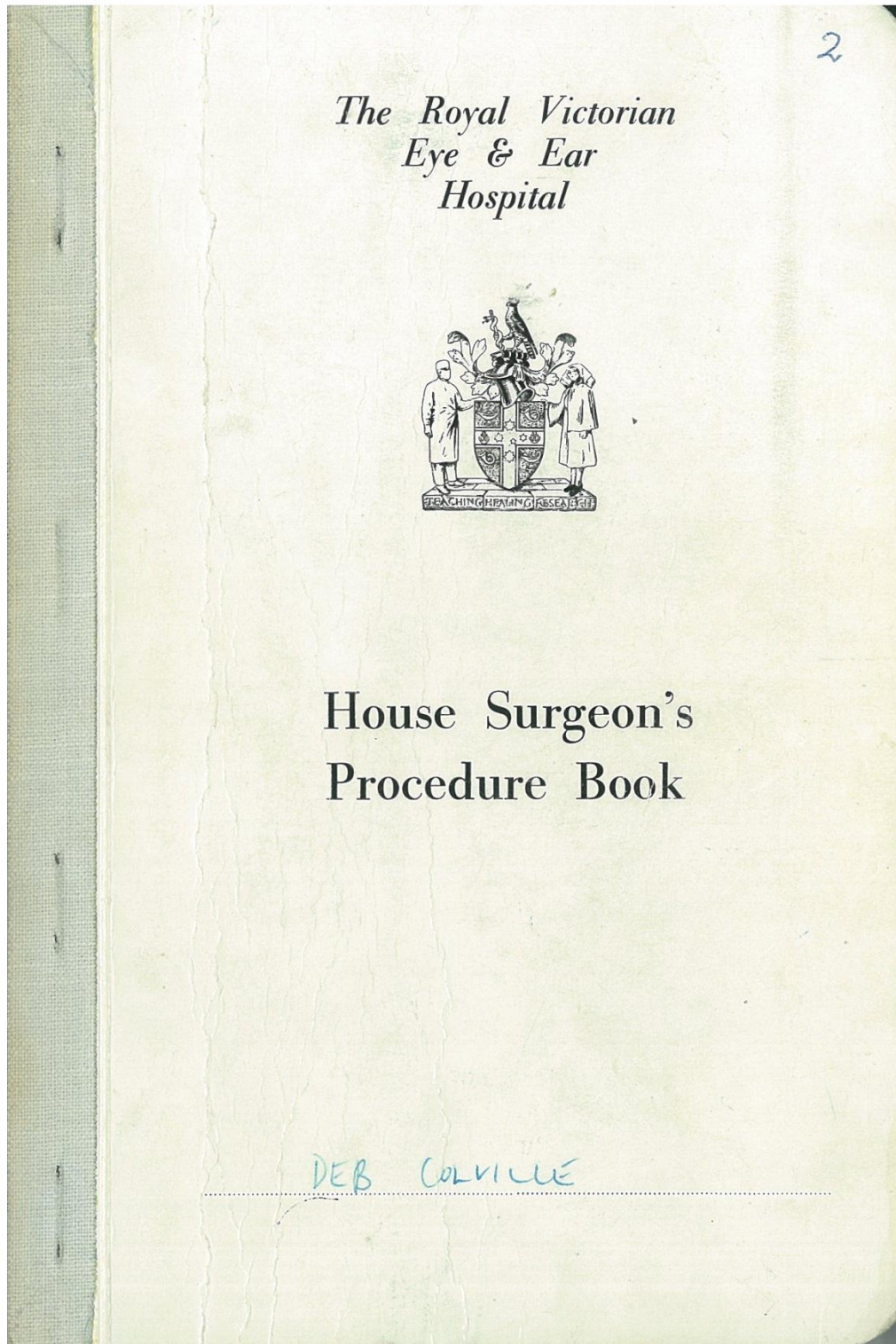
### Appendix 6-4: Age at attaining fellowship<sup>36</sup>

Cumulative Count		<30	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	>45	No D.O.B.	Mode	Median age
35	1993			1	8	5	2	4		2	1					1				11	32	33
15	1994				3	2	1	2	2	3									1	1	34.5	35
34	1995	1		2	7	7	4	4	3		1	1								4	32.5	33
23	1996	1	1	2	1	4	2	4	3		3							1		1	33.5	34.5
28	1997		1	1	3	6	3	5	3	2	1	3								0	33	34.5
22	1998	1		2	1	5	3	2	2	1		1			1					3	33	34
30	1999			1	4	5	2	2	5	1	7				1		1			1	38	36
29	2000			4	4	3	6	3	1	1		2	2		2	1				0	34	34
20	2001			1	4	3	4	2	3	1					1					1	33	34
27	2002			2	3	3	5	4	3	3		1		1		1	1			0	34	34
263	TOTAL	3	2	16	38	43	32	32	25	14	13	8	2	1	5	3	2	1	1	22	33	34

<sup>36</sup> Source of table in Appendix 6-4: Age at attaining Fellowship (Personal communication Margaret Dunn RANZCO, January 6<sup>th</sup> 2003).

Note: This table shows that the median age at graduation is 33 years for 1993, rising to 34 in 2002. The current age at entry for the January 2008 cohort was 29 years (Personal communication Julie Gustavs RANZCO, July 9<sup>th</sup> 2008). The gender breakdown of fellows of the College is 83.6% males and 16.4% females.

**Appendix 8-1: House Surgeon's Procedure Book: Front cover of log book showing the hospital logo**



**Appendix 8-2: Monash University Declaration by candidate Colville, Wainer & Aroni  
(2008)**

**Monash University**

**Declaration by candidate**

In the case of this Appendix, the nature and extent of my contribution to the work was the following:

Nature of contribution	Extent of contribution (%)
Colville DJ Wainer J Aroni R (2008) World Health Organization Defines Gender Competencies for the Medical Practitioner. 13 <sup>th</sup> Ottawa International Conference on Clinical Competence, Melbourne 5-8 <sup>th</sup> March	75%

The following co-authors contributed to the work.

Name	Nature of contribution	Extent of contribution (%) for student co-authors only
Assoc Prof Jo Wainer	Thesis supervision	15
Dr Rosalie Aroni	Thesis supervision	10

**Candidate's Signature**

Assoc Prof Deborah Colville

Date 25<sup>th</sup>  
April 2011

**Declaration by co-authors**

The undersigned hereby certify that:

- (1) the above declaration correctly reflects the nature and extent of the candidate's contribution to this work, and the nature of the contribution of each of the co-authors.
- (2) they meet the criteria for authorship in that they have participated in the conception, execution, or interpretation, of at least that part of the publication in their field of expertise;
- (3) they take public responsibility for their part of the publication, except for the responsible author who accepts overall responsibility for the publication;
- (4) there are no other authors of the publication according to these criteria;
- (5) potential conflicts of interest have been disclosed to (a) granting bodies, (b) the editor or publisher of journals or other publications, and (c) the head of the responsible academic unit; and
- (6) the original data are stored at the following location(s) and will be held for at least five years from the date indicated below:

**Location(s)**

Eastern Health Clinical School, Faculty of Medicine, Nursing and Health Sciences, Monash University, Clayton, Victoria, Australia

[Please note that the location(s) must be institutional in nature, and should be indicated here as a department, centre or institute, with specific campus identification where relevant.]

Signature 1

Date 4/4/11

Signature 2

16/5/11



**Appendix 8-3: Colville, Wainer & Aroni (2008), World Health Organisation Defines  
Gender Competencies for the Medical Practitioner (5 pages)**



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## WORLD HEALTH ORGANIZATION DEFINES GENDER COMPETENCIES FOR THE MEDICAL PRACTITIONER

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### INTRODUCTION

Whether called competence, or similar terms, the "competencies" movement is active and enlarging in effort worldwide (Societal Needs Working Group 1996; Lee 2003). Gender-inclusive approaches to curriculum encompass the social roles of men and women, rather than simply biological sex (WHO 2002). Gender competence is the capacity to identify where difference on the basis of gender is significant, and to act in ways that produce more equitable outcomes.

### AIM

This paper aims to explore the implications of a curriculum meeting.

### METHODS

In 2006, the World Health Organisation convened a meeting of gender experts including Deans of medical schools to produce a list of core gender competencies. This list is designed to help develop curriculum.

### RESULTS

This paper reports the resultant list of ten core gender competencies for medical practice (WHO 2006). The list maps to the CanMEDS competencies.

### DISCUSSION

Talking about gender as a social determinant of health is now mainstream within public health. In clinical practice and in medical education for practice, however, it is often lamentably silent. The competency list gives a focus for medical teachers to talk about, and internalise gender-inclusive curriculum strategies.

### CONCLUSIONS

Internationally agreed concepts of gender have been identified as relevant to medical education.

### INTRODUCTION

Measurable gender inequalities exist in health care. While very active, creditable efforts are being made around the world, gender's 'lack of stick' in relation to debates about health inequality is noteworthy. According to David Sacher from World Health Organization, the 'differential status of men and women in almost every society across the globe is perhaps the single most pervasive and entrenched inequity (2007)'. To mainstream gender into health care (Boxer 1998:157), provider education must play a role in redressing such inequity, and the question for medical education is how this can best be achieved.

This paper describes a core gender competency list produced by a consensus panel of experts. Gender competence is defined as the capacity to identify where difference on the basis of gender is significant, and to act in ways that produce more equitable outcomes (Wainer & Nobelius 2002). While all teaching curriculum ought to be critiqued with a gender perspective, the medical curriculum is particularly important because of its potential beneficial impact on health provider education about women's and men's health (Zelek, Phillips & Lefebvre 1997).

### COMPETENCE AND CURRICULUM

Competence is defined as a level of performance to be demonstrated by the learner in terms of knowledge, skills and behaviour, attributes that are derived from explicit conceptions of the occupational role. An objective describes the intended result of instruction, rather than the process of instruction itself. An objective is a description of a performance that learners exhibit before being considered competent. A competency is a combination of attributes underlying some aspect of successful professional performance. A competent professional has the attributes necessary for job performance to the appropriate standards (Gonzci, Hager & Oliver 1990). Attributes which jointly underlie competence are often referred to as competencies (1990:21).

A starting point for any curriculum, including a medical curriculum, is the element of a competency list of learning objectives. A curriculum is both a plan and policy for learning (Print 1993), and the lived experience of workplace training (Lave & Wenger 1991). A curriculum is also an arrangement of elements, such as objectives, teaching and learning, assessment, and subject matter (Eraut 1976, Prideaux & Jolly 2005). Values about gender are embedded in each of these concepts. Other potentially gendered curriculum elements include selection, educational context, educational policies, student characteristics, face to face teaching modalities, 'Train the Trainers' activities, sequencing, curriculum resources, assessment, and evaluation.



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More broadly, curriculum is an idea, a construct of society, a statement of what a society or educational organisation values: what it wants to continue, what it wants to change, what it wants to renew (Print 1993). Whatever the particular elements, a curriculum has 'form'. A curriculum form is an informal theory, where informal theory is defined as 'the understanding that emerges from and guides practice' (Hager 1999:66). A technical form is one based on 'the effective and efficient resolution of predetermined ends' (Eisner & Vallance 1974). Technology is applied, as both 'a plan for the systematic use of devices and media', and as 'a contrived sequence of instruction based on principles from behavioural science' (Print 1993:55). By contrast, social reconstructionists see education as an 'agency of social change, and that education be relevant both to the students' interests and to society's needs' (Eisner & Vallance 1974:135). This latter form seeks to 'foster a sense of critical discontent within learners' (Print 1993:53).

As an idea and as a practice, curriculum is and will continue to be, contentious (Print 1992; Eisner 1996). Enduring lack of gender inclusivity is not uncommonly blamed on the tendency for medical curricula to take on too 'technical' a form. Competence focuses on a role or set of tasks. Role, domain, and professional practice are headings under which to classify aspects of competence (Gonzci, Hager & Oliver 1990). For the more challenging aspects of professional performance, competence focuses on performance within a domain, where a domain is an area of professional practice which requires a high degree of professional performance. Contingency management skills and job role environment skills, including working with others, are examples of roles in a domain.

CanMEDS (Societal Needs Working Group 1996) is influential in Australia. Little altered, variants of the CanMEDS competency list have appeared in most, if not all, Australian Medical Council (AMC 2002) postgraduate medical college accreditation standards over the past decade, including in the medical specialty of ophthalmology. This observation is a striking case within medicine of the global movement of competency based training for workers generally. The seven CanMEDS roles or competencies are medical expert, and then professional, communicator, scholar, collaborator, health advocate and manager. Another popular North American framework is the AGCME. In the case of professionalism (V), gender is already explicitly included: 'Residents must demonstrate a sensitivity and responsiveness to patients' culture, age, gender, and disabilities' (AGCME 2007).

Capability is more than competence. Capability is 'the extent to which individuals can adapt to change, generate new knowledge, and continue to improve their performance' (Fraser & Greenhalgh 2001). Where competence is 'what individuals know or are able to do in terms of knowledge, skills, attitude', by contrast, capability includes adaptation. Complexity concepts are applicable to health curriculum. 'Neither the system nor its external environment are, or ever will be, constant' is an example, as is 'uncertainty and paradox are inherent within the system' (Fraser & Greenhalgh 2001). In summary, whether called competence, competencies or similar terms, the "competencies" movement is active and enlarging in effort worldwide (Harris, Guthrie, Hobart & Lundberg 1995; Societal Needs Working Group 1996, AGCME 2006; Lee 2003; Lee & Carter 2004; Residency Program Directors Council 2005).

### GENDER

Another global movement is the inclusion of gender within education. Gender-inclusive approaches to curriculum take the social roles of men and women, rather than simply biological sex, into account (WHO 2002). Both men and women have gender. Masculine and feminine are gender categories, whereas male and female are sex categories. Gender is the socially constructed differences between women and men, with certain roles, characteristics, responsibilities and expectations that each culture ascribes on the basis of being female or male (WHO 2002, Doyal 2001). Sex is the biological and physiological characteristics that define men and women. People are born female or male but learn to be girls and boys who grow into women and men. This learned behaviour makes up gender identity and determines gender roles. Another point to reiterate is that gender 'traps' men as well as women (Quadrio 2001). Never fixed, gender alters across time and context. Binary definitions are only a useful starting point, thereafter largely best avoided as over-simplistic and ultimately dangerous (Butler 1990).

The term gender analysis should be clearly defined. Gender analysis means 'identifying, analyzing, and informing action to address inequalities that arise from the different roles of women and men, or the unequal power relationships between them, and the consequences of these inequalities on their lives, health and well being' (WHO 2002). That both men and women have gender is worth an example. Female sex is a strong determinant of gender disadvantage in eye health. Globally, women carry twice the risk of blindness compared with men (Abou-Gareeb, Lewallen, Bassett & Courtright (2001). In eye health status statistics, for instance in relation to trauma and occupational health in the paid workforce, gender disaggregated data demonstrates disadvantage in men.

It is widely held that gender is constructed in daily interaction, through 'doing gender' (West & Zimmerman 1987). Gender awareness is not something that future doctors are, gender is something that they do. Gender awareness is part of professional practice (Wainer, Colville & Nobelius 2002). Complexity theorists go so far as to contend that 'talk about practice', any practice, but here we mean gender awareness in professional medical practice, is the only way to reconfigure medical education (Duffy 2006). One of the justifications for producing any gender competency list then, can be to generate 'talk' about gender within professional practice.

### METHODS

In December 2006, health professionals, Deans and other medical educators from twenty five countries met in Geneva with gender experts to together explore, define and refine a useful list of gender-inclusive competencies suitable for inclusion into the written goals of medical curricula around the world. The purpose was to direct teaching and learning, and to draw

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up better blueprints for assessment. Contributors came from all eight WHO regions, and met at WHO Headquarters in Switzerland. Most were medical educators in active medical educational practice. Teams were devoted to both clinical care and to public health. Their shared experience and hope for change in practice were embodied into these competency standards (Atkinson 2004; Burns 1990). The production of these standards, therefore, it was felt, could be amplified across the world after the meeting. The clinical care team results only are reported here. Two conceptual frameworks are used to explore the implications of the list of core competencies. These are the CanMEDS competencies, and tenets of complexity theory.

## RESULTS

The resultant competency list (WHO 2006, APGO 2006) from the group of educators, Deans and experts in gender consisted of the following ten points. The group called this list the ten minimum core gender competencies for physicians:

A gender-competent physician will

1. Demonstrate an understanding of basic gender concepts: gender power relations, gender roles, access and control, manifestations of gender bias, gender equity and equality) and of gender as one of the many social determinants of health.
2. Be able to explain sex and gender differences in normal development, health and illness (psychopathology and pathophysiology) as they apply to prevention and management of health problems.
3. Effectively communicate with patients, demonstrating awareness of the doctor-patient power differential and gender and cultural differences. This will be demonstrated, for example, through use of language by the provider in a way that minimises power imbalances, validates patient experiences and minimises gender stereotypes.
4. Perform a sex, gender, age appropriate and culturally sensitive physical examination
5. Discuss the impact of gender based societal and cultural roles and beliefs on health and health care of patients
6. Discuss the impact of gender based societal and cultural roles and beliefs on the health and wellbeing of care providers
7. Identify and assist victims of gender-based violence and abuse.
8. Assess and counsel patients for sex and gender appropriate reduction of risk, including lifestyle changes and genetic testing
9. Assess and critically evaluate new information through a 'gender lens': identifying gender biases and gaps; and adopt best practices that incorporate knowledge of sex and gender differences in health and disease
10. Demonstrate understanding of the differential impact by gender of health care systems (e.g. the way they are organised and financed) on populations and individuals receiving health care.

We commence with a simple behavioural objectives analysis. No surprise to anyone who has been asked to draw up a curriculum in the last decade or so in Australia, the extracted phrases that follow exemplify behavioural objectives: 'Demonstrate an understanding of, be able to explain, effectively communicate with, perform a physical exam, discuss the impact of, identify and assist victims of, counsel, demonstrate the differential impact of. More noteworthy however, are the phrases that appear beyond these simple stems.

Regarding patient care, there appears 'to identify and assist victims of gender-based violence and abuse' and 'to assess and counsel patients for sex and gender appropriate reduction of risk, including lifestyle changes'. The statement calling on students to demonstrate understanding of 'the differential impact by gender of health care systems, that is, the way health systems are organised and financed around populations and individuals receiving care' is of higher order also.

Turning to CanMEDS, to simply map the WHO list of ten into the CanMEDS seven roles appears to be useful for Australian curriculum developers. A social-reconstructive form of curriculum is already foreshadowed within the full CanMEDS competency list, with or without gender. Adding the WHO gender list however illustrates powerfully the potential applicability of the social reconstructive curriculum form. Gender-inclusive curricula suit a framework beyond the technical curriculum form's traditional focus on the first CanMEDS competency alone, that of 'health expert'. Overlap exists. All seven CanMEDS competencies could be elaborated further to include many more of the gender definitions above (Table 1).

**Table 1 The Core Gender competencies mapped to the CanMEDS competencies.**

CanMEDS competencies	WHO Core GENDER competencies
Health expert	4. & 7.
Communicator	2, 3. & 8
Professional	6.
Scholar	9.
Collaborator	1 & 6
Health Advocate	1.& 5.
Health Manager	10.

For Australia, for instance, such a table may be useful since it fits with the Australian Medical Council's accreditation framework, and also maps further into a blueprint for assessment.

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### DISCUSSION

The discussion points are gender as performance, gender relations in the profession, and a paradox within curriculum change. Limitations and questions for further research are suggested.

An important implication of this core gender list is that gender competent medical educators themselves 'do gender' differently, and most relevantly in this context, 'teach gender' differently in relation to professional medical practice. Much more than the existence of policy in the form of competency statements, however, is required to achieve change in this direction. The list leaves unstated what learning experiences might bring a student to a suitable level of competence, competency, performance or capability. The list lacks any explicit directions to teachers wishing to 'implement' this policy into educational practice.

Putting gender relations within the profession as core to 'professional' competence itself is 'close to the bone'. For medicine to re-engage with society, talking about the social determinants of health, and gender-inclusiveness foreshadow regaining medicine's own humanity. The social determinants of health become the important entry point to a form of representation of curriculum that is socially-reconstructive, more than technical.

The technical appears to dominate so often that to consolidate the social-reconstructive in palatable form, as occurred in Geneva in 2006, with esteemed medical educators and Deans, representing all eight WHO geographic regions, is noteworthy and a useful development in medical education. Talking about curriculum form then, we argue, has the advantage of potentially resetting curriculum directions by acknowledging a source of present conservatism, that is, restricted conceptualisation of curriculum as simply one form or another, rather than drawing on a complexity model that encompasses all five forms, and possibly more. The advantage of drawing on complexity theory in extending these forms is that it becomes an iterative and hence developmental process. In this view newer approaches to medical education can address the limitations of simpler competency based approaches. Table 2 shows a list of features of complexity theory on the left, next to some of the corresponding items from the core list of ten. It maps the WHO gender competency list against some published features of complexity theory (Duffy 2006; Beach & Inui 2006).

**Table 2 Complexity theory and the WHO Gender Competency list**

Feature of complexity theory	WHO Gender Competency list
Neither the system nor its external environment are, or ever will be, constant	5
Individuals within a system are independent and creative decision makers	2
Uncertainty and paradox are inherent within the system	9
Problems that cannot be solved can nevertheless be "moved forward"	7
Effective solutions can emerge from minimum specification	3
Small changes can have big effects	3, 8 & 9
Behaviour exhibits patterns (that can be termed "attractors"), (and that)	10
Change is more easily adopted when it taps into attractor patterns	9

There is a paradox in explicitly drawing up such a list of core competencies. The list contradicts the hidden curriculum. Usually carrying a negative connotation, the hidden curriculum refers to the outcomes of education and/or the processes leading to those outcomes, which are not explicitly intended by educators, nor explicitly intended because they are not stated by teachers in lists of objectives (Haidet & Stein 2006; Seddon 1983:1–2 in Print 1993:10). Talking about gender as a social determinant of health is now mainstream within public health. In clinical practice and in medical education for such practice, however it is often lamentably silent.

Pervasive, significant, 'commonsense', rarely questioned and often unarticulated, the hidden curriculum is however not hidden to everyone. Hidden curriculum involves the learning of attitudes, norms, beliefs, values and assumptions often expressed as rules, rituals and regulations. A change in gender-related curriculum practices depends on what is known as investment. Here investment means internalisation of, educational policy by teachers and mastery of competence by their students. Paraphrasing Seddon (1983), both teacher and learner investment in social change are required. Teachers have particular difficulty adapting their teaching in response to new forces that are perceived only as external (Jipson, Munro, Victor, Froude-Jones & Freed Rowland 1995). Only when teachers inwardly espouse new policy values do they alter their teaching practices according to policy environmental pressures. Change may turn on how 'external' or 'internal' a medical educator finds these gender concepts to be. Those who see the points in the list as an 'external' pressure upon them will have much more difficulty teaching such material than will those who have internalised the issues, since they recognise 'internally' that it is a problem.

Complexity theorists contribute here. There is no improvement where no existing structure exists whereby talk about practice, or talk about relationships is allowed, encouraged, let alone considered absolutely 'core' (Duffy 2006). Far from silence, many gender theorists would argue that talk about practice, and talk about gender relationships, ought to be made core, through provider education, in order to address 'profound disempowerment' of patients.



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## LIMITATIONS AND FURTHER RESEARCH

Limitations of the method are acknowledged. The consensus panel as a team was convened largely with geographic representation in mind, without priority to how easy post-meeting networking arrangements might prove. However, participants had high internal motivation, and it is significant step that a group of Deans and senior administrators themselves drew up the gender competency lists, and that WHO have supported the report. We did not have access to those who actually teach the programs but rather predominantly only Deans and senior administrators. On the one hand this is symbolic of support and recognition of the importance of the issue in the minds of those who have power and control over the formal iterations of curricula. On the other hand, first formal iterations may not take endure into actual teaching practice. Consensus panels often do not adequately incorporate dissenting views as such views may not be fully expressed due to the environment of requiring a speedy and consensual outcome and because members of the panel may be socially restricted from expressing dissent due to external constraints. Although electronic publication on the WHO website of the final report has been delayed, nevertheless the WHO electronic publication can be regarded as useful evidence of acceptance and widespread support and influence. As far as institutional support and influence, the use of the term gender in the WHO is relatively new.

Further research questions arising from this paper are whether curriculum form influences gender competency of graduates, what ways are available to increase teacher and student investment in social change, and whether complexity theory can assist in encouraging 'talk' among medical teachers to come up with useful new 'themes' in curriculum, as foreshadowed by Duffy (2006).

## CONCLUSION

Gender disparities in health are vast. A WHO core competency list was produced by a consensus panel of Deans and gender experts. The list of gender inclusive competences addresses the hidden curriculum in medical school.

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