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TEACHING AND LEARNING MEDICINE:
A STUDY OF TEACHERS AND LEARNERS
IN A YOUNG MEDICAL SCHOOL

by

BRENDA MOUNTFORD

A Thesis submitted for the Degree of Doctor of Philosophy
of the University of Southampton

September 1988

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UNIVERSITY OF SOUTHAMPTON

ABSTRACT

FACULTY OF EDUCATION STUDIES
EDUCATION

Doctor of Philosophy

TEACHING AND LEARNING MEDICINE: A STUDY OF TEACHERS
AND LEARNERS IN A YOUNG MEDICAL SCHOOL

by Brenda Mountford

Southampton Medical School's innovative curriculum attracted widespread attention. But Coles (1985) showed that its claim to be integrated was flawed, and also demonstrated some weaknesses in Southampton students' theoretical learning. The present study concentrates on students' clinical learning during the School's formative years. Simultaneous participant observation with two groups of Third Year students on Medical attachments gave rise to a 'naturally occurring experiment', in which different styles of teaching, one hierarchical, one not, produced different qualities of learning amongst the students: these are summarised, respectively, as 'doctor-centred' and 'patient-centred'. The firms differed, not in their use of conventional bedside case-presentation (the limitations of which are examined, along with conflicting interpretations of the attachment's clinical aims and of the nature of history taking), but in the degree of participation and independence and in the variety of clinical experience they offered outside formal teaching. Follow-up studies include further evidence of clinicians' differing views, and evidence of the value of GP attachments in terms of authenticity of clinical encounter, wider experience, real-time consultations, and faster feedback. Some students, not all, derived considerable clinical learning from these attachments. As postgraduates, students said they acquired clinical confidence after graduation. These findings are considered from an educational point of view, and Schon's theory of the reflective practitioner is invoked, together with the value, for both learners and teachers, of discussion as means of sharing experience.

The thesis falls into two Parts. Part One consists of Chapters 1-6 and deals with historical preliminaries (Chs. 1-2: UK Medical Education; the Southampton curriculum), and theoretical preliminaries (Chs. 3-6: Integration; Evaluation; Methodology; Methodics). Part Two introduces the data, with a preview of the findings (Ch. 7), presents the data (Chs. 8-12), and concludes with Discussion (Ch. 13), including Recommendations.

PREFACE

The curriculum of Southampton Medical School has already provided the context of one doctoral thesis presented in the Faculty of Education, namely "A Study of the Relationships between Curriculum and Learning in Undergraduate Medical Education" (1985) by Dr. Colin Coles of the Medical Education Group in the Faculty of Medicine.

It has been my good fortune over the last eleven years to be the other member of the Medical Education Group (MEG), and I wish to echo Colin Coles' words in his Preface: "I have experienced a genuine and deep commitment to the Medical School on the part of all concerned - staff, students and administrators". Like his study, the present study is intended both as an examinable thesis and also as a contribution to curriculum development within the Medical School. Like his study, also, the present study points to educational problems at the heart of the curriculum. In one sense, then, it reinforces his study. But in another sense, it complements it, since it does not approach its subject from a particular orientation, such as psychology, nor does it investigate in depth a particular function, such as student learning.

What I have attempted to do is to make use of the extraordinary privilege I enjoyed, at the behest of the Faculty, of exploring its teaching and learning, in all its variety, at first hand. For five years, in post as Research Assistant/Research Fellow, I attended courses, in all years of the BM curriculum, got to know students and staff alike, talked with them as much as I could, and wrote reports, as an educationist, for those in charge (the Dean of Medicine, course co-ordinators, heads of firms). My main method of inquiry was a form, a quite congenial form, of participant observation - one which proved as acceptable to the observed as to the observer. Enough time has elapsed since, I believe, for me to use, without trespass, the observations of those years for the purpose of the present study, and to make an educational report of a more general nature, which may still be of benefit to the young Medical School whose teaching and learning it explores.

I have, throughout this study, tried to keep both teaching and learning or, more correctly, both teachers and learners, in view, rather than an abstraction, such as the curriculum. It was as a professional teacher turned professional learner that I approached my work in medical education, and it was as a non-medical person that I learned about Medicine and the teaching and learning of Medicine. I have written accordingly, in the hope that the extensive reporting in the study will give any non-medical readers the flavour of my experience as well as authenticating that experience for any medical readers. The choice of the teaching and learning of clinical medicine made itself - the special nature of Medicine and the special educational problems of Medicine arise there. The problems are not new. But the opportunity of solving them was new, when the Medical School was established. Yet, as this study tries to show, conventional approaches to both Medicine and Education were prevailing over innovative aspirations when the new School was still in its first decade - hence the 'young' in the title.

* * *

It is a great pleasure to record my thanks to the following:-

To Professor Peter Kelly, my supervisor, to Professor Charles George, Dean of Medicine, to Colin Coles, already mentioned, my colleague in MEG, to Vanessa Handley-Potts, secretary to MEG, to Sandra Wilkins, typist extraordinary - all of whom have helped this study struggle into the light; to Professor Ken Mundy, who as Head of the School of Biochemical and Physiological Sciences gave me his generous assistance; and finally to Professor Sir Donald Acheson, the Foundation Dean, and Professor Jack Howell, his successor, who together engendered it.

There are many others whom I thank without naming - friends and family who have helped in many ways; and there is that large body of students, now doctors, and staff, whose friendliness made this kind of study possible in the first place.

Southampton 1988

Brenda Mountford

NOTES TO READER

Names. Many groups of people and many individuals contributed generally, as acknowledged in the Preface, to the data reported in Chapters 8 - 12, but the names used in reporting are all coined for the occasion. The forms he/him/her have been used, with a few exceptions, as common-gender forms.

Dates. These have generally be avoided or deleted.

Referencing. Chapters are sub-divided into numbered Sections, Subsections and Subsubsections. Chapters are referred to as Chapters, while 'Section' is used to refer to any numbered subdivision of a chapter. All Section numbers are cited in full.

Changes to the Medical Course. Some changes have taken place in the curriculum of the Medical School since the period reported on in this study; for example, the Introductory Course to Clinical Medicine has been shortened and moved to the beginning of the third year. The principal features of the 'Southampton curriculum' remain, however.

PART ONE

CHAPTER ONE

BACKGROUND: 20th CENTURY U.K. MEDICAL EDUCATION SO FAR

1.1 From Flexner (USA, 1910) to Todd (UK, 1968)

1.1.1 The conventional curriculum

Medical Education in the United Kingdom is based on Acts of Parliament, on Recommendations of the General Medical Council (GMC) (originally the General Council of Medical Education and Registration of the United Kingdom) and on University Medical Schools.

The 1858 Medical Act established statutory requirements for medical registration and hence for the education leading to registration. The Act stated that for registration "the requisite knowledge and skill for the efficient practice of their profession" was required of doctors (GMC 1947:6). The Act also assigned to the GMC "the supervision of medical education" (GMC 1957:1). The 1886 Medical Act refined these requirements to "the possession of the knowledge and skill requisite for the efficient practice of Medicine, Surgery and Midwifery" (GMC 1947:6) and this remained unaltered until the Medical Act of 1978 (GMC 1978:3). This requirement was based on the assumption that after a short period of training (it became five years in 1922 (GMC 1957:3)) the graduating doctor would be sufficiently equipped in Medicine, Surgery and Midwifery to begin independent practice immediately.

Medical Acts are necessarily very general in content and, until 1978, were rather rigid. The GMC in 1947 aimed to translate the Act "into concrete terms, so as to indicate in what subjects, in what sequence, and for how long, students should be instructed in order to reach a standard of proficiency which the Council regard as sufficient" (GMC 1947:6). The GMC's 1947 Recommendations are very detailed and precise (56 pages and a 12 page summary) and they represent the essence of conventional medical education course structure. Though in this document the Council's Report of 1881-82 is quoted to the effect that "nothing should be done to weaken the individuality of the Universities" (page 7), the recommendations which follow are nevertheless very prescriptive, and as the Recommendations of ten years later acknowledge, they "left insufficient scope for the exercise of initiative and experiment" on the part of the Medical Schools (GMC 1957:5).

The Goodenough Report 1944

The prescriptiveness on the part of the GMC followed the publication in 1944 of the Report of the Inter-Departmental Committee on Medical Schools, known as the Goodenough Report after the chairman of the Committee. This Report, designed to lay the foundations of post-war medical education, was very critical of the then current medical education and recommended that the GMC take immediate action in "a drastic overhaul of the medical curriculum" (Goodenough 1944:210-24), with the development of a national health service in mind (page 45) and "the needs of the future general practitioner" (page 44): all specialisation should be left for postgraduate medical education (page 44).

One of the key criticisms was the "difficult and almost disheartening experience" (page 145) of students when they moved from pre-clinical (the first two years) to clinical studies. The Committee suggested that an Introductory Clinical Course (pages 26 and 145) would remedy this "serious defect": thus they supported the existing course structure whilst recognising that modifications were needed if course intentions were to be met. Another modification which they sought (Chapter 15) and which the GMC agreed to was the introduction of a pre-registration year, during which newly-qualified doctors would be supervised in approved hospitals. This pre-registration year was later prescribed in the 1950 Medical Act and took effect in 1953.

G.M.C.'s Recommendations 1947

The GMC's 1947 Recommendations, following the Goodenough Report, epitomise conventional mid-century medical education in the U.K.: the pre-existing structure, though refined by the Introductory Clinical Course is retained and the recommendations spell out the content to be included throughout the course. Table 1.1 shows this course structure.

The 1947 GMC Recommendations outlined Medical Education as follows: General and Pre-medical Education followed by Professional Education divided into three stages (a) pre-clinical studies, (b) transitional study and (c) clinical study.

General and Premedical Education: this has been a primary concern of the GMC since its first meeting in 1858 (GMC 1957:3). The Council saw that medical education required students to have a good general education. By 1947 the physical and biological sciences

were seen as fundamental to medicine: thus students with a thorough grounding in the basic principles and methods of these sciences were thought most suited to medical education. (The Goodenough Committee recommended better science education in secondary schools to meet this demand.)

Professional Education (a) Pre-Clinical Studies (not less than 5 academic terms): this phase was concerned with normal human growth and development. It included the study of Human Anatomy and Human Physiology, together with the Physics and Chemistry of bodily functions (Biochemistry). Elements of Psychology may also be included. (The Goodenough Committee (1944:167) had recommended that aspects of Social Medicine should be taught; the GMC, however, decided "not to include in the new Recommendations any provision" in this respect (page 21), though interestingly Social Medicine and Public Health were recommended for inclusion in the clinical phase.

Professional Education (b) Transitional Studies (3 months): this phase was concerned with an Introductory Clinical Course where students were introduced to the Methods of Clinical Examination of patients. (The Goodenough Committee had had a wider brief for this course (page 26): (i) student adjustment, (ii) the links between pre-clinical study and clinical study, (iii) the value of scientific method in clinical work, and (iv) the observation and interpretation of physical signs of disease. (It is interesting to note that emphasis was squarely placed by the GMC on physical signs and physical examination techniques and not on history taking.) Pathology and Bacteriology and Pharmacology were optional in this phase.

Professional Education (c) Clinical Studies (not less than 33 months): this phase was concerned with instruction in the principles and practice of clinical medicine, specifically in the specialities of Medicine, Surgery, Midwifery and Gynaecology (the 'big three' named in the Medical Acts until 1978) together with Paediatrics and Psychiatry. Also to be included were Pathology and Bacteriology; Pharmacology and Therapeutics; Social Medicine and Public Health; Forensic Medicine and the legal and ethical obligations of Registered Medical Practitioners.

Examinations: the Council required that an examination, usually called the 2nd MB, should test the pre-clinical studies of the first two years. They said that students must pass this examination before beginning their clinical studies. The Council also required that clinical studies must be examined in a final or qualifying examination.

Pre-Registration Year: this new requirement took effect in 1953. During this year newly-qualified doctors hold junior house appointments (usually six months Medicine and six months Surgery) in approved hospitals under the supervision of consultants working for the University.

The 1947 Recommendations of the GMC, carried into effect by the early 1950s, provide the general background against which developments leading to the establishment of Southampton Medical School can be seen.

1.1.2 The Flexner Report (USA, 1910)

The structure just described is generally regarded as having its source in the Flexner Report of 1910: "the Flexner-inspired division of undergraduate medical education into two years of laboratory sciences and two years of clinical medicine" (Williams 1980:272; "two years of clinical medicine" since Williams was writing in the USA). This report on Medical Education in the United States and Canada, was written by Flexner (a classicist) for the Carnegie Foundation for the Advancement of Teaching. "It heralded a program for medical education reform" (Vevier 1987:1).

The context in which Flexner wrote was very different from today's. Three aspects are especially relevant; (i) medical practice, (ii) the growth of universities and of scientific knowledge, and (iii) medical education.

(i) At that time medical practice was largely "empiric" (Flexner 1910:52). 'Empiric' and 'empirical' have a special meaning in relation to medical practice and treatment: "empiric: a medical quack: charlatan" and "empirical: based in practical experience rather than scientific proof" (Collins 1979:480). Since medical practice was empiric it "lacked a technique with which to distinguish between apparently similar phenomena, to organise facts, and to check up observations" (Flexner 1910:52); that is, it lacked a scientific method. However, medical practice was changing, though slowly: "Medicine, hitherto empirical, was beginning to develop a scientific basis and method" (Flexner 1910:8).

(ii) Scientific knowledge had been growing in the universities and colleges throughout the 1800s, and with this, the universities themselves had changed "a slow metamorphosis of the University from a centre of dogma to a centre of inquiry" (Shapiro 1986). Schon (1983:34) characterises this metamorphosis as follows "the very heart of the university was

given over to the scientific enterprise, to the ethos of the Technological Program, and to Positivism." Subject specialism was on the increase, though some disciplines were as yet poorly established, for example Biochemistry, Genetics, Geography, Psychology, Sociology.

(iii) Medical education in North America was largely controlled by small provincial colleges operating for profit. The courses were often entirely theoretical and without any clinical practice: the older apprenticeship system had been supplanted. Flexner (1910:9) describes such teaching: "Didactic lectures were given in huge, badly lighted amphitheatres, and in these discourses the instruction almost wholly consisted. Personal contact between teacher and student, between student and patient, was lost....Many of the schools had no clinical facilities whatsoever."

Flexner in his report of 1910 brought these three aspects together. His innovations were intended: 1. to free medical practice and medical education from the authority and dogma of empiricism and existing ideas; 2. to enable medicine to be forward-looking in an enterprise of inquiry utilising to the full the rigorous scientific approach of observation and inductive reasoning; 3. to improve the educational methods and standards of medical education. These were brave and commendable intentions.

The interpretation of his report led to pronounced changes in medical education, based on "the themes that (a) medical care must be based on thorough knowledge of the biomedical sciences, (b) only high-quality medical schools should receive accreditation, (c) these schools should emphasize both laboratory work and extensive clinical experience, (d) the many inadequate proprietary medical schools which flourished in that period should be closed down, and (e) medical schools should be affiliated with universities." (Higher Education and the Nation's Health, 1970:15). Points (b) and (d) were tied to the particular historical context and can be ignored for the present purpose. Points (a), (c) and (e) are relevant since they have become widely institutionalised in Western medical education. It was against such a course emphasis that the Todd Report (1968) was made.

1.1.3 The Todd Report (UK, 1968)

1.1.3.1 Introduction

The medical school at Southampton was one of a cluster of three new medical schools

which came into being in the UK in the years around 1970. The immediate background to its establishment was provided by the Royal Commission on Medical Education, appointed in 1965 under the chairmanship of Lord Todd, which published its report in 1968 (short reference: Todd 1968).

The cyclical setting for the Commission's study seems remote in 1988. Higher education was expanding fast; there was serious under-production of medical graduates; the National Health Service, in its hey-day, was drawing in substantial numbers of overseas doctors to make up the shortfall. The Commission's remit was, essentially, "to review medical education, undergraduate and postgraduate, in Great Britain, and in the light of national needs and resources...to advise...on what principles future development...should be based" (page 3) - "development" including the location of medical education and its general content.

The width of the remit is to be noted. The Commission was to look at medical education as a whole. Its Report rose to the occasion with many proposals designed to rationalise and modernise the untidy structure of British mid-century medical education (e.g. the complex situation in London), as well as proposals for its expansion. This sub-section (1.1.3) sets out a selection of these proposals of special relevance to Southampton's undergraduate curriculum and the concern of the present study, under the following ten headings.

- | | |
|------------------------|--------------------------|
| (i) continuity | (vi) course organisation |
| (ii) aim | (vii) recruitment |
| (iii) content | (viii) regionality |
| (iv) teaching/learning | (ix) curriculum |
| (v) assessment | (x) evaluation |

1.1.3.2 Todd Recommendations

(i) Continuity

Undergraduate and postgraduate education were to be seen as a continuum. Todd deals with postgraduate education before it deals with undergraduate, since postgraduate education had evolved without planning. Only when the postgraduate stage was recognised as an essential part of an educational continuum, could the aim of the undergraduate stage and its content be defined. The formalisation of the postgraduate state provided relief for

the congested undergraduate curriculum, allowed the aim of the undergraduate curriculum to be a limited one (see (ii)), and gave plausibility to the notion of the doctor as a life-long learner. Within the undergraduate stage, the emphasis on continuity took the form of seeing pre-clinical and clinical studies as a continuum (see (iii)).

(ii) Aim

The aim of the undergraduate curriculum must be seen in the light of the continuity expressed in (i). Todd puts it first very generally, adopting the view of the Robbins Committee (1963) that, in higher education, vocational training must be informed by educational goals (Robbins, paras 25-26 containing the Robbins postulate that "...what is taught should be taught in such a way as to promote the general powers of the mind", are quoted in full). This first version runs: "we cannot emphasise too strongly that the undergraduate course in medicine should be primarily educational. Its object is to produce not a fully qualified doctor, but an educated man who will become fully qualified by postgraduate training" (para 197).

After two paragraphs dealing with the breadth of content (see (iii)) of the undergraduate curriculum, a second version with more flesh on it is given, quoted here in full.

"We take the view, therefore, that the aim of medical education should be to produce, at graduation, a person with two essential qualifications. He should have, first, a knowledge of the medical and behavioural sciences sufficient for him to understand the scientific basis of his profession and to permit him to go forward with medicine as it develops further; and, secondly, a general introduction to clinical methods and patient care in the main branches of medicine and surgery, together with an introduction to social and preventive medicine. We hope that he will be taught throughout in such a way as to inculcate in him a desire to continue learning not only during the post-graduate training which we hope he will undertake...but throughout his professional life" (para 200).

(iii) Content

The areas of content for the undergraduate curriculum are indicated in the aim just quoted (ii): sciences, medical and behavioural; clinical method/patient care and social/preventive medicine. What is to be noted is the limitations built in: "a sufficient

knowledge..." of the sciences; "introductions" to the clinical side, and, within clinical methods, a limitation "to the two main branches of medicine and surgery". These limited goals are made possible by various means: continuity with the postgraduate stage, as explained in (i) above, on the dimension of "along the curriculum"; and selectivity "across the curriculum", the medical sciences being treated more selectively than in the past (the chief victim here was Anatomy), to make room for the behavioural sciences now winning their place, and for specialty options (another form of selection) in clinical studies.

In accommodating the pressure on the curriculum of specialties, Todd set its face firmly against separate education for specialists and general practitioners. Though this occupies only a few lines of para 198, it is of great significance. In rejecting such a radical step, the Commission accepted General Practice as a specialty on a par with other specialties bidding for a place in the curriculum.

Another pressure on the curriculum which Todd welcomed and accommodated was the linking of content in the medical sciences to on-going research. However, acquaintance with research was to be available to the undergraduate in greater optional time put at his disposal by improved organisation of clinical teaching.

(iv) Teaching/Learning

Todd's most general point on the nature of medical teaching has already been mentioned (in (ii) above, Robbins quotation): that all teaching should be educationally respectable, developing the learner's powers of learning rather than depressing them, promoting his independence as a learner.

Todd has some lesser recommendations which flow from this, discountenancing authoritarian teaching, limiting the role of the formal lecture, advocating seminars and other opportunities for the student to take responsibility for his learning by means of options, electives, and projects, and by supervised rather than organised clinical experience in the later stages. Examinations, too, are to be made to contribute to learning.

But the most far-reaching of Todd's recommendations are aimed at breaking down compartmentalisation wherever it is found in the curriculum, whether in the gross division (para 201) which splits the curriculum into two halves, pre-clinical and clinical, or in the internal divisions to be found within each half (pre-clinical para 238, clinical para 227).

Todd advocates various forms of integrated teaching, spelling out the advantages of "an integrated approach to medical education" in detail (para 228). Inter-departmental teams are recommended for "topics" in non-clinical teaching, while in clinical teaching "group teaching has a particular place at ward level, where the patient, the best focus for integration, is studied" (para 229). Here the inter-departmental "group" suggested by Todd includes (among others) a surgeon, a physician, a pathologist, a general practitioner and a psychiatrist. The emphasis in both cases -- both where a topic provides the focus and where a patient provides the focus of integrated teaching -- is on what would now be called "horizontal integration" (see chapter 3). As to what has become known as "vertical integration", i.e. integration between pre-clinical and clinical stages, Todd regards it as axiomatic that...

"In the initial phase of any medical course the scientific basis must be laid for an understanding of structure and function in man before intensive clinical work can be undertaken; but unfortunately this had led to a widespread impression that the course consists of two discrete parts. The continued use of the terms "pre-clinical" and "clinical" serves to heighten and perpetuate this impression. We should prefer to see these terms no longer applied to subjects and parts of the medical curriculum; we think they are bound to lose their significance as the curriculum becomes better integrate" (para 201, page 87).

The Report continues to use the two terms, however, "as a matter of convenience, although we regard the undergraduate medical course as a single whole and would prefer it to be described simply as made up of education in a variety of clinical and non-clinical subjects."

(v) Assessment

Todd's major goal of integration, just introduced in (iv), is extended from curriculum content to assessment: "The examination system must be radically altered...so that the student is himself encouraged to bring together and integrate the instruction he receives and will come to visualise the patient as a whole, not merely as a collection of systems" (para 227). Other recommendations relate to the timing of the standard examinations, and the use of other more continuous forms of assessment of greater benefit to the learner.

(vi) Course organisation

One of Todd's concerns is to break down the traditional rigidity of medical education, and in course organisation they favour variety between institutions and flexibility within institutions. One variety of organisation they advocate is a modular one allowing some degree of transfer in and out of medicine and greater adaptability to career choice within medicine.

(vii) Recruitment

Todd's thoughts on student selection are in keeping with the liberal trend manifest in the Report as a whole. Selection procedures should not be opaque; they should not work to the disadvantage of women or to the disadvantage of applicants from families with no connection with the medical profession; and where headmasters' reports suffice, the interview might be dispensed with. Teaching institutions should be in closer contact with local schools.

(viii) Regionality

As with schools, so with the undergraduate curriculum and the postgraduate curriculum: closer links should be formed between institutions and their regions, and formal provision made for collaboration.

(ix) Course control

"The patterns of medical course available in each school should be decided by an inter-departmental committee of teachers appointed by the Faculty of Medicine. The members of this committee should include junior staff, should be in close touch with student opinion and should plan ways and means of assessing results" (para 208).

(x) Evaluation

Though the two activities of appraisal -- the assessment of students and the evaluation of courses -- are mentioned in the report, the terminological distinction had not yet hardened in the 1960s. The expression "ways and means of assessing results" in the quotation in (ix) refers to evaluation.

1.2 Innovatory climate circa 1970

1.2.1 Changes in educational thinking

The Robbins Committee (1963) was appointed early in 1961 "to review the pattern of full-time higher education in Great Britain". The Report advised expansion, with wider access and diversification of courses (Robbins 1963 Chapters 6,11 and 18). The Polytechnics were founded in 1966: "it was hoped that with greater diversity of types of course, they would attract students from a wider range of age and social background, thus constituting a genuine extension of opportunities for higher education" (Whitburn et al 1976:v).

Such a refocusing of higher education was needed because "individuals, society at large, even the nations of the world are passing from an Age of Assent to an Era of Consent" (Venables 1971a:11). Venables further differentiates the change: "from an Age of Required Assent -- required willy-nilly by economic, political, religious and social pressures -- to an Era of Voluntary Consent given freely out of understanding and consultation" (page 11). The education of Voluntary Consent was characterised by expansion of opportunity and choice. This coincided with the 'bulge', the increased number of potential students for higher education, due to the increased post-war birth rate, and with the 'trend', the increased number (especially women) of suitably qualified students (Layard et al 1969).

At the same time there was a growing disenchantment with the "Universities' subject departmentalism and the consequent educational and institutional fragmentation" (Robinson 1968: 109). The power of the academic subject was questioned: "From being mere subject divisions of convenience for purposes of study academic subjects have grown into intemperate monsters each with its army of fanatical partisans" (Robinson 1968:101). This description by Robinson may be somewhat extreme, but the departmental boundaries of institutions governed by traditional academic subjects show weaknesses when "subject divisions of convenience" are no longer convenient. Carter's point is less extreme but equally significant: "the professional boundaries of disciplines come to be drawn in odd places, excluding much that is of great relevance to a civilised life, and including much that is of less value" (Carter 1971:86). Traditional academic disciplines previously highly regarded were coming under attack, especially as a basis of general higher education.

They were also coming under attack as the basis for professional education. Society's problems cut across academic boundaries; professions and professionals were increasingly seen to be ineffective. Schon (1983:chapter 1) describes this crisis of confidence in professional competence. He says of medicine: "as physicians have turned their attention from traditional images of medical practice to the predicament of the larger health care system, they have come to see the larger system as a "tangled web" that traditional medical knowledge and skill cannot untangle" (Schon 1983:14). Alternatives were sought.

Some educational planners saw integrated courses as the answer: they were thought more appropriate to everyday life and to effective problem-solving. Sadly, however, experience has shown that intentions of integration were rarely achieved, largely due to the institutional structure of academia and the underlying paradigms (Hewton 1982).

(Chapter 3, 'Integration as a concept in Higher Education', outlines in more detail reasons for this lack of success and the quiet rejection of an integrated approach.)

Ecology as an academic discipline is a good example of successful integration: however, Odum (1977) claims that ecology is "an integrative discipline" rather than an interdisciplinary approach. (The first text book of ecology was written in 1953 by Odum & Odum.) Ecology is an observational science concerned with holism and general systems theory (Bertalanffy 1968; Baker 1970; Dubos 1976). General systems theory attempts to "point out similarities in the theoretical constructions of different disciplines, where these exist, and to develop theoretical models of study" (Baker 1970:1). Like ecology, systems theory is "antidisciplinary rather than interdisciplinary" (Sheldon et al 1970:preface). Systems theory lends support to the view of the educationalists who see effective learning residing in "the attitudes that things are connected and not isolated" (Bruner 1960:27). An integrated approach seems educationally desirable.

However, interdisciplinary or integrated courses often focused on content rather than on process. Dewey in 1910 criticised science teaching for being content loaded, at the expense of method or process. His philosophy was 'learn by doing'. In September 1959 scientists, scholars and educators in the USA attended a ten-day conference to discuss how education in science might be improved at primary and secondary level. "We were at the beginning of a period of new progress in, and concern for, creating curricular and ways of teaching science" (Bruner 1960:vii). Emphasis was placed on science as method. Bruner remarks: "strange as it may seem, this was the first time psychologists had been brought together with leading scientists to discuss the problems involved in teaching their

various disciplines" (page ix). There were also two historians present since "it would be in the interest of perspective to compare the issues involved in teaching science with those in a more humanistic field, such as history. The conviction turned out to be a sound one, and our historians contributed mightily to the proceedings" (page x). Such co-operative planning emphasises what is common to disciplines; it allows a holistic or systems approach and links formal education to everyday life. This was a re-orientation in education.

In the UK this movement led to the introduction of Nuffield Science in schools -- biology, chemistry and physics initially, followed by integrated sciences, at both 'O' and 'A' levels. The emphasis was on the method of science: specific content was put to the service of process - the scientific method. This approach avoided the criticism of Dewey (1910), for method was central. It matched the ideal of Flexner (1910) for medical education. This focus on science as method is at present brought to medical education by those students who have studied Nuffield courses. The GCSE philosophy will filter into medical education in 1990: and, unlike Nuffield, taken by only a few students, most medical students, after that time, will be a product of GCSE.

1.2.2 Innovations in medical education

1.2.2.1 Introduction

For the first 40 years of this century the University-based pre-clinical/clinical medical course, produced the kind of doctors that society and the medical profession were proud of. However, increasingly, the structure and process of medical education were questioned, especially the pre-clinical/clinical split. In the UK the GMC's 1956 Recommendations cited this as the major cause of curricular problems. Such dissatisfaction led to innovations within medical education generally. Western Reserve, Ohio, led the way with a radically innovatory approach: "the new curriculum was a unique achievement, for I believe it was the first time a medical curriculum had ever been redesigned from the beginning to end" (Ebert 1980: viii). Western Reserve's new curriculum took its first students in 1952: it adopted an integrated approach. This innovation is described in Section 1.2.2.2. Two further innovations are described in the following sections: problem-based courses (1.2.2.3) and community-based courses (1.2.2.4).

1.2.2.2 An integrated approach

At Western Reserve, it was the Dean, Joseph Wearn, who had a decisive influence on the design and implementation of the integrated curriculum from the beginning to his retirement, and even beyond (Williams 1980).

The curriculum was designed to achieve both horizontal integration (integration of disciplines) and vertical integration (integration of theory and practice). Wearn's philosophy meant that "integration of the biomedical and psychosocial teaching of medicine had been part of the grand design in curriculum revision" (horizontal integration) (Williams 1980:163). The patient, from the beginning to the end of the course, was to be the central focus: "the students saw patients for the first time on the second day ... hearing about illness as a personal problem and about methods of clinical investigation" (vertical integration) (Williams 1980:141). The planners hoped that students would develop a caring approach to patients: this was missing in conventional curricula: "there was plenty in the old curriculum about principles and facts but nothing about attitudes towards patients - scientific attitudes, yes, but not personal attitudes" (Williams 1980:161).

Two further aims were identified. Firstly, the students would develop the "capacity to educate themselves using the principles taught them to investigate and solve problems" (Williams 1980:226). This focused on scientific method and controversy rather than on memorising facts. Secondly, that students would be introduced to medicine with the living (a pregnant woman) rather than the dead (anatomy) (Williams 1980:113) so as to provide "an organised course in the doctor-patient relationship, the first of its kind to be introduced into the first year of medical school" (Williams 1980:118).

These three factors -- the whole patient; the excitement of investigation and solution of problems for self-education rather than coverage of facts; life rather than death, and focusing on the doctor-patient relationship -- all underpinned Western Reserve's new and integrated curriculum. Significantly, implementing the new curriculum was "exciting" (Williams 1980: 273). This was because implementation "was providing a common interest and compatibility in faculty-student relationships quite unknown in the past ... both groups (staff and students) were learning about curriculum integration as they went along" (Williams 1980:211). Implementation thus provided a valuable educational experience for all involved.

However, by 1968 (the date of the publication of the Todd Report) a new curriculum was introduced at Western Reserve. In the intervening years there had been much debate and change, for "original plans, ideal in theory but facing some unknown quantities in practice" (Williams 1980:287), had not proved entirely successful: "promise had exceeded fulfilment" (Williams 1980:303).

Many medical curricular have been designed on the Western Reserve plan: it was the approach recommended and instanced by the Todd Report (1968). The general focus was on integrated teaching in the belief that the desired integrated learning by students would automatically occur. The innovation had an academic emphasis.

1.2.2.3 A problem-based approach

A problem-based curriculum was designed and introduced at McMaster Medical School, Ontario in 1969 (Neufeld and Chong, 1984): the students, as always in North America, were graduates. A problem-based medical school at Maastricht in Holland was opened in 1974 (Bouhuijs et al, 1984): students were mainly undergraduates straight from school.

Typically problem-based approach characterises the pre-clinical years of the medical curriculum. There are three main aims: "1) acquisition of a retrievable and usable knowledge base, 2) professional clinical reasoning skills, and 3) self-directed learning skills" (Barrows 1985:7), which are achievable by the student problem-solving activity. The curriculum reflects the qualified doctor's clinical task.

In essence, a small group of students are given a patient-problem which provides the focus for their learning for the next week or so. Collectively they discuss, interpret and identify their task(s) and set about acquiring, from whatever sources are available, the necessary information to work towards a solution(s). In the final session they evaluate their progress, suggest ways ahead, and finally summarise what they have learnt.

Schmidt (1984) and Barrows (1985) summarise problem-based learning as self-directed team work focusing on a typical patient problem, where relevant information is gathered, processed and structured for subsequent retrieval and use; that is, learning is meaningful, and clinical reasoning skills are developed. Since students are required to work openly as a group with full co-operation, Barrows claims that a pass/fail method of assessment is essential: "grades put students into a posture of competition" (1985:18).

Students are presented with the patient-problem in a number of ways. The pencil-and-paper problem and the simulated patient are the most popular. Videos, interview transcripts, real patients are alternatives. The problems themselves, however, must be based on real patients. Broader problems are also useful, e.g. problems associated with health care delivery, health care research, community health.

Like the integrated innovation, the problem-based focuses on cognitive aspects of the curriculum. The innovation has an academic emphasis.

1.2.2.4 A community-based approach

A community-based curriculum for medical education is the most recent innovation of the three considered here: Ben Gurion University, in Israel, designed and introduced a community-based approach in 1974 (Segall et al. 1978), but most were established in the late 1970s and more recently, for example, the Suez Canal University in Egypt (Nooman et al. 1984).

Community-based courses focus students' learning on local health care problems in their natural settings. The approach is patient-centred and holistic. Students spend time in the local community actually working as part of a health care team from the beginning of their course. The biomedical and psychosocial sciences are learnt through authentic clinical work, while students are acquiring clinical skills.

Werner et al (1978) describe the three phase programme at Upper Peninsular Medical School. Phase One consists of an on-campus ten-week introduction to medicine, with exercises in first aid, problem-solving, interviewing skills, and introductory courses in basic behavioural sciences. Phase two and three are rotations in hospital and primary health care attachments: both provide opportunity for students to learn simultaneously clinical skills and knowledge, and the biomedical and behavioural sciences.

The University of New Mexico School of Medicine has a community-based approach for their primary care curriculum: a conventional curriculum exists alongside. Students choose at the beginning of their course which curriculum they will follow. Comparative research of the 'two-track' system has shown that students on the primary care curriculum perform as well on tests as the conventional course student (Duban et al 1982), but they show less cynicism "towards the curriculum and its relevance to future practice" (West et

al. 1982).

This kind of innovation centres on cognitive aspects (of problem-solving and importantly of problem-setting), on social and interactive aspects, and on affective aspects of real-life situations. Thus the innovation has an academic, social and person emphasis.

1.2.2.5 Educational Theory

Curricula are usually designed from a content point of view. They focus on what students should learn, often to the exclusion of how they should learn. Yet research has shown (for example Ausubel 1968; Gonnella et al 1970; Goran et al 1973; Barnes 1976; Driver 1983; Coles 1985) that where learning of new material is not integrated into existing knowledge and organised appropriately in long-term memory by its use and re-use, it is unlikely that the new material will be retained. Also, even where it is retained, difficulties are commonly experienced in its retrieval and appropriate use. Language plays an important part not only in communication but also in the structuring of knowledge (Vygotsky 1962; Bruner 1966; Barnes 1976; Donaldsonm 1978). Godden and Baddeley (1975) showed that, for memorising lists of words, recall was significantly lower when the context was different from the original learning context. Thus it seems sensible for medical students to learn theory in a clinical context, when that theory is to be used in a clinical context.

A clinical context demands clinical reasoning skills. There is considerable debate as to the exact nature of this clinical reasoning process>. For example Barrows and Feltovich (1987) suggest a hypothetico-deductive method; Gale Grant and Marsden (1986) claim that "forceful features" trigger the recall and use of information; Bordage and Zacks (1984) emphasise "prototype matching". Whatever the debate, it seems likely that the process is not unique to clinical problem-solving, but that it is like other open-problem-solving activities, relying substantially on the way knowledge is structured. "The memory of the expert physician is seen to be extensive. Individual items of knowledge are inter-related in ways that allow facts to be organised around configurations of symptoms, signs, laboratory data, illness profiles, and demographic characteristics" (Barrows 1985:6). Lectures and text books do not structure knowledge in this way (Kriel et al. 1988), so that knowing the lecture or the text book may not help students improve their clinical reasoning abilities. A problem-based or community-based curriculum approach, on the other hand, will help students organise and structure their knowledge in a way that will improve

their clinical reasoning abilities. The community-based approach also allows students to acquire problem-framing skills; but importantly, this activity may not be made explicit. According to Schon (1983) problem-framing or problem-design is the first step in professional problem-solving, though it is commonly unrecognised, especially in professional education. Problem-based curricula fail to recognise problem-design.

A further point worth noting is that a community-based approach encourages the use and the development of the tacit dimension, though again this is usually not made explicit. 'Tacit knowledge' and the 'tacit integration' of knowledge (Polanyi 1962a;1962b) are increasingly recognised as a natural and sophisticated part of all action, including professional action.

1.2.2.6 Summing up

In 1965 Milnes Walker said of conventional education in Britain: "we must look critically at the present arrangement and ask ourselves if this form of teaching has not outlived its usefulness...are the doctors which come out of medical schools of the right type, and has medical education moved sufficiently to keep in step with the changes which have taken place in school education?" (page 58).

The three curricular innovations outlined here, all attempt to remedy dissatisfaction with the conventional curriculum, to produce the kind of doctor the late 20th and the 21st century demand, by an education which has adapted to, if not adopted, the educational changes in schools and in society generally. In science education (the usual qualification for UK Medical School entry), school teaching in the 1960s was already benefiting from the move to learning science via science as method or process, in the Nuffield-sponsored programmes. The innovations for pre-clinical medical education, especially problem-based and community-based approaches, see the method of education as central. They focus on information-processing in a 'clinical' context: in this way the student acquires knowledge and the necessary clinical skills and attitudes.

In 1957 the GMC's recommendations urged medical schools to experiment with the methods and content of their teaching (pages 5-6). Once it was accepted that "the aim of the undergraduate course should be to produce not a finished doctor but a broadly educated man who can become a doctor by further training" (Todd 1968:23), medical schools in the UK began to innovate in earnest.

1.3 Educational Commentary

1.3.1 Conceptual limitations of the innovations in medical education

Southampton was established when the conventional undergraduate medical curriculum had already been seen to be wanting and the Todd Report (1968) had encouraged experimentation and flexible innovation. But wider criticisms were also gaining ground concerning (1) the conventional view of science, (2) the conventional view of disease, and (3) the conventional view of professional practice. These are addressed in turn.

(1) View of Science

The new physics (Watson, 1959; Capra, 1982) had toppled the conventional science paradigm, since it proved inadequate to describe nature in the post-relativity theory era. A paradigm is a set of embedded received beliefs (Kuhn 1962; 1970) which have evolved from a pre-paradigm phase, through a phase of agreed assumptions by workers in the field. Kuhn describes any scientific research based on taken-for-granted paradigms as "normal science", which leads to the production of a large body of accepted fact.

(2) View of Disease

It is the "biomedical model, which constitutes the conceptual foundation of modern scientific medicine" (Capra 1982: 118). The biomedical model rests on "the notion of the body as a machine, of disease as the consequence of breakdown of the machine, and of the doctor's task as repairer of the machine" (Engel 1977).

Towards the end of the last century, this model was coupled with a "revolutionary change in the methods of advancing medical knowledge" (Dale 1954:117). This resulted in "the concept of specific etiology...formulated precisely by the physician Robert Koch, who postulated a set of criteria needed to prove conclusively that a particular microbe caused a specific disease" (Capra 1982:124). So ended the long-standing debate: was disease caused by a single factor (the organismic theory) or by a number of factors acting simultaneously (the ontological theory)? The organismic theory assumes "that disease is a thing in itself, essentially unrelated to the patient's personality, his bodily constitution, or his mode of life" (Dubos 1965: 320). Zimmerman, as long ago as 1800, believed in disease as an entity when he wrote: "The author of nature has fixed the course of most diseases through im-

mutable laws that one soon discovers if the course of the disease is not interrupted or disturbed by the patient". This view of disease is unscientific (Howell 1987).

Both the biomedical model and the disease entity are medical paradigms (Kuhn 1962; 1970) implicit in medicine to the extent that they are largely unnoticed and unquestioned (Kriel 1987; Engel 1977; 1978a; 1980; Dubos 1979; Fabrega 1975; McWhinney 1986; Brody 1973; Sheldon 1970). These authors criticised the biomedical model, emphasising its limitations; most authors writing in medical journals just adopt the model. Medicine based on these paradigms can be regarded as "normal medicine", equivalent to "normal science" in scientific research. "Normal medicine" leads to the production of a large body of accepted fact.

However, these paradigms of medicine have also become the folk model of disease of Western society (Fabrega 1975; Capra 1982); hence they have ceased to be scientific models and have become dogmas instead. Scientific models are judged according to their usefulness, whereas dogmas "maintain their influence through authority and tradition" (Engel 1980).

(3) View of Professional Practice

The dominant view of professional practice is "Technical Rationality" which sees practice as "instrumental problem solving made rigorous by the application of scientific theory and technique" (Schon 1983:21). Schon (page 30) questions why it is that this view requires "very little justification" even though it permeates "our universities, embedded not only in men's minds but in the institutions themselves". This paradigm, like the paradigm of disease, is built into the assumptions of Western society and as such has become dogma. Schon (page 34) argues that, along with engineering, "the physician's diagnosis and treatment of disease, became prototypes of the science-based, technical practice."

One upshot of this split between theory and practice was that it became "the business of university-based scientists and scholars to create the fundamental theory which professionals and technicians would apply to practice" (Schon 1983:36). This task-split came to have an in-built status-split. Dale (1954:82) described scientific research in medicine as having "an astonishingly rapid development". Medical research split from medical practice is put into perspective by Dale (page 134): "We should remember that nobody, until times which seem recent to some of us, expected to be paid...for doing medical research;

it seemed to be regarded as a form of mild indulgence, for the leisure of a man who earned his living otherwise, as by teaching, or practice." (In 1900, Dale was a medical student in London (1954:194).) "The Medical Research Centre, with its medical school and its teaching hospital, became the institutional model to which other professions aspired. Here was a solid base of fundamental science, an equally solid body of applied clinical science, and a profession which had geared itself to implement the ever-changing products of research" (Schon, 1983:38).

The influence of the technical rationality view of practice on professional education can be seen in the curriculum structure for the initial education of professionals. If professional practice is seen as a process of instrumental problem-solving made rigorous by the application of scientific knowledge, scientific theory needs to be known before it can be applied to practice. This necessitated a curriculum structure of "theory first" (in the case of medicine, two years pre-clinical) and "practice later" (three years clinical).

All three innovations in medical education, namely integration, problem-based and community-based curricula, have failed to question the paradigms (outlined above) on which medical education and medical practice are built. In the case of disease the paradigms, typically, have not been articulated. Educational innovations have focused on symptoms rather than on causes, with the result that the paradigms and their assumptions have been reinforced by the innovations. Understandably any desired outcomes have been elusive. The community-based approach, by including substantial experience of actual practice from the very beginning of the course, may challenge the paradigms, though by default.

1.3.2 Reconsideration of Flexner

(1) Flexner's view of science

Flexner saw "that method rather than any particular content is the very essence of scientific discipline (1910:68)." He used Dewey's (1910) paper "Science as Subject matter and as method" to reinforce this point.

Medical education in the United States celebrated, in 1985, the seventy-fifth anniversary of the publication of the Report on Medical Education in the United States and Canada (1910) by Abraham Flexner. Increasingly the Report and Flexner have been criticised for

their powerful and not altogether wholesome influence on the undergraduate medical curriculum (Vevier 1987:3-4). However, Flexner has a growing number of supporters. Engel (1978b) suggests that medical education still needs to achieve Flexner's recommendation, namely "the mastery of the scientific method and its application to all dimensions of medicine, whether the bench laboratory, the bedside, or the social arena". Engel blames the biomedical model for this failure.

(2) Flexner's view of disease

Flexner had a biomedical, disease entity view of medicine. This can be seen from the Report: for example, the anatomist "views the body not as a mosaic to be broken up, but as a machine to be taken to pieces, the more perfectly to comprehend how it works" (page 58); and "The autopsy, the clinical history, will be utilised in presenting to the student...the total picture of disease" (page 58); whilst of the clinical years, "...the student [needs to] be brought into immediate and increasingly responsible contact with the disordered machine" (page 96).

However Flexner also believed that "disease is not an affair of a single organ or tissue, still less of a microscopic portion of such an organ or tissue. Even an acute disease - pneumonia, diphtheria - involves the body as a whole; chronic defects - such as heart lesion or cancer - affect the organism likewise in its entire extent" (page 66-67). And, "directly or indirectly, disease has been found to depend largely on inopportune environments, a bad water-supply, defective drainage, impure food, unfavourable occupational surroundings, - matters, all of them, for social regulation" (page 67-68). Significantly Flexner says "the pathological is abnormal from the standpoint, not of biological law, but of the human interest that it sometimes thwarts - sometimes, only; for not infrequently it is a beneficent, compensatory adjustment, actually favourable to the individual" (page 55-56).

(3) Flexner's view of professional practice

Flexner had a technical rationality view of practice. This again can be seen from the Report: for example "Medical education is concerned with his (the student's) acquisition of the proper knowledge, attitude and technique" (page 55); also, "Medical education is a technical or professional discipline; it calls for the possession of certain portions of many sciences arranged and organised with a distinct practical purpose in view."

However, Flexner also believed that "Physics and chemistry are, from the standpoint of medicine, of merely instrumental value. The medical sciences are not simply instruments; they deal with the actual phenomena and material which the physician handles" (page 60). The separation into 'theory' and 'practice' was not complete for Flexner. This may be why he was able to say of scientific method that it was "just as applicable to practice as to research" (page 53).

(4) Flexner's view of education

Dewey (1910) drew the distinction between "science as subject matter and as method" (cited Flexner 1910:68): "Science has been taught too much as an accumulation of ready-made material, with which students are to be made familiar. Not enough as a method of thinking, an attitude of mind, after the pattern of which mental habits are to be transformed" (Dewey 1910). Dewey's influence on Flexner is seen throughout this Report (1910) and in his subsequent writing (1912; 1925).

Like Dewey, Flexner clearly has no time for detailed coverage of content - coverage must be (a) selective and (b) subservient to conceptions, habits and attitudes: "Enough can be achieved to give him precise conceptions in each of the realms touched upon; and the actual value of these conceptions and the habits grounded on them depends less on the extent of his acquisitions than on his sense of their reality. Didactic information, like mere hearsay, leaves this sense pale and ineffective; a first-hand experience, be it ever so fragmentary renders it valid. After a strenuous laboratory discipline, the student will still be ignorant of many things, but at any rate he will respect facts: he will have learnt how to obtain them and what to do with them when he has them" (Flexner 1910:68-69).

Before taking leave of Flexner it is perhaps not amiss to pay tribute to his writing. Half a century before the Royal Commission, he expresses (and more memorably) many of their views: the doctor as an educated man, the need for life-long learning, the medical school as beginning his medical education, not completing it; the need for integrated learning, for all learning to be meaningful, for learners to be active; even the limited value of the lecture as a method of teaching. And Flexner, in 1910, expresses some insights which do not seem to find a place in Todd: the unique value of gifted teachers; the network structure of knowledge; the creativity of error; even a brilliant anticipation of Schon's reflective practitioner in the following words: "A professional habit definitely formed upon scientific method will convert every detail of his practising experience into an additional

factor in his effective education" (page 55).

1.3.3 What was missed out of the Todd Report (1968)

The previous section argued that the three main innovations in medical education rested on the same premises as the conventional course; the paradigms remained unquestioned, even unarticulated, and thus the remedies did not go far enough. The Todd Report also seems to perpetuate by implication the biomedical model of disease and the model of professional practice, for on page 96 they write that an aim of the clinical stage of undergraduate medical education should be "to demonstrate the application of the medical and behavioural sciences to the practice of medicine, thus giving the students an appreciation of the biological, environmental and personal factors which underlie structural disease and disturbances of function." Similarly they write of the whole course: "As has been emphasised above, the essential object of the undergraduate course is to educate the student to university standard both in the medical sciences and in the application of the sciences to human diseases" (page 89).

Todd acknowledges that recommendations such as those the Commission make were difficult to achieve. Perhaps if the underlying assumptions of the biomedical model of disease and of professional practice were uncovered and discussed, the Recommendations would be more easily attainable.

There were other paradigms available in the 1960s for Todd to utilise. Sir Thomas Lewis gave evidence to the Goodenough Committee (see Report 1944:152 & 300) which contains a very different view of disease. "It is of high importance that students of Medicine should learn more clearly than they do to distinguish between factual knowledge and conceptions. Diagnosis is a system of more or less accurate guessing, in which the end-point achieved is a name. These names applied to disease come to assume the importance of specific entities, whereas they are for the most part no more than insecure and therefore, temporary conceptions.... It is patent that the nomenclature is insecure, definition still almost absent, and that diseases as we now isolate and name them, are in large part not disorders sui generis. Students of medicine should be brought to realise that these things are so (and) that (if) the conceptions implied in the nomenclature are misinterpreted as factual, subsequent reorientation of ideas is impeded." This is a view of disease as a construct of convenience, with a name, again for convenience. The name tends to lead one to assume that the disease is a factual entity; this is especially so when teaching (Howell

1987). Lewis claims that such a paradigm impedes progress by restricting ways in which diseases are considered and discussed.

Jennings (1986) asserts that "one common confusion is the mix up between disease (pathogenic change in the body) and experience of that disease illness, or experienced suffering." He suggests that there are currently two kinds of diagnosis: the pathological diagnosis, which is much closer to the notion of biological disease, and is "a statement about a patient's body based on evidence that is independent of the patient's reports and actions and so is final"; and the clinical diagnosis, which is "an educated guess at the underlying pathologic disorder based on a patient's self-reports, behaviour and any observed signs and so is necessarily provisional" (Table 1.2).

Jennings is at pains to point out that the disease and non-disease dimension is discontinuous, for someone is either diseased or not diseased by pathological definition. (This is rather like pregnancy: a woman is either pregnant or not pregnant.) The illness and non-illness dimension is, however, continuous. Sheldon (1970) suggests that confusion results if disease and illness are not distinguished. Szasz (1986) specifies one aspect of this confusion as "the progressive medicalisation of life", expensive both personally and financially. Engel (1978a) sees the confusion centring on medicine that is "disease-orientated, and not patient-orientated". He calls for a reorientation, as does McWhinney (1983).

Medicine and doctors in their daily practice are "acting out a series of philosophical assumptions" (Kriel 1987), based on their medical paradigm(s) or medical beliefs. Though two alternative paradigms are suggested for medicine, one based on general systems theory (Brody 1973; Sheldon 1970; Engel 1980), the other on a phenomenological approach (McWhinney 1986; Levenstein et al 1986; Brown et al 1986), they were not worked out until the 1970s and 1980s. Brody's (1973) hierarchy of natural systems constituting man is given in Table 1.3. It is regrettable that the lead in thinking given by Sir Thomas Lewis in 1944 to the Goodenough Committee was not followed up by the Royal Commission. This is especially so since the Commission was concerned with the education of doctors for the 21st century, in the context of a changing society and an evolving profession.

Table 1.1

Traditional course structure of medical education in the UK

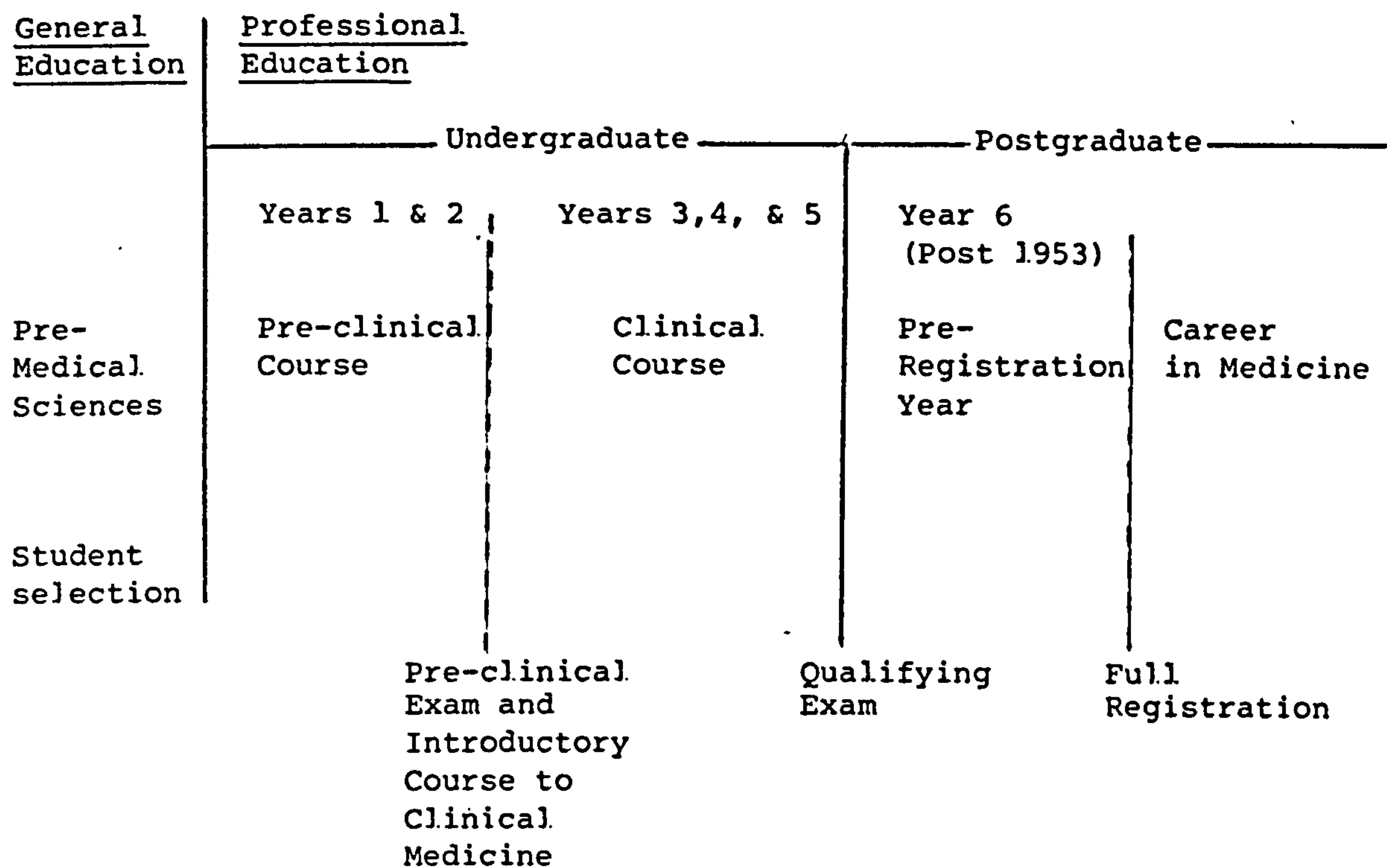


Table 1.2

Interaction of two independent dimensions of disease and illness
(after Jennings, 1986)

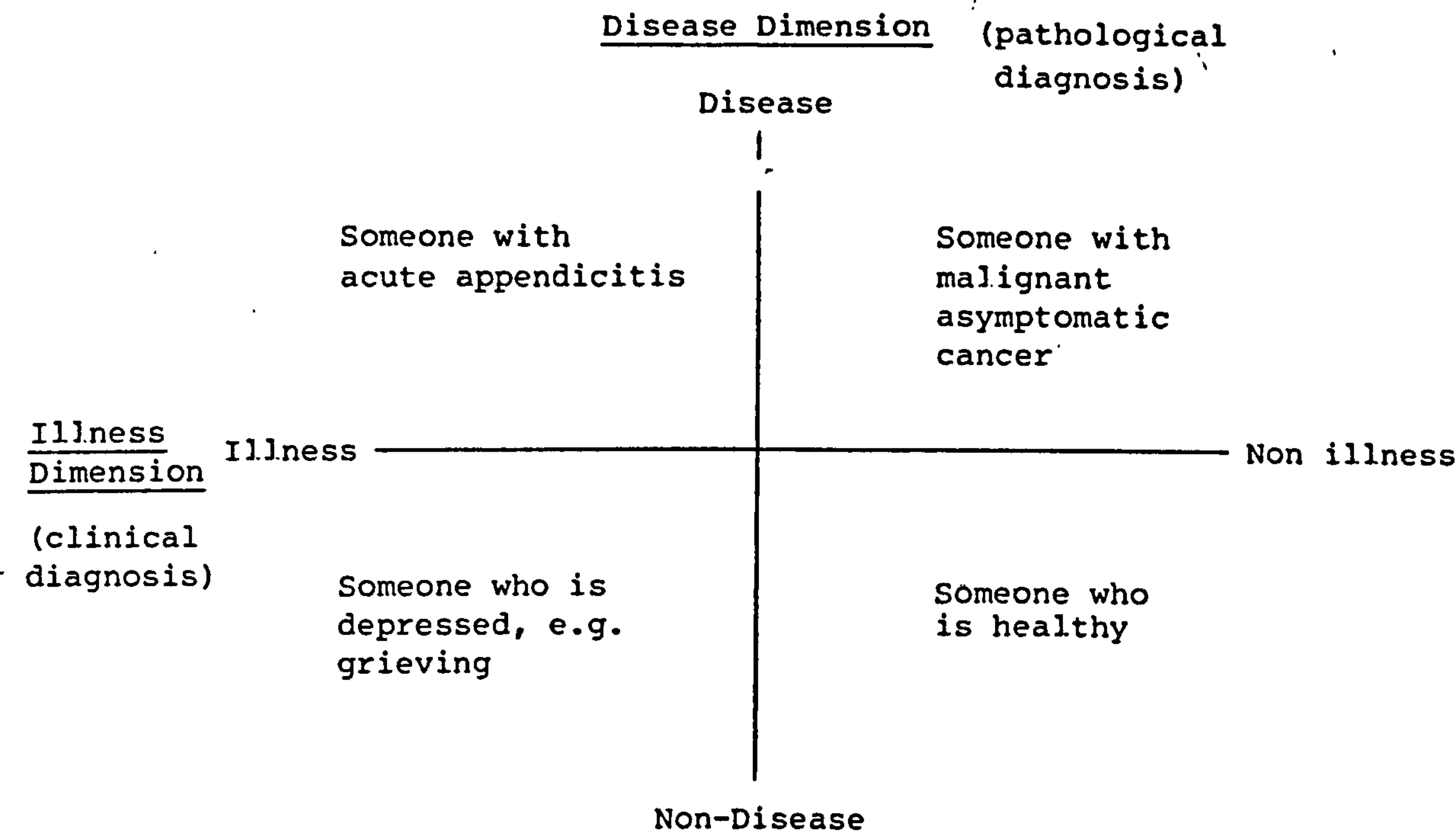
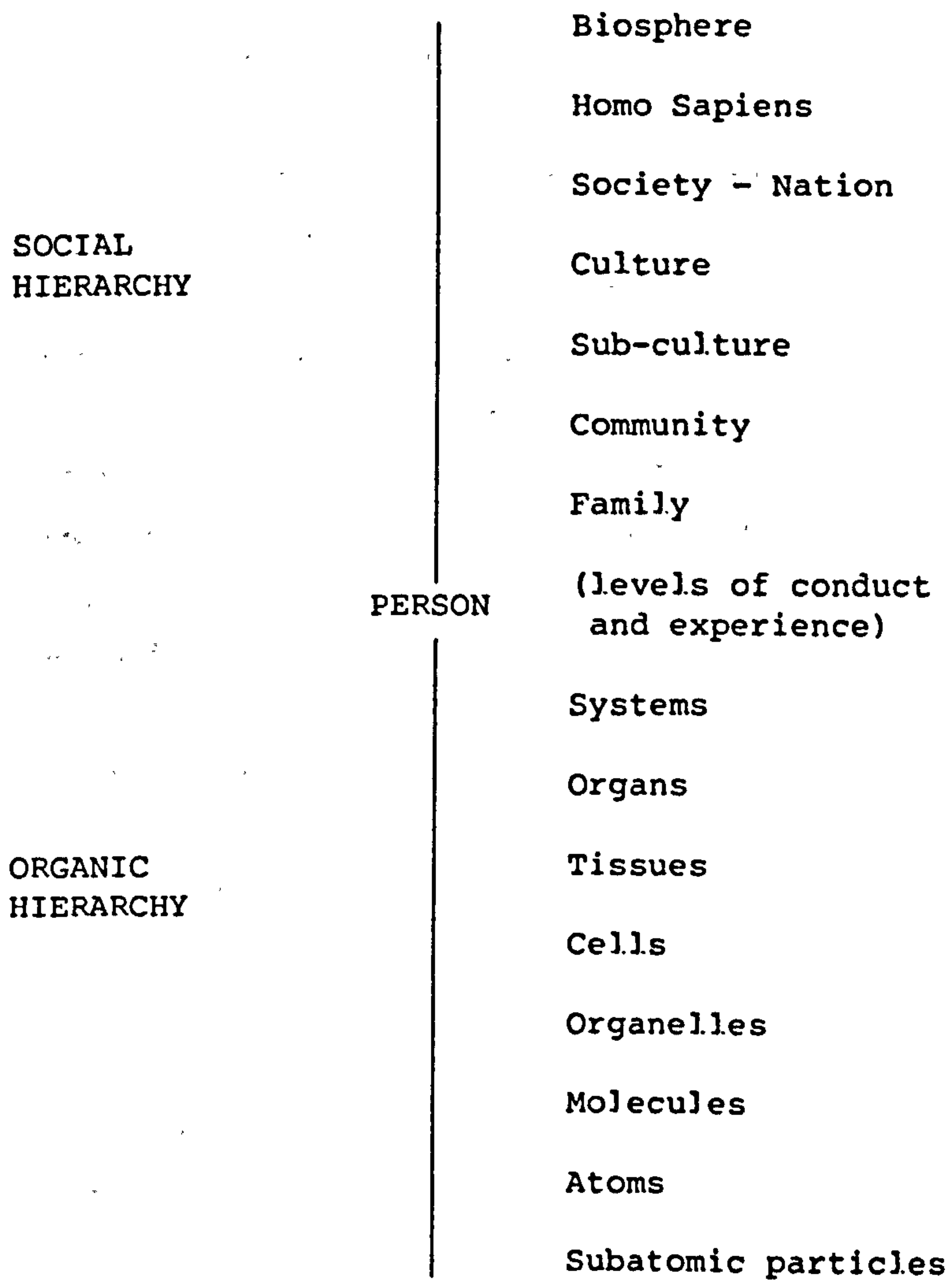


Table 1.3

Hierarchy of Natural Systems Constituting "Man" (after Brody 1973)



CHAPTER TWO

SOUTHAMPTON MEDICAL SCHOOL: ITS INNOVATORY FEATURES AND PROVISION FOR EDUCATIONAL EVALUATION

2.0 The innovatory nature of Southampton Medical School

The Todd Commission recommended strongly in an interim report of March 1967, that "the establishment of the new medical school at Southampton should be put in hand as quickly as possible" (1968:131). And it was. The philosophy was to create a regional medical school promoting lifelong learning, with wider student access and an integrated curriculum. The late Sir George Pickering described Southampton's approach as "the boldest and in many ways the most successful" (1978:88). It was generally recognised as different and somewhat novel, reflecting ideas in the Todd Report and the General Medical Council Recommendations (1967). This chapter outlines the innovatory features of Southampton Medical School under three broad headings: Innovatory features other than curricular or evaluatory (2.1); The curriculum and its Innovations (2.2); A further innovation: provision for evaluation (2.3).

2.1 Innovatory features, other than curricular or evaluatory

2.1.1 Regionality

The application to Government for a Southampton medical school was a joint submission by the University and the Wessex Regional Hospital Board. This was a unique feature of their application and one that supported the development of a medical school organised on functional rather than institutional lines where clinical service, teaching and research could support each other rather than compete (Acheson 1974:2&15). The university had the necessary academic excellence, and the hospital board (serving a population of two million) was able to support undergraduate medical education; a programme of rebuilding at the Southampton General Hospital was already under way. Postgraduate medical education was well established in the region as a result of the Christ Church (Oxford) Conference in 1961.

The collective resources of the new medical school and the Wessex region were impressive. The concept of a regional medical school allowed these resources to be brought

together and to be used for the benefit of both the health care service and the health care personnel throughout Wessex. Satellite academic and clinical units were established at, for instance, Portsmouth, Odstock and Basingstoke, and with them distinction between teaching and non-teaching hospital practices and general practices tended towards "a difference in degree" (Acheson 1974:13). The resources and the provision within the Wessex region itself were sufficient to enable the ideal of lifelong learning to become a reality.

The region was to be used for student attachments, both in hospital and General Practice, in Year Three, but especially in Year Five. Fourth year students may be supervised for their project wholly or in part outside Southampton.

Thus there was an innovatory element in the original conception of the medical school at Southampton.

2.1.2 Faculty organisation

The medical school was committed to a regional organisation which brought together service and academic activities. In order to facilitate the implementation of this philosophy Faculty was organised around a non-departmental structure. Also, buildings were designed without staff common rooms and staff dining rooms. In this way it was hoped that resources and ideas would circulate freely.

2.1.3 Student recruitment

There was no shortage of applicants. Each year about 3,000 applied for 120 places. Most students were recruited as eighteen-year-olds from UK secondary schools and sixth form colleges, after studying the conventional three science 'A' levels. (Chemistry 'A' level was the only prerequisite, apart from the usual university entrance requirements.) Generally, there was no interview; students were selected on their Head Teacher's report, 'O' level result and projected 'A' level grades (at least three 'Bs' or their equivalent). Male and female students were given equal opportunity (approximately equal numbers per intake) as were ethnic minority backgrounds. No priority was given to students whose parents were medically qualified. These were all points recommended by Todd (1968) (see section 1.1.3).

Students were considered from all over the UK and from abroad if they were ap-

appropriately qualified. Most students, however, came from south of Birmingham and especially from the Wessex region. This reflected application patterns rather than selection procedures. There was close contact between the medical school and secondary schools and sixth form colleges in the region. Pupils who were interested in a medical career were invited each year to visit the pre-clinical site on a series of open days (this had also been suggested by the Todd Report (1968:122)) to meet staff and students.

To widen recruitment in line with the general educational ideal and to satisfy the wide range of specialty careers available to medical graduates, mature students and non-science students were considered. No more than fifteen per cent of mature students, usually graduates, were admitted in any one cohort. If suitably qualified, they could be excused the fourth-year project. Non-science students who were highly motivated and who showed ability were recruited for the 'bridge course' (now discontinued), provided they had adequate financial backing for the six-year period.

2.2 The Curriculum and its Innovations

2.2.1 The curriculum

The foundation Dean, Professor Donald Acheson, described the curriculum: "Like Gaul it may be divided for convenience into three parts: the first three years which have been planned as a single entity; the fourth year in which the student may select a subject for advanced study from a wide range of options; and the fifth year during which most of the time will be spent in a series of residential or semi-residential clinical clerkships in Southampton and throughout the Wessex Region" (1974:8).

A major motive behind this three-part sequence (which may not be apparent from the quotation) was to blur the distinction between pre-clinical and clinical studies in accordance with the recommendations of the Todd Report (1968) and the GMC recommendations (1967).

2.2.2 The overall course structure

Southampton broke with the traditional two-plus-three course structure of medical education -- two years of pre-clinical studies or 'theory', followed by three years of clinical studies or 'practice'. In its place was put a course structure which may be represented as

an overlapping double wedge, where 'theory' decreases over the five years whilst there is a proportional increase in 'practice' (Table 2.1).

This new course structure was designed to support integration, both integration of discipline (horizontal integration) and integration of the pre-clinical and clinical components (vertical integration). Both kinds of integration were innovative in medical education (chapter 1). Both were recommended by the Todd Report (1968): the Western Reserve Curriculum was used as an example of successful integration. (Chapter 3 discusses integration as a concept in education and compares Southampton's curriculum with the criteria identified.)

The whole five years of the curriculum can be represented by means of a table (Table 2.2). This plan gives the type and sequence of course content, e.g. Biochemistry, Epidemiology, Clinical Attachments, within the overall double overlapping wedge structure. The following description of the curriculum and its innovations adopts the tripartite divisions of Gaul dealing in sequence with Years One, Two and Three, which were planned as a whole, then with Year Four and finally with Year Five.

2.2.3 Years One, Two and Three

(a) Single discipline based courses

In Year One Human Morphology (254 hours), Biochemistry (230 hours), Pathology and Microbiology (116 hours) and Pharmacology (65 hours) gave students a theoretical base in these disciplines and an introduction to the systems courses (mainly in Year Two). Even with discipline-based courses, co-ordination of teaching was an aim: for example, when students were studying normal liver structure in Histology, they would study necrosis of the liver in Pathology. Other examples of co-ordinated teaching occurred in Human Morphology itself, since Embryology and Histology were included. The former illustrated body structure through time, i.e. developmentally, and the latter through space, i.e. level of organisation. Any co-ordinated teaching was an attempt at horizontal integration.

Courses in Sociology and Psychology (totalling 105 hours) in Years One and Two together with elements of Epidemiology, Medical Statistics, Ethics and Legal Medicine were also taught as disciplines (Waters et al. 1976).

A lecture programme continued throughout the Third Year on Monday and Friday after-

noons. It consisted of, for example, Chemical Pathology and Human Metabolism (45 hours), Clinical Pathology (90 hours), Clinical Pharmacology (35 hours), Clinical Genetics (10 hours). It was planned to integrate with the clinical aspects of Third-Year attachment (and the Fifth Year), building on the previous two years' academic study. These courses were to achieve both vertical and horizontal integration.

(b) Systems courses

The eight systems courses (417 hours) focused in sequence on eight body systems, using clinical illustration where possible. The eight systems in order of teaching were:-

Human Reproduction System

Nervous System

Cardiovascular System

Respiratory System

Gastrointestinal System

Muscular-skeletal System

Nephrology System

Endocrinology System

Each course had a period of concentrated study lasting about three weeks. Elements of Physiology, Anatomy, Pharmacology, Epidemiology, Microbiology, Nutrition, were taught as appropriate (Howell 1976). In essence, systems courses were examples of horizontal integration via topic teaching: each topic was a body system. It was hoped that integrated teaching would lead to integrated learning and that students would see the separate systems as a co-ordinated whole.

The social basis of medicine was addressed by means of a multi-disciplinary Man, Medicine and Society course (20 hours). Selected aspects of care, local, national and international, were dealt with.

(c) Clinical experience

Early Patient Contact in year one enabled students to meet patients in the community: there were two parts to this scheme, as follows.

(i) Two students accompanied a general practitioner on a visit to a patient in his/her

home on four separate occasions. Each visit was followed by a group seminar back at the surgery. Other students and doctors usually joined in making a group of about six to eight. The purposes of the visits were to appreciate some of the social implications of diseases, especially of those associated with long-term patient care, and also to begin to understand how patients and their families interpreted their own health care problems and health care needs.

(ii) Individual students visited an ante-natal clinic twice during the year to discuss the pregnancy of the mothers-to-be with the mothers themselves and the clinical staff; they also attended a normal delivery and visited families post-natally at home with the health visitor (Elstein and Forbes 1976). The purposes were for students to begin to appreciate the continuity of care and the effects of social and economic factors on health. It was also intended that the Human Reproduction Systems course (Year One) would be especially helpful.

This early introduction to patients was recommended by Todd and planned to increase student motivation and their ability to communicate with patients, relatives and the health care team. It was also hoped that students would begin their Third Year clinical work "with a good deal more confidence than did their predecessors" (Acheson, 1974:9). Early Patient Contact encouraged vertical integration.

Third Year clinical attachments were preceded by an Introductory Course to Clinical Medicine in term six, Year Two, when students were introduced to the clinical skills of history taking and physical examination. They continued to develop these skills during the six attachments: Medicine and Surgery (each of ten weeks), Child Health, Obstetrics & Gynaecology, Psychiatry and Medicine with Geriatrics (each of five weeks). A General Practice attachment was one half-day per week for forty weeks (equivalent to four weeks): the emphasis at Southampton, as at other UK medical schools, was still on hospital-based work. Each student spent ten half-days over a ten-week period in each of four general practices: thus students observed a range of doctor and practice styles as they cared for patients in the community. Both kinds of integration were intended in both community attachments and hospital.

2.2.4 Year Four

Between the Third Year and the Fourth Year was a seven-week elective when students undertook clinical work as apprentices in the specialty of their choice: most students went abroad. At this stage students had a good range of skills and knowledge to contribute, having just completed their Third Year clinical attachments and revised for their Intermediate Part II exam. Working as part of a health care team enabled the students to integrate, consolidate and extend their skills and knowledge, and to compare health care provision at first hand.

Fourth Year projects were intended to be a key mechanism for integration, preferably of both kinds. They were novel and innovative in a medical curriculum. Students followed their own interests and developed a rigorous research method within a particular research, paradigm. They became expert in the field of their research creating and evaluating knowledge and technique.

Acheson (1974:9) used Sir Alan Bullock's narration as Vice-Chancellor of the University of Oxford in 1973, to summarise the aims: "To draw out their [the students] powers of thought in the study of whatever subject arouses their interest, encourage them to penetrate beneath the surface of conventional wisdom, to wrestle with questions with which there are no answers in the text books, to recognise the limitations of their knowledge, and so acquire a confidence in themselves which will not collapse when confronted with the real problems they will meet when they leave university."

Normand and Cantrell (1976) have written an account of this 'honours' type year. Apart from the research, students write a final report (approximately 5,000 words) and make a ten-minute presentation at a Fourth Year conference in May.

It was this particular aspect of the Southampton curriculum, the Fourth Year project, that earned the high praise of Sir George Pickering: "This venture of Southampton is the most important experiment in medical education in my life-time. It should provide the young graduate with the discipline and habit of mind of a scholar and thus fit him for the opportunities of self-education which he will enjoy after graduating and for the rest of his life" (1978:58). Such an educated graduate equipped for life-long learning was the aim of undergraduate medical education according to Todd (1968).

The Fourth Year clinical specialties were Dermatology, Ophthalmology, Orthopaedics, ENT, Venereology, and Rehabilitation. Students were attached to these specialties for the equivalent of one or two weeks in order to gain experience in these branches of medicine. They provided an opportunity for vertical integration.

2.2.5 Year Five

The Fifth Year was characterised by clinical attachments throughout the Wessex Region and including Southampton. Attachments were: Medicine (ten weeks); Surgery (eight weeks); Psychiatry, Child Health, Obstetrics & Gynaecology (each of five weeks); an elective practice (five weeks) and General Practice (two weeks). The emphasis again was on hospital practice. All clinical experience was based on an apprenticeship: students worked with a team of doctors, often on a one-to-one basis. It was hoped that there would be little formal clinical teaching, in the belief that further development of clinical skills was best achieved by students having responsibility under supervision, a recommendation of Todd (1968). The Fifth Year was planned to provide an excellent opportunity for vertical and horizontal integration in both hospital and community practice.

2.2.6 The Southampton curriculum: assessment procedure

The influence of assessment on student learning was recognised (Acheson 1974:11). In order to prevent student cramming, whilst at the same time encouraging steady work and the integration of knowledge to solve medical problems, an assessment system in line with the course philosophy was sought. Two forms of assessment were introduced: (1) continuous assessment and (2) formal sessional assessment.

(1) Continuous assessment: These marks contributed towards the student's overall grade. MCQs, especially in the early years, provided a major form of continuous assessment; for example, there was an MCQ at the end of each systems course in Year Two. Some courses, for example Biochemistry, Basic Pathology, and Introductory Physiology, used MCQs together with, respectively, problem-solving, an essay question, and a short-answer paper. Laboratory practical work was also marked, for example in Biochemistry. Sociology and Psychology were both examined by extended essays, based on projects lasting for a term.

All clinical attachments were based on a form of continuous assessment. In the Third

Year student assessment was determined largely by their history taking and physical examination skills: they were asked to clerk and present a particular patient. There were varying degrees of formality and informality: some specialties and some firms within specialties were much more formal than others. Some attachments also held a viva where knowledge was tested, for example Obstetrics & Gynaecology.

In the Fifth Year, students' clinical skills and knowledge were assessed formally at the end of each attachment by means of a clinical long case. There were two examiners, one from the centre where the examination was held and one from Southampton (if the examination was in Southampton, the two examiners were from Southampton). Students might be examined at the centre where they had their attachment or at another centre. Thus students might know neither, or both, or one of the examiners. Students were given exemption from finals long cases (end of Year Five) if they had a sufficiently high grade for the relevant attachment.

Some Fifth Year attachments also included other forms of assessment: for example, Obstetrics & Gynaecology required a selection of patient cases to be written-up fully and presented.

(2) Formal sessional assessment: These were written unseen papers -- a mix of essays, short answers and MCQs. There were four formal sessional examinations. The primary exam at the end of Year One examined Anatomy, Biochemistry and Pathology by means of separate papers. The Part I exam at the beginning of the sixth term examined Sociology, Psychology and Epidemiology with Medical Statistics by means of separate papers. The Part II exam at the end of Year Three examined the basic medical sciences. The final exam at the end of Year Five examined the natural history, prognosis and management of disease.

The timing of the Part II exam: This exam was placed at the end of the Third Year since the first three years were planned as a single unit. By the end of the Third Year students had experienced clinical medicine both in hospital and in the community. Medical schools usually examine the basic medical sciences at the end of Year Two (the 2nd MB) before students begin clinical work. This examination was condemned by the Todd Report (1968) since it perpetuated the pre-clinical/clinical split. However, Todd also recommended that traditional unseen exams should be questioned since students were helped by routine assessments during their course.

It can be seen from this Chapter so far that Southampton Medical School was built on the thinking of the Todd Report (1968) and the GMC Recommendations (1967). Aspects such as regionality and recruitment, the biomedical and psycho-social sciences, integration of both kinds together with the Introductory Course to Clinical Medicine, general practice as a clinical specialty alongside hospital medicine, teaching methods which included topic teaching, project work and electives, and an examination system which fostered meaningful learning were all part of its organisation, structure and curriculum.

Three key recommendations of Todd (1968) were not adopted:-

1. A modular course structure in the early years for both medical and non-medical students, offering subject choice and a medical science degree after three years.
2. A range of teaching methods in which the students were active, for example seminar, team teaching, and many fewer lectures.
3. An increase in co-operation between the clinical specialties (especially Medicine and Surgery) emphasising what is common in medical practice.

However, Southampton went beyond the recommendations by having a non-departmental structure; the Report recommended an inter-departmental committee to take planning and management decisions. The Report also suggested that this committee "should include junior staff, should be in close touch with student opinion and should plan ways and means of assessing results" (page 91). This recommendation for institutional course evaluation was built into the Southampton Medical School structure from the beginning.

2.3 A further innovation: provision for evaluation

2.3.0 Course evaluation was an innovatory response to the Todd Report (1968). The first student intake was in October 1972. At the outset the Faculty expressed a commitment to evaluation of the course (FM76). Informal evaluation was the remit of all teachers; but there were very many teachers.

2.3.1 End-of-courses questionnaires

The method formally chosen by Faculty for course evaluation was questionnaires ad-

ministered to students at the end of component courses (FM98). However, in time these questionnaire were seen by Faculty to be of "limited value" (FM725), especially since they were designed to focus on individual courses only and as a result were unable to give an overview other than by way of a kind of mosaic.

2.3.2 Foundation Dean's misgivings

"As the first class of students is at present only half way through the course, it is obviously far too soon to review the curriculum. However, a number of points have emerged" (Acheson, 1974:10). The Foundation Dean itemised some of these. "There is a real risk which exists of overteaching....The student may be overwhelmed by the demands made upon him." Formal teaching time was reduced by ten per cent across the board. A concern which had a less clear-cut remedy was "the obvious practical difficulty of achieving integration and of avoiding unnecessary overlap and repetition in a multi-disciplinary approach" (1974:8); he added that the systems courses were popular in spite of this. "There is a demand from the students for further material, e.g. from Biochemistry, to be incorporated" into the systems courses (1974:8). Getting the balance right, knowing what to include and what to exclude from a given bodily system was proving problematic (even with systems course co-ordinators), as was avoiding repetition. Significantly too, integration, both horizontal and vertical, for teachers and students was proving elusive. "No curriculum which is expected to produce courses in forty different subject in different places over a period of five years can be simple, but there is no doubt that a multi-disciplinary approach compounds the complexities" (Acheson, 1974:10). Intended integration was not only elusive but also administratively unwieldy.

Two diagnoses were offered by Acheson (1974:10): lack of teacher perception and the lecture. There is "a tendency of specialists to overestimate the importance of their own subject in relation to the whole". Also "the writer may well be considered provocative...to express his disappointment at the prominence of the formal lecture. Of 1,320 hours formal teaching time in the first two years about fifty per cent is devoted to lectures. While lectures have a place in transferring information, several studies have shown that they are less effective in stimulating thought or changing attitude than projects and tutorials with active participation by the students." Clearly course intentions could not be achieved by lectures; quite the opposite.

Though Southampton's curriculum and philosophy was far from traditional and the

course-on-paper reflected the innovatory enthusiasm and vision of the planning team, feedback from the course-in-action indicated that there were difficulties associated with its implementation.

2.3.3 Teaching Methods Working Party

In response to the failure of the end-of-course questionnaires and the problems associated with course implementation, the Foundation Dean established the Working Party on New Teaching Methods, subsequently called the Teaching Methods Working Party (a non-representative group, mainly of clinicians). At the first meeting it was agreed to "widen the terms of reference to include broader issues concerning the curriculum" (FM700). Later the Working Party agreed that the course should be assessed "both as an educational vehicle and as a stimulating, enjoyable experience, as these two did not necessarily go together" (FM712).

2.3.4 Studies by Coles

One member of this Working Party, Colin Coles (then Assistant Director of Teaching Media) studied a particular Year Two systems course. His findings showed that some students were making links between the course disciplines ("integrators"), whilst others were feeling overloaded and unable to cope ("non-integrators"). Neither the structure of the course nor the structure of the curriculum as a whole led automatically to horizontal integration for all students. Also, individual teachers were often not aware of how the discipline they taught contributed to the particular systems course researched, or to the BM course as a whole (Coles 1976). These findings were in agreement with earlier studies at Western Reserve (Williams 1980). Southampton's curriculum had been fashioned on integration at Western Reserve.

Some clinicians observed that students entering the Third Year were unable to "bring forward" and use knowledge taught and assessed in Years One and Two. Coles (1977) made a study which confirmed this observation. It was a particularly significant finding, since Southampton had designed Years One, Two and Three as a whole to achieve vertical integration, and it was hoped, as mentioned above (2.2.3), that students would begin their Third Year "with a good deal more confidence than did their predecessors" (Acheson 1974:9). It seemed that this had not been achieved. When the two studies were presented to Teaching Methods Working Party it was recorded in the minutes that "Courses...were

perceived in a different way from that intended" (FM1336).

2.3.5 Decision to appoint an evaluator

The Working Party's need for data, Coles' two studies, and the dissatisfaction with the Faculty end-of-courses questionnaires, together with the general feeling of the curriculum planners, based on observation and on formal and informal discussion, all contributed to the decision by Faculty to establish a post to research the curriculum.

The Dean and the Working Party saw the need for someone to provide much more versatile, reliable and meaningful feedback to close the feedback-loop as it were, than the existing questionnaires and ad hoc reports of personal experience by staff and students -- someone who could take an overview of the course as well as a detailed view, and who would offer advice on course development.

2.3.6 Appointment of the present writer

I was appointed to the Faculty of Medicine as Educational Researcher in May 1977, just before the first intake of students graduated. My first encounter with medical education was one month after taking up my appointment, when the finalists were taking their long and short clinical cases. There was a general feeling of enthusiasm, excitement and expectancy which everyone shared -- internal and external clinical examiners, administrators, and 'students' on the verge of becoming graduates. The first long-term goal was in the process of being successfully achieved.

2.3.7 Progress of appointment and the activities of the evaluator

The post was initially part-time for three years. After one year it became full-time and was extended by a further two years. The Medical Education Group of the Faculty was formed in 1979 in response to the growing need for further research (two full-time members and a part-time secretary). For the last six years as part of the Medical Education Group, my research has continued on a small-scale with twenty-three medical students/graduates.

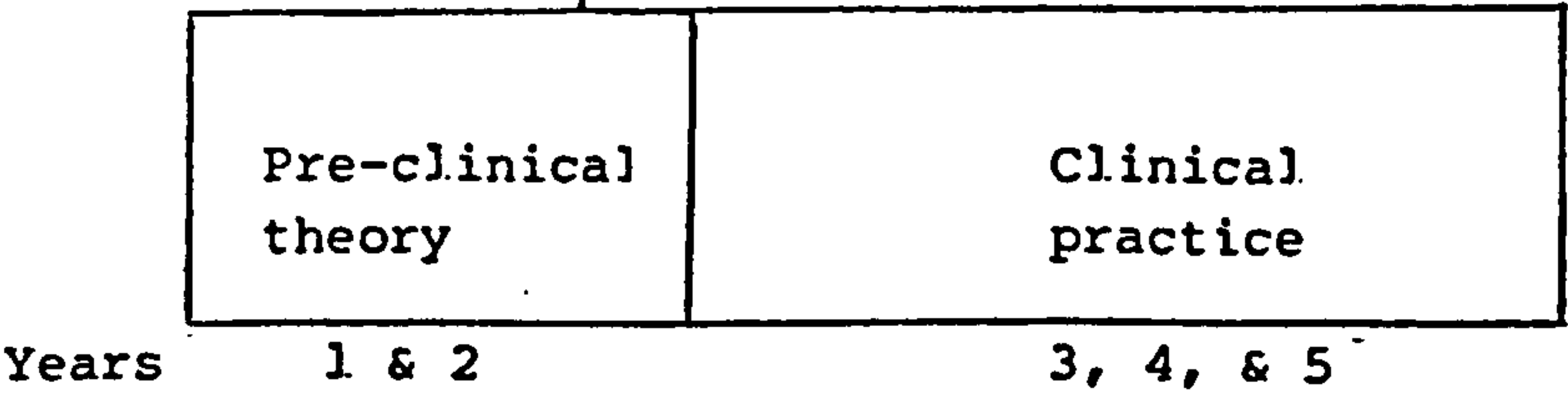
My activities as evaluator are described in detail in Chapter 4 ('Inquiries conducted by the evaluator for the Faculty of Medicine') and Chapter 6 ('Methodics: methods used and

their supporting naturalistic methodology'). Coverage of the research is given in Appendix 1. In the next chapter, Chapter 3, the concept of Integration in higher education is discussed.

Table 2.1

Undergraduate Medical Course Structure

(a) The Traditional Model



(b) The Southampton Model

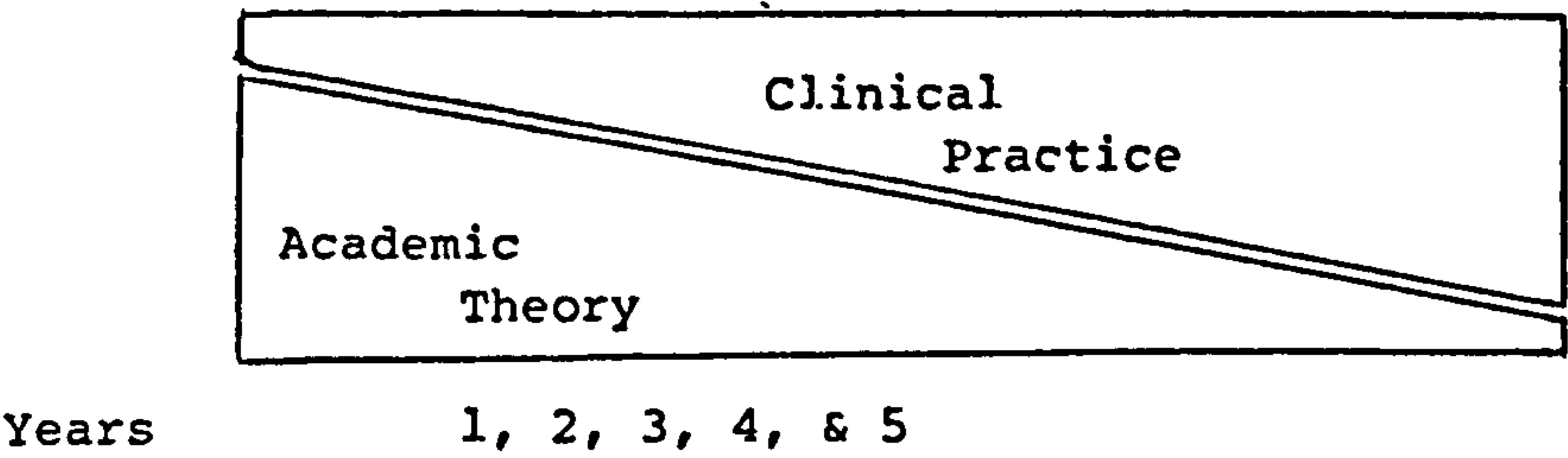
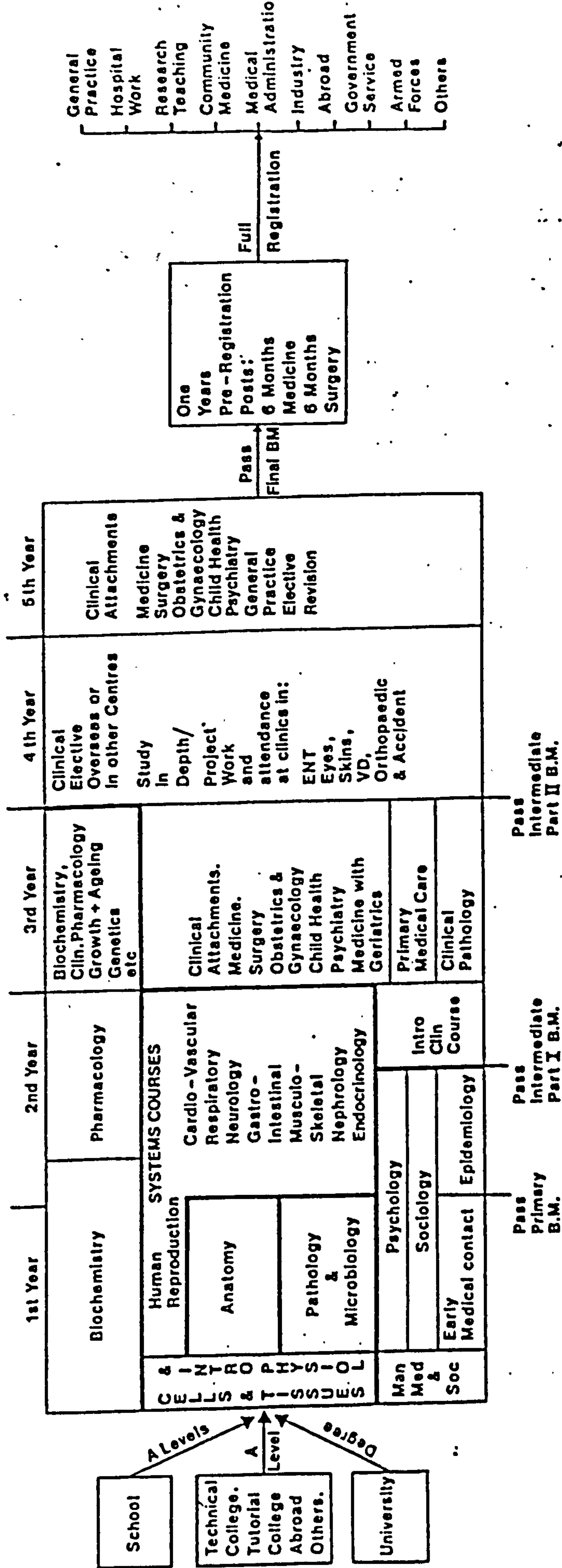


Table 2.2 Course as a whole (Faculty of Medicine Prospectus)

PLAN OF THE MEDICAL CURRICULUM



Note : The Systems Courses cover physiology, morphology, pathology and pharmacology etc. of each system

CHAPTER THREE

INTEGRATION AS A CONCEPT IN HIGHER EDUCATION

3.1 Introduction

The Southampton medical curriculum aimed to be integrated like many courses in the 1960s and 1970s. In this chapter the concept of integration in education is considered.

Integration, within education, is a term usually applied to courses. When it is applied, it is applied to courses which contain more than one discipline (horizontal integration) and/or both theoretical and practical components (vertical integration).

This chapter provides a sketch of traditional courses in UK higher education and post-mid-century innovations, especially the different forms and fortunes of integrated courses, followed by a framework for the critique of integrated courses, and finally a consideration of integration in the Southampton BM course.

3.2 Courses in higher education

Courses in higher education are of many kinds; one common division of such courses is that between vocational and non-vocational. A typical vocational course will house a number of disciplines and will incorporate an element of practice; teacher education is a good example. Such courses are sometimes referred to as 'applied' courses. A typical non-vocational course, on the other hand, features the academic study of a single discipline, for example English. Here specialisation is seen at its height and such courses are often referred to as 'pure' courses.

Increasingly it is becoming recognised that such descriptions of courses as vocational/non-vocational or applied/pure, though useful, are problematic. The vocational/non-vocational dimension emphasises a student's apparent commitment to a particular career (vocational) or to a student's wish to delay commitment (non-vocational). But skills of inference, creativity, analysis and exposition etc., which are among the designed learning outcomes of non-vocational courses (and commonly referred to by the general term 'competencies') are valued by employers since they are needed for successful employment: in this sense non-vocational courses can be said to be vocational. Whitehead (1932:3) was

of the same mind when he said "Pedants sneer at an education which is useful. But if education is not useful, what is it?...It is useful, because understanding is useful." Similarly, the pure/applied dimension is increasingly being challenged (Robinson, 1968). Two reasons for this (though there are more) are that (a) the academic tradition of specialisation (the corner-stone of 'pure' study) for its own sake is itself being challenged and (b) increasingly the frontiers of knowledge are pushed forward by a co-operative, holistic or multi-disciplinary approach to study, for example in Biochemistry. Classifying courses in these ways may be useful for certain purposes, for example administratively, but it can lead to problems conceptually and educationally.

Taking the single honours course as the UK norm of traditional higher education, within a university structure of departments and faculties, may help to show how the notion of integration gained favour. Historically, the single honours course had pride of place, but other patterns became established within universities, for example joint honours and the vocational courses mentioned above. The establishment of the polytechnics (together with expansion of the universities) took place in the 1960s in line with the 'Robbins Report' (1963) in order to meet the increased demand by students for 'suitable' degree courses. The provision was further extended in the 1970s by the creation (usually by conversion) of colleges of higher education also offering degree courses. This expansion of institutions and of courses coincided with an increased awareness in society of changing values (Carter 1971; Venables 1971a) and of changing patterns of employment, both the type of work and the availability of work (Layard and Williams 1971; Venables 1971b) (see chapter 1, section 1.2.1).

Perhaps most importantly there were changes in the view of knowledge and of disciplines (Berger and Luckman 1967; Laszlo 1972). Turk, Turk and Wittes (1972:v) describe this new outlook: "Science has been aptly defined as 'the body of knowledge obtained by methods based upon observation'. However, the separation of science into categories, or disciplines, such as biology, chemistry, and physics is not based on any natural divisions in such knowledge, but rather on the behaviour of scientists." These changes led to fresh consideration of the old question: what is the purpose of education? how far do the aims of education meet the needs of students and of society? how best can courses embody 'education for life'? Such questions, together with the student demand for relevant courses and the opportunity offered by institutional expansion, led to 'new' courses and the introduction of new approaches to old courses.

3.3 .The origin and organisation of 'new' courses in higher education

'New' courses needed to: (a) comprise more than one discipline because of the complex problems of modern society; (b) satisfy the need to give students a more liberal education; and (c) provide for the student demand for course relevance, where knowledge and experience are in harmony and no longer divorced from each other (CERI 1972).

Integration of disciplines on the one hand, and of knowledge and experience on the other, was a move against the acute specialisation of the British academic university tradition and resulted in the establishment of inter-disciplinary courses, especially in polytechnics and colleges of higher education (Robinson, 1968; Hewton, 1982). 'Inter-disciplinarity' is a term frequently used in the literature to describe courses within higher education; 'integration' on the other hand, is relatively rare in this context, though it is used in the context of school education (primary and secondary), where the term (as applied to courses and curricula) seems to have its origin (see section 3.4).

According to Squires et al. (1975) the 'new' many-discipline courses fall into four patterns of organisation, though there are courses which do not fit neatly into one or other of the four categories. The patterns are :-

(i) Two disciplines may be taught in relation to each other:

some of these courses are the outcome of pre-existing joint honours courses, such as English and Italian, others may be designed de novo as two-discipline courses, for example Philosophy and Literature, Mathematics and Politics, etc.

(ii) Faculty structure may lead to departments within one faculty jointly designing courses in, say, the humanities, the social sciences, the natural sciences or technology, for example Environmental Studies, Combined Humanities etc.

(iii) Courses may be designed around particular areas or periods of study, for example European Studies, Medieval Studies, etc.

(iv) Themes, topics or current problems may be the focus of a course, for example Industrial Relations, Urban Studies, etc. This type of course is generally 'applied' and concerned with decision-making in a particular context.

Horizontal integration is emphasised by (i) and (ii) above, whilst vertical integration is emphasised by (iv) and possibly (iii) above). Interestingly, in practice, vertical integration always necessitates horizontal integration: that is, if many disciplines are brought to bear on the holistic solution of a complex problem, the boundaries between those disciplines will become weakened and so they will tend to become integrated.

Vocational courses have an extra dimension, namely practice. Planning generally seems to have been based on (a) the 'good practice' of the qualified practitioner, as perceived by the course planners, together with (b) any accreditation requirements specified by professional bodies, and (c) a view of practice as "instrumental problem solving made rigorous by the application of scientific theory and techniques" (Schon 1983:21). Such many-discipline vocational courses need a clear strategy for implementation built into the course design, or in the words of Squires (1977) "the course aims will be intentions rather than results".

3.4 Origin of the educational use of 'integration'

As noted above, 'inter-disciplinarity' as a topic in the literature on higher education is relatively common; 'integration' on the other hand is relatively rare. Squires et al. (1975) suggest that the term 'integration', as applied to courses, has come into the vocabulary of higher education from primary education. In primary education it is used to describe a form of classroom organisation where there is no detailed timetable or syllabus governing the day's work: hence expressions such as the 'integrated day' or the 'integrated curriculum'. The central aim of this approach is to minimise divisions between subjects or disciplines because such divisions are thought to be artificial and inconsistent with the natural learning abilities of children: it also, and importantly, allows the learner freedom of choice, since it is the activity of learning which is regarded as the central focus of the educational process rather than the learning of particular content. This view of education provides a practical framework for a 'child-centred curriculum' and 'individualised learning', where the desired learning outcomes are mastery and use of the basic and generalisable tools of learning, such as literacy and numeracy (i.e. competencies).

3.5 Inter-disciplinary courses and integrated courses in higher education

This kind of course innovation is centred on the concept of inter-disciplinarity, traditionally within non-vocational courses. An inter-disciplinary course can be simply

defined as one where two or more disciplines are taught in conscious relation to each other (Squires et al. 1975). More complex definitions and classifications of discipline-relationships have been suggested by Jantsch (1972). A more practical and much simplified version of relationships is given by Berger (1977). He identifies three degrees of increasing inter-relationship of disciplines, namely: (1) pluri-disciplinary, (2) inter-disciplinary and (3) trans-disciplinary.

Turning now to vocational courses, and using Berger's first two terms, it would seem that such courses were originally pluri-disciplinary in that they included many selected disciplines which were assumed to be more or less related to each other and to the intended vocation. Following the example of non-vocational courses, there was a move in the 1960s to make such pluri-disciplinary vocational courses inter-disciplinary also, for example Medicine in the 'pre-clinical' phase. Practice is a feature of vocational courses as well: there is an obvious need for theory and practice to go hand in hand, to complement each other. The 1960s also saw a serious attempt to meet this need -- for example in medical education, the Todd Report (1968), and in nurse education, the Briggs Report (1972). In order to foster such links in nurse education, clinical instructors attached to schools of nursing (later called 'clinical tutors' (Briggs Report, 1972)) were instituted. A similar solution was advocated for teacher education by the James Report (1972): teacher tutors were to help students link the theoretical studies of college with the practical experience of the classroom, but in contrast to nurse education, such teacher tutors were to be attached to practice schools and not to the colleges. Recently Petersdorf (1987) suggested that clinical teachers should be instituted for medical education: they would be clinicians attached to practice wards.

3.6 The success of integrated courses

This general move within higher education in the UK, to adopt the concept of inter-disciplinarity in course organisation, especially in new and vocational courses, was particularly prominent in the 1960s and 1970s (Hewton 1982), though the approach is losing popularity in the 1980s for many and varied reasons. Becher et al. (1975) are of the opinion that interdisciplinary courses are successful when they are planned and established because of the educational philosophy and vision of people concerned, rather than for abstract epistemological reasons on the one hand, or to meet particular course or institutional needs on the other. As a result, such courses can occur throughout the whole spectrum of disciplines and institutions, though they are found more often in those com-

plex areas of study where traditional academic 'structure' is less clear, such as in the biological, social and human sciences (Squires et al. 1975), and in those institutions without a long-standing and/or traditional organisation, namely the polytechnics and colleges of higher education (Hewton 1982). Surveys show that participation in such courses may jeopardise career prospects and result in enormous tensions when trying "to overcome the cultural distinctions between disciplines which affect all aspects of inter-disciplinary curriculum development" (Hewton 1982:41).

Views of knowledge (and underlying views of reality) are clearly of importance in inter-disciplinary courses. If knowledge, reflecting one view of reality, is seen as a "seamless coat" (Becher and McClure, 1978), then integration or inter-disciplinarity is called for. Whitehead (1932:18) expressed the same view of knowledge rather differently: "You may not divide the seamless coat of learning". If, on the other hand, knowledge, reflecting another view of reality, is seen as compartmentalised, then discipline boundaries will be maintained and even extended, making integration or inter-disciplinarity unlikely. Yet even with this latter view of knowledge, support for integration or inter-disciplinarity is not entirely lacking (though it will probably be seen as essentially a postgraduate approach) since new knowledge is increasingly the result of inter-disciplinary exploration and co-operation.

In continental universities, innovatory courses embodying all three features which characterise the concept of integration in UK primary education, namely inter-disciplinarity, student-centredness and student-choice, have become established. Such courses are based on project-oriented studies. Such courses offer a radically new approach to higher education and are based on the central educational philosophy of the 'progressive' school movement (Schulmeister 1977). In the UK, however, inter-disciplinary courses in higher education are not typically associated with student-centredness and student-choice, even where course units or modules form the basis of course organisation. (Course modules are roughly equivalent to the 'credit' schemes of American universities: they were first introduced as electives at Harvard in the early 1900s. Such modules, however chosen, usually have little to do with student-centredness or individualised learning.) Such truly integrated courses in higher education do, however, have their advocates in the UK, for example Berrill et al. (1983).

3.7 Organisation of teaching in inter-disciplinary/integrated courses

Bernstein (1971) suggested a model which can be used to determine the nature of the 'process' of any course, that is to determine the nature of the course-in-action. He distinguishes two types of curricula, namely 'integrated' and 'collection'. These, he claims, can be identified by using two separate dimensions of description: (i) 'classification' of knowledge and (ii) 'framing' of knowledge. "Classification...refers to the degree of boundary maintenance between content" (page 49) and "frame refers to the degree of control teacher and pupil possess over the selection, organisation and pacing of the knowledge transmitted and received in the pedagogical relationship" (page 50). Strong classification and strong framing characterise a 'collection-type curriculum', whereas weak classification and weak framing characterise an 'integrated curriculum'. (This can be represented diagrammatically -- see Table 3.1.) Clearly there are many degrees of classification and of framing and free combinations of these, giving a continuum of curriculum types.

Bernstein claims that an integrated curriculum is more difficult to achieve the more teachers there are involved, since control of the nature of classification and of framing is much more problematic. Ball (1981) claims that, within secondary education, teachers of curricular subjects such as modern languages, mathematics and science, feel unable to substitute the needs of an educational innovation for those of their discipline and its teaching - their discipline comes first. Humanities teachers, on the other hand, are much more 'child-centred': they consider the child's needs before those of their discipline and its teaching. This research would seem to indicate that integration is far less likely to occur in science subjects than in the arts, because of teacher attitudes and beliefs. Barnes (1976) also found an equivalent difference in teacher styles according to subject discipline. These differences may represent the cultural differences between arts and science -- the 'two cultures' -- suggested by Snow (1965). Hudson (1966; 1968) showed that the notion of two cultures was reflected in schoolboy types: the diverger (arts) and the converger (science). These phenomena are quite compatible with the finding that inter-disciplinary courses in higher education are far less likely to occur in those disciplines whose 'structure' is well established, i.e. the sciences, than in those disciplines in whose 'structure' is more diffuse, i.e. the arts (Squires et al. 1975) (see section 3.3).

Bernstein's view of course 'process' may be linked with that of Squires et al. They suggest that the course-in-action may be regarded as either 'bridge-building' or

'restructuring'. In bridge-building courses, the selected disciplines typically form the focus for the first two years, inter-disciplinary work occurring in the third year. At least in the early years, the structure of the disciplines is strong and the disciplines control the selection of content. Such courses are usually organised according to patterns (i) and (ii) described above (see section 3.3). In courses adopting a restructuring approach, selected disciplines contribute from the beginning to the study of non-disciplinary topics or problems. Straight discipline-work may form the focus of the later years of the course, but in the early years the structure of the discipline is weak and the topic or problem controls the selection of content. Such courses are usually organised according to patterns (iii) and (iv) (see section 3.3).

A bridge-building approach is more common, less radical and relatively easy to organise, especially in universities, where the department and faculty structure is strong. A restructuring approach is somewhat rare and can only succeed when all concerned share a firm belief that the disciplines involved 'need' each other (for example, the Cognitive Studies programme at Sussex University). The integration of disciplines in a restructuring approach is complete. This is in stark contrast to where "disciplinary integrity is regarded...as highly important: defences are built and carefully maintained" (Hewton 1982:39). If restructuring is to be possible, all disciplines must be equal; they must share concepts, methods and theories; and they must all contribute to the formulation (problem framing, Schon 1983) as well as to the solution of problems. The goal is that, with the process of restructuring, a new 'discipline' emerges, for example Cognitive Studies, which is then the vehicle for problem-solving in its own right.

3.8 Consideration of the BM Course as an integrated course in the light of the foregoing

If the BM course on paper is considered against this background sketch of integration and inter-disciplinarity in higher education, a number of points emerge. Taking the simple definition of an inter-disciplinary course as "one in which two or more disciplines are taught in conscious relation to one another", then clearly the BM course was planned to be inter-disciplinary. Also, systems courses and the blurring of the distinction between pre-clinical and clinical phases (for example, by planning the first three years as an entity) intended both horizontal and vertical integration. Integration of the first two (the traditional pre-clinical) years with the later clinical years was the essence of the curriculum design, and was recommended by Todd (1968). Todd also recommended an inter-departmental committee to manage the course: Southampton was established without

departments in order to facilitate integration and flexibility (cf. section 2.2.6).

The implementation of curricular plans, where many disciplines and many teachers are involved is always problematic: a clear mechanism for implementation needs to be included in the planning which can also permeate the course. In the case of the BM course, no clear mechanism was included. Implementation was made all the more difficult, since most academic teachers (as distinct from practice teachers) were not qualified doctors, nor were they very familiar with the process of 'doctoring', especially in the hospital setting. Also, and importantly, there was little formal provision for the many teaching staff from different departments and faculties to meet each other regularly and frequently in order to discuss either the BM course as a whole or the specific contribution of individual staff to the overall teaching and to the intended learning outcomes. There were course co-ordinators for individual courses, but no co-ordinators of years (apart from the Fourth Year), or of topics/themes, such as communication. Such factors make the implementation of the planned integration, based on course structure and integrated teaching, very problematic.

The BM course seems to be designed, like many higher education inter-disciplinary courses, as a response to the complex problems in society, in this case in medicine, when holistic solutions are desired. Ideally, the selected content for such courses is determined by the problems themselves, rather than by any individual(s) or any disciplines. The Southampton curriculum was not problem-based (see chapters 1 and 2). Other issues in higher education which have prompted inter-disciplinary courses, such as delayed career choice and a liberal education, are not in evidence here, since the BM students are committed to a career in medicine at the time of their application to university.

As with all other vocational courses that aim to be vertically integrated, integration of theory and practice is an avowed aim of the BM course. Such integration can be fostered by the use of practice in theoretical sessions and by the use of theory in practical sessions. In the case of the BM course, most theory is taught in Years One and Two, when students have very little first-hand experience of practice; therefore any 'practice' used in the 'theory' sessions will usually not be the students' own practical experience: the choice of appropriate 'practice' needed careful consideration. As in other courses, there are also opportunities to discuss with students (i) the active use of relevant theory in actual practice sessions, and (ii) the possible use of relevant theory in possible practice. Though both types of discussion can be profitable, it must be remembered that discussion about practis-

ing is not the same as discussion while practising. In Years One and Two many different staff are generally involved, so that continuity is lost. Under these circumstances it is very doubtful if integration of theory and practice, in the early years, can ever be convincingly achieved.

It seems important to ask if the present wedge-shaped distribution of theory and practice (see chapter 2, section 2.2) actually facilitates integration of theory and practice. Students experience very little practice in Years One and Two; and yet it is in Years One and Two that most theory is taught. Unless theory and practice go hand-in-hand throughout the course, reinforcing and developing each other, any integration of theory and practice can only be partial. The organisation of any course is always very influential. The organisation of the BM course reflects, in part, two of the four commonly found patterns outlined by Squires et al. (1975), namely patterns (iii) and (iv) (see section 3.3 above). Clearly the area of study is medicine, and much of the academic teaching is based on a series of themes or topics which are intended to relate closely to the students' clinical practice; but the themes and topics are largely taught in the first two years and out of context of clinical practice. Integration is unlikely in these circumstances.

The process of any course is also influential. If the BM course is examined using Bernstein's model of 'integrated' and 'collection' codes (see section 3.7 above), then clearly the course in the first two years is of the 'collection' type: discipline boundaries are strong, pedagogic framing is also strong, and there are many teachers involved in the teaching. Furthermore, these characteristics of a 'collection' type remain in the later years where courses are formally taught - the overlapping double wedge provides no in-built mechanism for integration. On the other hand, in the clinical years where the curriculum focuses on actual practice, there is provision for an 'integrated' code (Todd 1968; Armstrong 1977;1980). However, this is a potential feature of all clinical courses, the traditional no less than the innovatory.

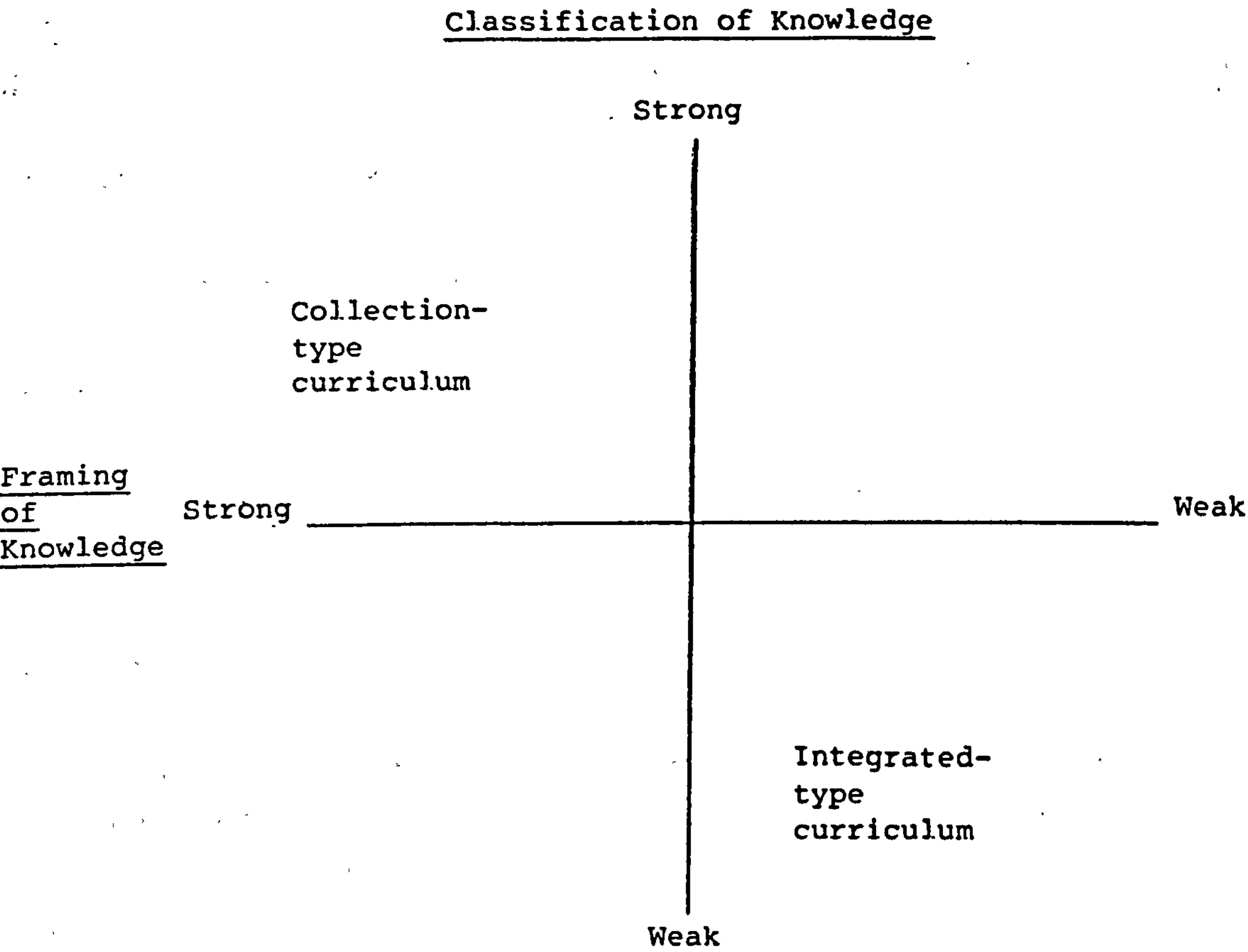
The process of the BM course can also be examined from the relationship of the component academic disciplines: in which case the course is neither one of bridge-building nor of restructuring (section 3.7). Bridge-building, though compatible with an 'applied' course of this kind, was not planned (discipline experts were not involved in teaching in the later years) and restructuring of the disciplines was not attempted formally.

When the BM course on paper is examined in this way, the diagnosis is disappointing. In-

tegration both intended and actual seems very difficult to achieve with the present course structure and process. Coles (1985) gives a full account of the lack of integration as planned for the early years, at Southampton and reasons for this. However, integration may occur in other ways: this study attempts to describe and to explain some of them.

Table 3.1

Interaction of the two independent variables clasification and framing of knowledge (Bernstein 1971)



CHAPTER FOUR

INQUIRIES CONDUCTED BY THE EVALUATOR FOR THE FACULTY OF MEDICINE

4.0 In this chapter the nature of the appointment of the evaluator is outlined, together with the range of inquiries made. Reasons why these particular inquiries were chosen and their general outcomes are included.

4.1 The present writer as evaluator

In the light of the end-of-course questionnaires, the work of Coles (1976 and 1977) and ad hoc personal experience of staff and students, Faculty felt the need for the curriculum to be evaluated more systematically as a basis for curriculum development (see sections 2.3.5-7 above).

Appointment

It was decided to make a single appointment; a part-time evaluator for three years commencing May 1977. In the event, the appointment was enlarged to full-time in Summer 1978 and in 1978 extended by two years. It is significant to note that a person with education qualifications and without medical qualifications was appointed.

The person appointed was the present writer. From now on, where appropriate, I will adopt a more personal style of writing to enable the reader to share something of the interpersonal nature of this study.

Background

I am a biologist with 18 months experience of postgraduate university research in Microbiology. I taught in schools before going to Lancaster as an MA(Ed) student. There I was privileged to work with Professor Alec Ross who had a creative commitment to the professional education of teachers, and with Professor Noel Entwistle who was conducting his field research into student learning in Higher Education, out of which the inventory on student learning was constructed (Entwistle 1981). I then taught in a College of Education where I used a form of interactive teacher-training supervision similar to the

method described in Gitlin (1981), Gitlin et al (1984) and Gitlin & Goldstein (1987), under the name of 'horizontal evaluation'. As a lecturer in a local college I came to know a number of biomedical and clinical staff at Southampton University who taught medical students.

Curriculum evaluation by the late 1970s had reached a new awareness. Nevo (1986) in a review article outlines the chronological development into four broad persuasions. Firstly, evaluation focused narrowly to determine whether educational objectives had been met (Tyler 1950). Then the focus widened to include any relevant information to help key decision makers to make decisions (Cronbach 1963; Stufflebeam et al 1971). Later the use of 'descriptive' methods enabled the process of education to be taken more fully into account, and the concerns and issues of all involved to be identified (Eisner 1979; House 1980; Guba and Lincoln 1981). Lastly evaluation was seen as a mechanism to educate (Cronbach et al 1980) by promoting democratic discourse which can address the values and effects of particular educational events (Cohen and Garet 1975; MacDonald 1974; Kushner and MacDonald 1987). Bruner, in the 1960s, had seen educational evaluation as "educational intelligence" (1966:163).

Discussions between the Dean (Professor Acheson), Deputy Dean (Professor Howell), Dr Coles and myself (see chapter 2 above) revealed that collectively evaluation was seen to include all four persuasions, but especially the last two because of our perception and purpose, especially the link with curriculum development (see chapter 5 below). We decided that I should try to spend as much non-timetabled time with the students as possible; in this way I would begin to know what being a student was like. The model of evaluation as a versatile and meaningful feedback-loop system sensing and thereby regulating teaching and learning, emerged: "the educational intelligence" of Bruner (1966). This was a simple but useful model for a complex process. There are clear and useful parallels here with the double feedback-loop system of Argyris and Schon (1974): a double feedback loop is needed to identify and to implement change (see section 4.5 below). I knew that learning and teaching were interactive and problematic from my own learning and teaching, and from my supervision of teachers-to-be.

It was agreed that my research would focus on the details of the process of teaching and learning. At this point I assumed that the content of what was taught was appropriate. The questions asked were:-

A. What are the teaching and learning experiences, including the process(es) of these experiences?

B. What do students make of these experiences?

C. What do staff hope to achieve by these experiences?

Thus the methods (see chapter 5 below) selected themselves, namely participant observation and unstructured interviews, together with the minor methods of purpose-designed questionnaires and use of documents. These will be described in detail in Chapter 6.

4.2 Initial context of inquiries.

The BM is a five-year course with a sixth pre-registration year (chapters 1 and 2). There was an initial intake at Southampton (1972) of 40 students, but the intake target of 120 to 130 students had already been reached by 1977. The first cohort of students graduated in July 1977.

I was a single appointment (not a team), part-time for 3 years. I could not begin at Year One, Term One, and work systematically through the course as the students do. The appointment was my first sustained encounter with medical education; I knew nothing of the details of the conventional medical course. And though, by living locally, I knew that Southampton had adopted a new approach and had introduced many innovations into their curriculum; I knew nothing of the particulars of these innovations.

Course documents and timetables (Years One to Five inclusive) were obviously available, as were past examination papers and examination and assessment results. But since examinations and assessments and their results tell little on their own of the "educational service" (MacDonald 1976), and finding out about the educational service was the purpose of my inquiries, I attended to these only in so far as they offered illumination.

In effect I started from zero, by learning as I went along, for little was known about the process of education, the "educational service", at Southampton. I was greatly helped in my learning by open access to courses, people and written data: also, and importantly, by the abundance of goodwill and interest shown by all I met and worked with, both staff and students. The purpose of my inquiry - finding out about teaching and learning,

fitted in with their 'common sense', or "human sense" (Donaldson 1978), views of curricular innovation follow-up.

One decision taken at the start was that I would gather data, interpret, and write reports for each component inquiry. In this way, formative and summative (Scriven 1967) feedback would be more immediate, and discussion would be more focused. It is worthy of note that interpreting the evidence and writing reports was very time consuming; this was one reason why my appointment formally became full-time. It had evolved into a full-time appointment before it was formally made one. (The appointment was extended by two years for different reasons, namely because of the richness of the data, and the curricular insights the data and its interpretation provided.) It was also decided that my written reports would go only to the Head of Firm/Course Co-ordinator concerned, and to the Dean and to Dr Coles. Students would not receive a copy of my reports nor would they be given the opportunity to read them. Teaching Methods Working Party, similarly, neither received a copy nor read a copy of my reports. A climate of confidentiality which was wholly appropriate was thus established. (It is interesting to note, in passing, that these decisions were never revised.)

My inquiries had both a formative and a summative role (Scriven 1967). Both were achievable because of the methods used (mainly participant observation, unstructured interview and written reports). However the model of evaluation adopted, that of closing the 'feedback-loop', did not of itself have a mechanism for handling the evidence in a way which would automatically sustain formal course development: that is, there was no in-built process dedicated to determining what to do with the data, its interpretation and any conclusions drawn.

4.3 Reasons for choice of inquiries

The choice of inquiries was determined by the overall purposes, i.e. to understand the process of teaching and learning medicine with an eye to course development; also there were particular reasons, both immediate and evolving, and these were the priorities of those making the choice. The people ultimately responsible for making the choice were the Dean, the Deputy Dean, Dr Coles and myself; Teaching Methods Working Party (see chapter 2 above), who saw the need for curriculum evaluation, were not involved directly.

As stated above (section 4.2), I could not begin at Year One and work systematically

through the five years in sequence. Choices had to be made. It seemed sensible to choose an innovation. The Fourth Year is perhaps the most radical innovation. But, in Year Four the students (all 120 of them) are 'scattered', because of their projects, and there are very many supervisors. Because of this, it seemed that inside 'know how' would greatly enhance the efficiency of simply making contact, in order to begin, and it also seemed useful for students to know me and for me to know them before this year was researched -- students do not think neutrally about this year. It was decided not to begin with Year Four.

The Southampton curricular approach is one of integration (chapter 2) and, on paper, Year Three is the most integrated year, for discipline-based courses and clinical attachments are timetabled concurrently. Year Three is the first clinical year, and medical education is primarily concerned with educating students for professional clinical practice. Moreover, the Third Year attachments had not been monitored by end-of-course questionnaires: thus this major part of the course had not been formally monitored.

Also, it was judged that I should get a 'feel' for medicine and medical education most effectively by experiencing clinical attachments, and that this in itself would facilitate all of my subsequent inquiries. On the other hand if, I began with Year Three clinical attachments, I would not have experienced Years One and Two, in particular, I would not have attended the Introductory Course to Clinical Medicine (Summer Term, Year Two), which prepared students for their Third Year attachments.

Initial choices

It seemed reasonable, nevertheless, to assume that the Introductory Course to Clinical Medicine was not essential for me, since if I attended Third Year clinical attachments, my aim (unlike that of the students) would not be to acquire clinical skills. Thus we decided that my inquiries should begin with Third Year clinical attachments, one ten-week attachment in Medicine (generally thought to be basic to all the specialties) and one five-week attachment in Obstetrics & Gynaecology (directly related to Early Medical Contact Year One and the Human Reproduction systems course Years One and Two). The professor of Human Reproduction strongly supported evaluation. These were the immediate reasons and choices.

In the event this assumption was fully vindicated. Doing the course 'out of order', as it

were, legitimised my very naive questions. I had 'missed' so much of the course that I had to ask questions of staff and students just to know and to understand what was going on. These questions usefully exposed difficulties, assumptions and expectations.

Subsequent choices

It was natural that I should study the Introductory Course to Clinical Medicine (Summer Term, Year Two) at the next opportunity, and then follow the students into the full range of six specialities (clinical attachments, Year Three) for which it prepares them. After this stage had been reached, there was a choice between (a) developing, with the evidence now available, the Introductory Course to Clinical Medicine and the clinical attachments (especially Medicine, and Obstetrics and Gynaecology), or (b) enquiring into other parts of the five-year course.

The evidence was informative and interesting; it was tempting to extend the inquiry. The size of the curriculum development task (if something was to be done formally) was emerging. The methods of inquiry (participant observation and unstructured interview) facilitated development as did the curricular insights obtained. Thus the question arose, would it be advantageous to involve more staff and to acquire more evidence and understanding by extending the inquiry before beginning formal development? Importantly, Southampton's curricular approach was one of integration; thus seeing the inter-relationships between the various parts of the course was central. Further inquiries would provide further information about these inter-relationships, understanding would be enhanced, and course development facilitated.

Another consideration in favour of further inquiries was the Fourth Year of the curriculum. It was seen by many, both in Southampton and elsewhere, to be the innovation of Southampton, even of medical education world-wide (chapter 2). Because of the time allocated to Fourth Year projects, other parts of the course were more overcrowded than they otherwise would have been. An inquiry into the Fourth Year was seen to be desirable, even necessary. By now, I already knew half of the Fourth Year students, having worked with them on attachment in Year Three. This in itself seemed an excellent reason for choosing a Fourth Year inquiry rather than formal development of the curriculum.

Ophthalmology is a Fourth Year specialty clinical attachment (chapter 2). The academic consultant in Ophthalmology asked if I could evaluate the attachment. We readily accepted: studying the Fourth Year project and the Ophthalmology attachment together would show the extent of their interaction. Thus in my second-year of inquiry I moved into the Fourth Year of the course. This was followed by a Year Two Systems Course at the beginning of my third year. Only later, in my third year of inquiry, did I study Year One to see the impact of the course on a new student intake and to see discipline teaching in the integrated curriculum. I then revisited the Introductory Course to Clinical Medicine in order to determine to what extent students' concepts of key clinical skills were affected by it.

There was a general interest in the difficulty students encountered in the early years of the course. The psychosocial courses (sociology and psychology) were taught separately, whilst the biomedical courses were taught largely as disciplines in the First Year but as Systems Courses in the second. There was also a general interest in students' study skills, including skills of literacy. The decision was taken that I should make the psychosocial science teaching, especially psychology, and the extended essay the focus of my next inquiry.

Most Southampton graduates take their house-posts, the sixth pre-registration year in the Wessex Region. Initially a 'matching' scheme had been instituted to place each graduate with the most appropriate consultant. Gradually this was discontinued as Fifth Year students increasingly organised their house-posts individually. This was facilitated because of the organisation of the Final Year clinical attachments throughout the region: students met consultants personally when they were apprenticed to their firm. The pre-registration year had always been monitored by questionnaires, one completed by the consultants, and another by the graduates. However, more detailed information was sought by the post-graduate Dean and by the Dean of the Faculty. My next inquiry, accordingly, was the pre-registration year.

At this point my contract to evaluate the BM course was coming to an end (I continued to be employed by the Faculty of Medicine and to evaluate the new four-year Bachelor of Nursing course, beginning May 1982). I knew one intake of students very well having worked with them extensively in their first and second years. It seemed useful to follow some of these students (23 of them) through their course as a longitudinal case study. This I did in consultation with the Dean. When the students graduated they did not want

to lose touch: they suggested that the longitudinal study should be continued. I have kept in touch with nineteen of these graduates up to the present time.

4.4 Range of inquiries

Over the five-year period 1977 to 1982 inquiries were conducted into all years of the medical curriculum including the post-graduate, pre-registration year. The clinical attachments, projects, electives and discipline-based courses were the focus of these inquiries.

The range of inquiries made is included as Appendix 1.

4.5 The result of the evaluation

The evaluation brought both formal and informal results, which were both expected and unexpected.

My written reports for the Heads of Firms/Course Co-ordinators, the Dean and Dr. Coles were the most formal results. These reports were substantial documents with description, interpretation and questions raised: they always contained a summary and contents list for ease of use. They can be regarded as a permanent record of the evidence. They were also a focus for 'summative' (Scriven 1967) discussion with those involved. In some cases this discussion was extensive and included a number of staff; in other cases there was simply discussion on one occasion with the Head of Firm/Course Co-ordinator after they had had time to read and digest the report. Changes to parts of the particular attachments or courses often resulted.

The methods adopted (mainly participant observation and unstructured interview) were chosen to collect data and to provide a climate to encourage ad hoc informal changes. Also, and importantly, the methods had been chosen to help with any subsequent formal course development. The particular staff and students concerned automatically and informally shared the evidence that was gathering as a result of my evaluation; it belonged to them, for they were the 'experts' in teaching and learning medicine. Certainly staff and students showed interest and involvement in the inquiries not only whilst they were on-going, but also afterwards. The research technique asking staff and students to reflect on their experiences was, though time-consuming, very fruitful not only as a tool to col-

lect the necessary evidence but also as a process of education in its own right. Both staff and students told me this on many occasions. The outcome would have been even more educative if more staff and students had read and discussed my written reports; as it was they only had limited circulation (see section 4.2 above).

One unexpected outcome was that I helped staff and students simply by giving them information. This information was of two broad kinds. The first was information about the course itself which, though freely available, they simply did not have: for example, the programme for the Introductory Course to Clinical Medicine or the Third Year as a whole, the fact that Systems Courses were assessed by true/false MCQs, or the name of a Head of Firm/Course Co-ordinator. That is, I gave standard information and put them in touch with each other. The second was non-standard information about course processes, concerns and issues. For example, one general practitioner in Early Medical Contact gave First Year students an up-dated bulletin on patients they had previously visited at home, most general practitioners did not do this; two different courses may diagnose the same problem: for example, How to involve quiet students? What do students already know? 'Courses' gained confidence from knowing that others had the same problem, and sometimes one course's solution was of service to another. Usually courses looked inward for solutions rather than outward, even though causes of problems were often located outside their own courses: for example, low attendance at practical classes may be because of pending assessments in other parts of the course, or students falling behind with work, rather than as a result of the practical classes themselves.

The growing awareness and talk of all involved was very exciting. Evidence concerning the process of teaching and learning in various parts of the course, including the accumulated expectations, perceptions and experiences of staff and students, were very informative. An 'active' curriculum patchwork was materialising. The full complexity was beginning to be realised. The model of evaluation as a visible and meaningful 'feedback-loop' system, sensing and thereby regulating teaching and learning (section 4.1 above), was seen to be too simplistic and limited. The approach adopted had been to involve and to interest all staff and students concerned with the inquiries. This had been achieved, but this alone did not guarantee formal course development; re-setting the thermostat was not automatic (Argyris and Schon 1974). The decision to extend the inquiry (section 4.3) to chart more of the curriculum with the resources available had been at the expense of the expected formal follow-up curriculum development.

CHAPTER FIVE

EVALUATION METHODOLOGY: AN EDUCATIONAL PROBLEM

5.1 Introduction

Any research demands particular methods which are based on a more general methodological approach. The aim of my research for the Faculty of Medicine was to study teaching and learning at Southampton in the actual context of teaching and learning. The focus was on teachers and students working together in their joint enterprise. Parlett and Hamilton describe this as "the learning milieu"; they see this concept as central to education, as it is necessary for understanding "the interdependence of learning and teaching, and for relating the organisation and practices of instruction with the immediate and long-term responses of students" (1987:63).

There is a sense, then, in which methodology and methods selected themselves. The educational climate, both generally in medical education and specifically in Southampton Medical Faculty, was supportive of such an approach. In such circumstances, Parlett and Hamilton draw an interesting parallel: "the researchers need tact and a sense of responsibility similar to that pertaining in the medical profession" (1987:69). No doubt this, together with the Faculty's commitment to educational evaluation (especially on the part of the Dean and the Deputy Dean) and the failure of end-of-courses questionnaires to provide the kind of evidence sought, all contributed to the ready acceptance of an inquiry centred on participant observation of teaching and learning.

This chapter gives a brief overview of research methodologies and methods together with their use in educational research, especially evaluation research. The notions of purpose and of mixed methodologies and methods are addressed. A model of curriculum evaluation is suggested. The methodology of naturalistic research and the methods used in this study are described in Chapter 6.

5.2 Methodology vs. method

Becker (1970:1) defines methodology as "the study of method", whilst Bogdan and Taylor (1975:1) state "the term methodology in a broad sense refers to the process, principles and procedures by which we approach problems and seek answers." The differences here are

more than a narrow and a broad view: they are a move from an abstract paradigm (Kuhn 1962;1970) to concrete activities. The methodology and method used must be compatible and form a coherent whole.

5.3 The two methodologies debate

The literature commonly claims that there are two alternative methodologies, the natural science and the naturalistic.

As usually portrayed, the natural science methodology is based on the belief that the physical world and its rules exist to be discovered, and that the structures and the processes of this complex system are best examined by controlled separation of the feature(s) under study into smaller and smaller parts (Reductionism), using appropriate technique and instruments. Control and objectivity are of the essence in the formulation and testing of hypotheses.

The naturalistic stance (Guba and Lincoln 1981), on the other hand, includes man. It is based on the belief that man interacts with the rule-governed physical-chemical world and constructs 'ways of looking' in an attempt to make sense of his experiences. People are seen as central: their perspectives are individual but governed by their paradigms. Complex systems are explored in their natural settings as they occur, in all their complexity. Such exploration is empirical; subjectivity is inevitable but taken into account.

Hewton (1982:48) 'illustrates' the two methodological stances in a wider framework as follows:-

	Objectivist approach	Subjectivist approach
Ontology	Realism	Nominalism
Epistemology	Positivism	Anti-positivism
Human Nature	Determinism	Voluntarism
Methodology	Nomothetic	Ideographic

The two methodologies story over-simplifies. The natural science approach itself has two methodologies and methods: observational (e.g. astronomy, geology, ecology) and ex-

perimental (e.g. physics, chemistry, physiology) (Conant 1947:32). Biology uses both approaches: they are complementary and serve different purposes. The two methodologies stance ignores natural science as observation and focuses exclusively on natural science as controlled experimentation and testing.

5.4 The methodological debate: methodology in the melting-pot

Whenever differences are emphasised there is a tendency only to see the alternatives. In these situations polar choices are made and then defended. Differences between the two methodological paradigms have been emphasised often with destructive results. Debate has been, and still is, hard and fierce (Singleman 1973; Ritzer 1980; Parlett and Hamilton 1972), often centring on "the assertion of the general and inherent superiority" of one approach over another (Trow 1957:35).

Entwistle and Ramsden (1983) stress the difficulty of any one person reconciling seemingly incompatible approaches to enquiry. Bogdan and Taylor (1975:1) remind us that "most debates over methods are debates over assumptions and goals, over theory and perspective." This suggests that time spent dissecting abstract methodologies will be time well spent because of the resulting cognitive clarity. Argyris and Schon (1974) argue for this.

Ritzer (1980:223) offers a different explanation: for him "vested interests in our own 'pet' paradigm" are the driving force. Both Sieber (1973) and Ritzer (1980:212) recognised the "political realities" of this debate, for methodology and method are built into institutions which rely on them for their existence.

This emphasises the importance of the learning milieu, that is the social/psychological and material environment in which students and teachers work together.

5.5 Views of education reflected in research methodology and method

Stenhouse (1985:18) distinguishes between research in education and research on education. Research in education involves the study of everyday educational events with the intention of contributing "to the educational enterprise", whilst research on education is "from the standpoint of the discipline (e.g. history, philosophy, psychology and sociology) which contributes to the educational enterprise incidentally if at all". The same distinc-

tion is made by Carr and Kemmis (1986:4) when they speak of research for education and research about education. The general view of education and of educational events held by a particular researcher will clearly influence how they carry out research in education. There is evidence for this dependence if the literature in the two fields, (1) the concept of education and of educational practice and (2) educational research methodologies and methods, are studied in tandem from a historical perspective.

If education is seen as a rational, unproblematic, sequential, three-stage process where, (1) appropriate aims and objectives are defined, (2) pupils/students are taught in order to achieve the specified aims and objectives, and (3) they are formally assessed to determine (a) to what extent the aims and objectives have been achieved and (b) to discriminate between pupils/students, then research methods will tend towards the experimental natural science. Thus research is carried out to discover objective or "well confirmed theories that can explain educational phenomena" (Carr and Kemmis 1986:69), and provide "the foundations on which rational educational decisions can be made (page 67)... to increase the efficiency of educational practice (page 69)". Generalisations and objective standards become the means to predict and hence to control educational events and outcomes.

This was the model of education in the first half of this century (Eisner 1979; Handy and Aitken 1986). It was based on the industrial production-line experience (which stemmed from the era of 'scientific' management) together with a behaviouristic mentality (which stemmed from behavioural psychology). Educational research followed the experimental and psychometric traditions: educational evaluation research adopted this tradition, for example Tyler (1950).

Alternatively education may be seen as a problematic, interactive social process, where actions and interpretations, though related to aims and objectives (the intended outcomes), are also related to a multiplicity of external circumstances and internal perceptions. It is recognised that unintended outcomes (both desirable and undesirable) accompany, and may even override, any intended outcomes (Snyder 1971). Teaching is seen as much more than technical control, it is an art (Gage 1978; Eisner 1979). Darling-Hammond et al. (1986:209-212) review the ways teaching has been viewed. In this case research methods tend to be naturalistic, centring on observation. This model sees research as interpretive, providing invaluable insights into teaching and learning which "appeal to, and hence...strengthen professional judgement" (Stenhouse 1985:31). Any educational research

or educational theory which over-rides professional judgement is considered unhelpful (Barnes 1982; Barrows 1984).

This model of education has gained increasing support in the second half of this century. Educational research has reflected this changed perspective.

Since 1900, there has been a gradual movement from seeing education and educational research as a rational activity (Tyler 1950; Herrick and Tyler 1950) to seeing education and educational research as a social activity (Young 1971; Barnes 1976;1982; Barrows 1984; Stenhouse 1985). Stenhouse (1985:10) stresses that "we must attempt to understand the complex web of social variables which contextualise our actions and influence the outcomes." Similarly, Barnes (1982:307) claims that "teachers and curricula do not exist in a social void; the decisions teachers make about what they teach are inevitably situated in particular contexts and times." Even unseen written assessments and examinations are seen as a social activity by Rowntree (1977).

This changed perception of education can no longer support a controlled experimental natural science approach to educational research. Many are of the persuasion that educational research has been hampered for far too long, by the "idea of seeing curriculum study as a form of applied science" (Barrows 1984:252), since this is a "misplaced conceptualisation" (Stenhouse 1985:26) with a "long and sterile tradition" (Becher and Kogan 1980). "The factors affecting real-life learning in school are so many and inaccessible as to make such a scientific model of curriculum study inappropriate" (Barnes 1982:308). As a consequence, the naturalistic approach of research as illumination (Parlett and Hamilton 1972) has developed (Ball 1984; Woods 1985; Shipman 1985; Nevo 1986). Bruner (1966:130), as mentioned above, suggests such evaluation functions as "educational intelligence". What is said here of educational research in schools is equally applicable to educational research in higher education.

The naturalistic approach to research gives a richer and fuller view of education as it is experienced (Jacob 1987:32), for "in contrast to the traditional educational approach, which emphasises teacher-to-students initiatives" (ibid. page 37), the naturalistic tradition views "interaction as a two way process, with students' culture, goals and behaviour playing an active role in creating classroom events" (page 37). Eisner (1979:163-167) discusses this two-way interaction and its implication for the development of models of teaching.

This is significant: after all, the effect of educational research on educational practice is what educational research is all about.

5.6 Mixing methodologies or mixing methods?

Most researchers claim that the purpose of research is all-important, and consequently the purpose of research should determine any research design. "The design must be chosen afresh in each new undertaking, and the choices to be made are almost innumerable" (Cronbach (1987:4). Design incorporates both methodology and method. Adelman and Alexander (1987:300) write: "There is relative security to be gained from a stance of considered eclecticism deliberately drawing on contrasting methodologies." Nevo (1986:22) emphasises that "an approach is needed that seeks the best method or set of methods ... rather than assuming that one method is best for all purposes." Parlett and Hamilton (1987:64), substituting the term 'problem' for 'purpose', write: "the problem defines the methods used, not vice versa ... no method (with its own built-in limitations) is used exclusively or in isolation; different techniques are combined to throw light on a common problem."

It may appear at first sight that these researchers give the same advice, but they do not (see Methodology vs. Method above). Methodology is the abstract paradigm which underpins the concrete methods used. Adelman and Alexander (1987) ask for "contrasting methodologies" whilst Nevo (1986), and Parlett and Hamilton (1987) ask for a "set of methods". Each methodology has several methods. A natural science methodology uses survey methods such as postal questionnaires, inventories and attitude scales, exam results and pre- and post-testing data. If interviews are used they are closed or highly structured. In contrast, a naturalistic methodology uses observation as the central method, together with unstructured interviews, diaries and documents (public and private): if questionnaires are used, they are purpose-designed. Thus any research design can employ many methods within one research methodology.

An abstract methodology or paradigm is related to a particular 'way of looking': research methodologies reflect views of education (see section 5.5 above). It is not so much the 'problem' and the 'purpose' which determines the methodology and methods, but rather the paradigm or the particular 'way of looking' of the researchers. It is the 'way of looking' that brings about the allegiance to a particular methodological approach or paradigm noticed by Entwistle and Ramsden (1983). Such an allegiance is not surprising.

Mixing research methods is natural; not so mixing research methodologies. And the literature is not always clear: 'methods' and 'methodologies' are often used interchangeably. Guba and Lincoln (1981:79) theoretically mix methodologies by taking two orthogonal methodological continua of Willems (Willems and Raush 1969) and reducing them to high and low categories (see Table 5.1). The table is useful in that it shows the relationships between the different forms of inquiry. Also, it suggests that the ideal forms of inquiry are rare and that as each form moves away from the ideal, characteristics of the 'opposite' form are introduced. Though the methodologies are represented as continua, their frames of reference are more discontinuous than continuous.

5.7 Why are mixed methodologies recommended?

5.7.0 Mixed methodologies and methods are recommended for four different reasons: the stage of research (5.7.1); enhancing creativity (5.7.2); illuminating complexity (5.7.3); enhancing validity (5.7.4).

5.7.1 Stage of research

Mixed methodologies are often recommended for different stages of research, stages which are related to the purpose of research. In the initial stages, a naturalistic approach is recommended, since existing knowledge is very limited and ideas are few; when ideas begin to emerge a scientific approach is advocated. Guba and Lincoln (1981:71) claim that this two-stage model "relegates naturalistic inquiry to second-class status ... (and) fails to comprehend the fundamental differences between the two modes." They reject this model. However, they agree that if a particular hypothesis arising from a naturalistic study can be tested by 'scientific' means, it may enhance the study overall: Coles' study (1985) adopts this approach.

5.7.2 Enhancing creativity

Cronbach (1987:17) encourages researchers to explore "a synthesis of views". Multiple views implies multiple methodologies. However, a synthesis of views is only possible if the different views are fully understood. Ritzer (1980) likewise argues, in the final two chapters of his book, for "Paradigm Reconciliation" and "Paradigmatic Integration": "each of the paradigms is, in itself, incomplete and incapable of adequately explaining any social phenomenon" (pages 211-212). He points out that in his opinion virtually all the

great breakthroughs in research have been made by people who were "able to bridge the paradigms" and so enhance creativity; he cites Talcott Parsons as an example of a paradigm bridger.

Integrating methodologies via integrated paradigms may enable the multi-causal, inter-relatedness of social phenomena to be better understood. A historical perspective may facilitate integration (if integration is possible), for a historical approach can unearth assumptions and frames of reference that have become taken for granted and are thus covert (Argyris and Schon 1974; Ritzer 1980; Carr and Kemmis 1986). Open discussion leading to paradigm awareness must surely be a first step in paradigm synthesis.

However, Ritzer (1980) believes that paradigm reconciliation and paradigm integration will be achieved only with great difficulty, if at all. He is most hopeful for "low paradigm science, or ... a science in which a paradigm has not been able to achieve pre-eminence within a given area or within the field as a whole" (page 18). He regards critical theory as a possible integrated paradigm (Page 225). Education is a low-paradigm science: critical theory attempts to "develop a more coherent account of the nature of educational theory and practice" (Carr and Kemmis 1986:5). They recommend research based on critical theory as the means to achieve action, action which will improve educational practice.

5.7.3 Illuminating complexity

A multiple methodology and/or method approach is recommended by researchers who recognise the complexity of social situations under study (Trow 1957, 1970; Ritzer 1980; Hewton 1982). Different methods are suited to collecting different kinds of data, and different kinds of data are needed to understand complex situations.

5.7.4 Enhancing validity

Different methodologies and/or methods are recommended to provide different evidence about the same phenomenon and so enhance validity. Evidence collected by different methods, when interpreted, can detect conclusions that are invalid and reinforce conclusions that are valid. The use by researchers of multiple methods of inquiry for the same research question is a technique called triangulation: Webb (1966) has argued for such an approach to increase confidence in research findings. Denzin (1971) also sees triangula-

tion as beneficial in this way; as do Adelman & Alexander (1987). Eisner (1979:215) suggests that "structural corroboration" is a process of gathering information and establishing links to create a whole. Triangulation is a technique to determine structural corroboration.

5.8 Problems with mixed methodologies and methods

Jacob (1987) offers a cautionary note when employing different methods simultaneously, for different methods may have different histories and belong to different research traditions; as such, they are based on different methodologies or paradigms. Jacob shows how this applies even to methods which are all termed naturalistic. Fleming (1988) likewise reminds us that not all observational methods of research are "from the same stable".

Different underlying assumptions may have serious implications unless researchers are aware of these differences. Jacob (1987) claims that "generic assumptions or methods, used outside a tradition, are generally insufficient for a productive line of research." This matches Kuhn's thesis (1962;1970) of "normal science" -- the activity whereby scientific knowledge accumulates. Jacob (1987) also draws attention to the fallacy of assuming that "an 'open' stance to research implies freedom from traditions." Research method without an awareness of the underlying paradigm lacks cohesion and soon becomes merely tips for research practice. Stenhouse (1985) and Lincoln and Guba (1985) draw attention to the epistemological assumptions underpinning different research traditions and hence different research methods.

5.9 Integration of methodologies and methods with a model of curriculum evaluation

A naturalistic methodology and methods were chosen for this educational research of Southampton Medical School (chapter 6). A feedback-loop model of evaluation emerged during the early discussions with the Dean, Deputy Dean and Dr Coles (section 2.3.5 above). This model was basically that described by Coles and Gale Grant (1985) (see Table 5.2).

Diagrams can be helpful: one of their merits is that they are able to give a quick overview of the important concepts and structures together with their relationships. Coles and Gale Grant (1985:16) point out in their summary 'checklist' section that "any evaluation is likely to be more dynamic than this suggests", and the same is true of their curriculum

evaluation model diagram. The arrows in the diagram are one-way arrows, characteristic of a negative feedback-loop system, such as a basic thermostat. Coles and Gale Grant very usefully outline both qualitative and quantitative evaluation methods, but the diagram is weighted to the quantitative research style characterised by a linear sequence of events. Linear sequences are much more easily shown diagrammatically than interactive ones. But interactive diagrams are possible: they characterise more appropriately the essence of the qualitative or naturalistic approach to educational evaluation. The diagram as it stands separates the "data collection" stage from the next stage, "data analysis and interpretation" (two-way arrows would have helped here). The naturalistic (qualitative) research model is based on a two-way process of simultaneous collection and interpretation of evidence: the traditional four stages of research, namely design, data collection, analysis and interpretation, are interactive rather than sequential. When the data collection phase is completed, further analysis and interpretation, together with write-up and dissemination may be involved. Such a model led Stake (1975) to coin the term "responsive", since the chief characteristic of the research is emergent: the concerns and issues are identified during the research process, and not beforehand, and they affect the programme as they are identified. Cronbach (1975) uses the term "response sensitive" to indicate the adjustments made on the basis of individual, context-specific phenomena which emerge during the on-going research. Analysis and interpretation are part of the on-going research.

Also, the role of "formative" as distinct from "summative" feedback (Scriven 1967) or of the "educational intelligence" (Bruner 1966) is not part of Table 5.2. Naturalistic (qualitative) methods provide a mechanism for formative evaluation which, for me, is important in educational enterprises in at least four ways:-

1. It is a rationally satisfying concept.
2. On-the-spot changes can be made which may bring greatly improved educational effects or outcomes.
3. Such local interpretations can help pioneer summative or institutionalised innovative decisions, by functioning as pilot studies.
4. Any institutionalised decision will need to be implemented via individuals (staff and students); formative feedback, especially if accompanied by action, can prepare the ground very effectively for later institutionalised changes.

An interactive curriculum evaluation model, accordingly, is appropriate for naturalistic research (see Table 5.3).

5.10 Characteristics of a naturalistic research approach in educational evaluation

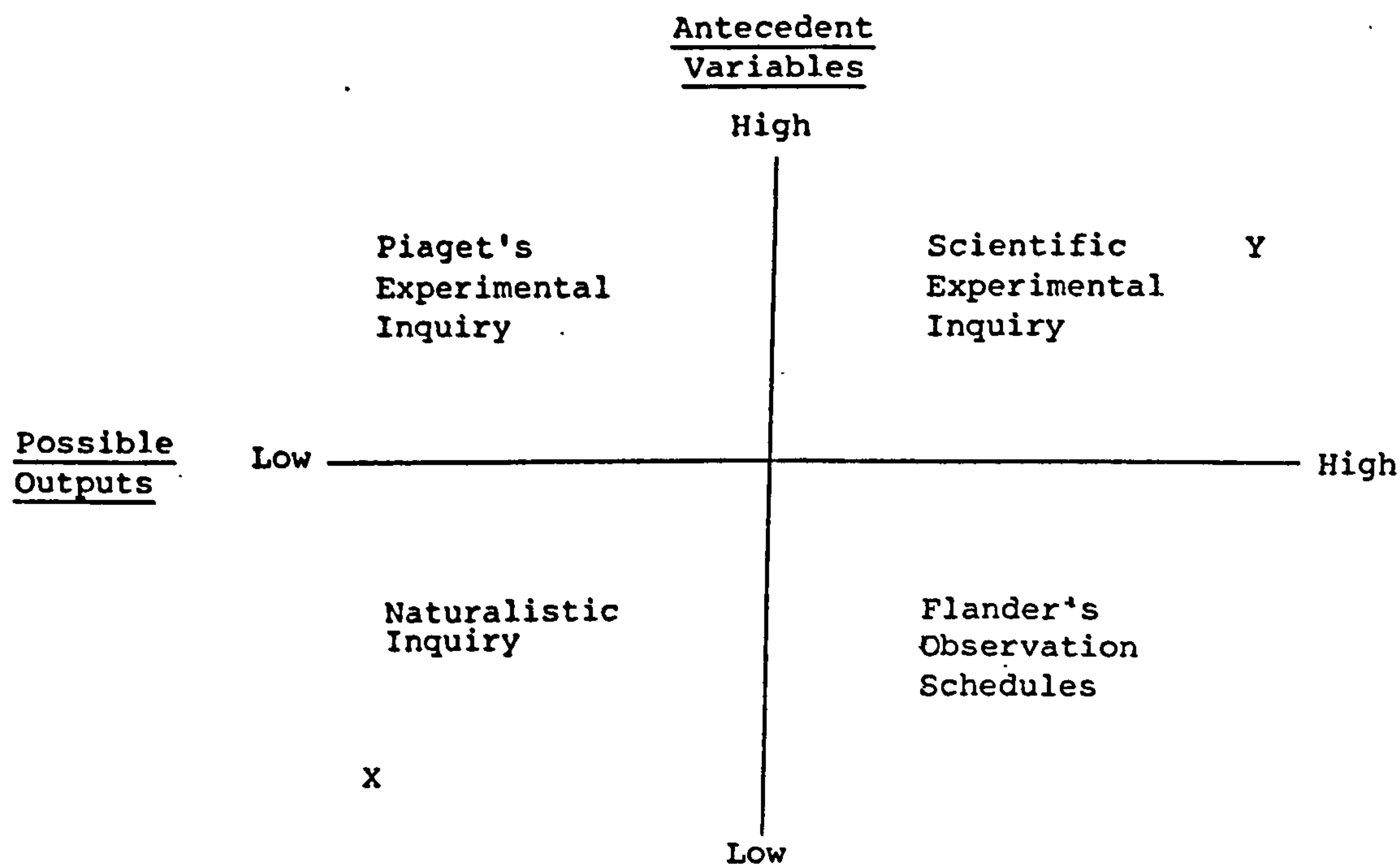
Naturalistic evaluation adopts an "illuminative approach" and "concentrates on the information-gathering process" in an attempt to understand "the complex reality (or realities)" or "learning milieu" of the educational events under study (Parlett & Hamilton 1987:71). The research process thus acknowledges the centrality of the educational process; "formative" as well as "summative" feedback (Scriven 1967) is the goal. This is the evaluation as "educational intelligence" of Bruner (1966:163).

Such evaluation is, for Stake (1975), 'responsive' and for Cronbach (1975) 'response sensitive'. Guba and Lincoln (1981:23) advocate this approach: "Responsive evaluation is an emergent form of evaluation that takes as its organiser the concerns and issues of stakeholding audiences." 'Stakeholding audiences' include anyone who is affected by the research process and/or product, i.e. anyone with a vested interest. A 'concern' is "any matter of interest or importance to one or more parties"; whilst an 'issue' is "any statement, proposition, or focus that allows for the presentation of different points of view; any proposition about which reasonable persons may disagree; or any point of contention" (Guba & Lincoln 1981:33 & 35). Hewton (1982) argues that there is considerable advantage if "outsiders" (non-stakeholders) become "insiders" to identify concerns and issues. Outsiders have the advantage of being unfamiliar with the particular educational events, thus nothing is taken-for-granted, not even the typical or commonly occurring. A key feature of naturalistic research is to make the familiar surprising and hence note worthy (Delamont 1981; Fleming 1988).

Such an interpretive approach gives many insights into the dynamics of naturally occurring educational situations, emergent insight which could not have been achieved in any other way. Such insights are common in naturalistic research; and relevance is guaranteed, since the evidence is gathered and interpreted in authentic educational contexts. Eisner (1979) has coined the terms "educational connoisseurship" and "educational criticism" to denote the expertise required to sort out the relevant aspects from the trivial in educational events, and to judge their worth and merit.

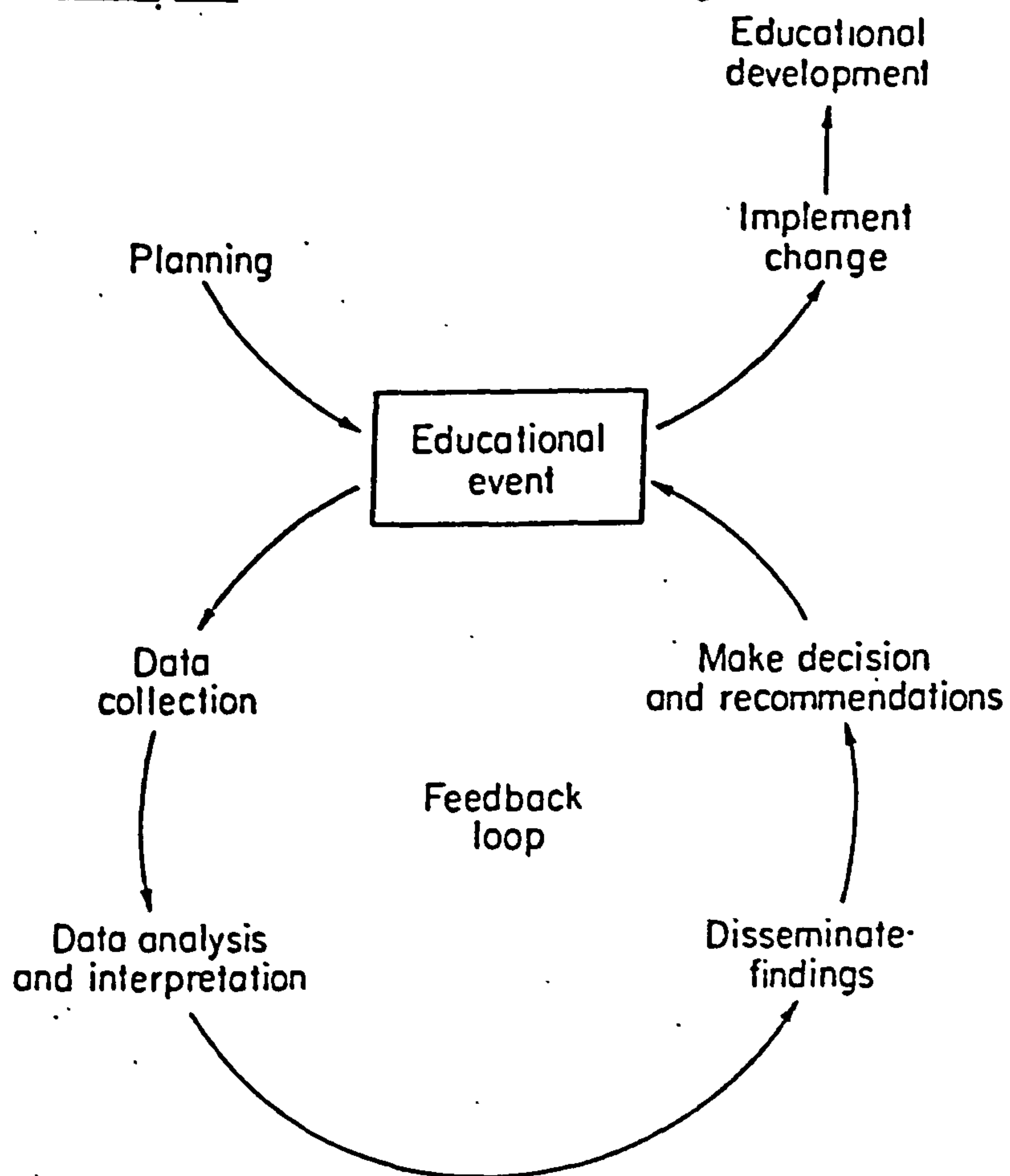
Table 5.1

Interaction of the two independent variables, the degree of imposition of constraints on possible outputs and on antecedent variables (Willéms and Raush, 1969)



Key X - ideal naturalistic inquiry
Y - ideal experimental inquiry

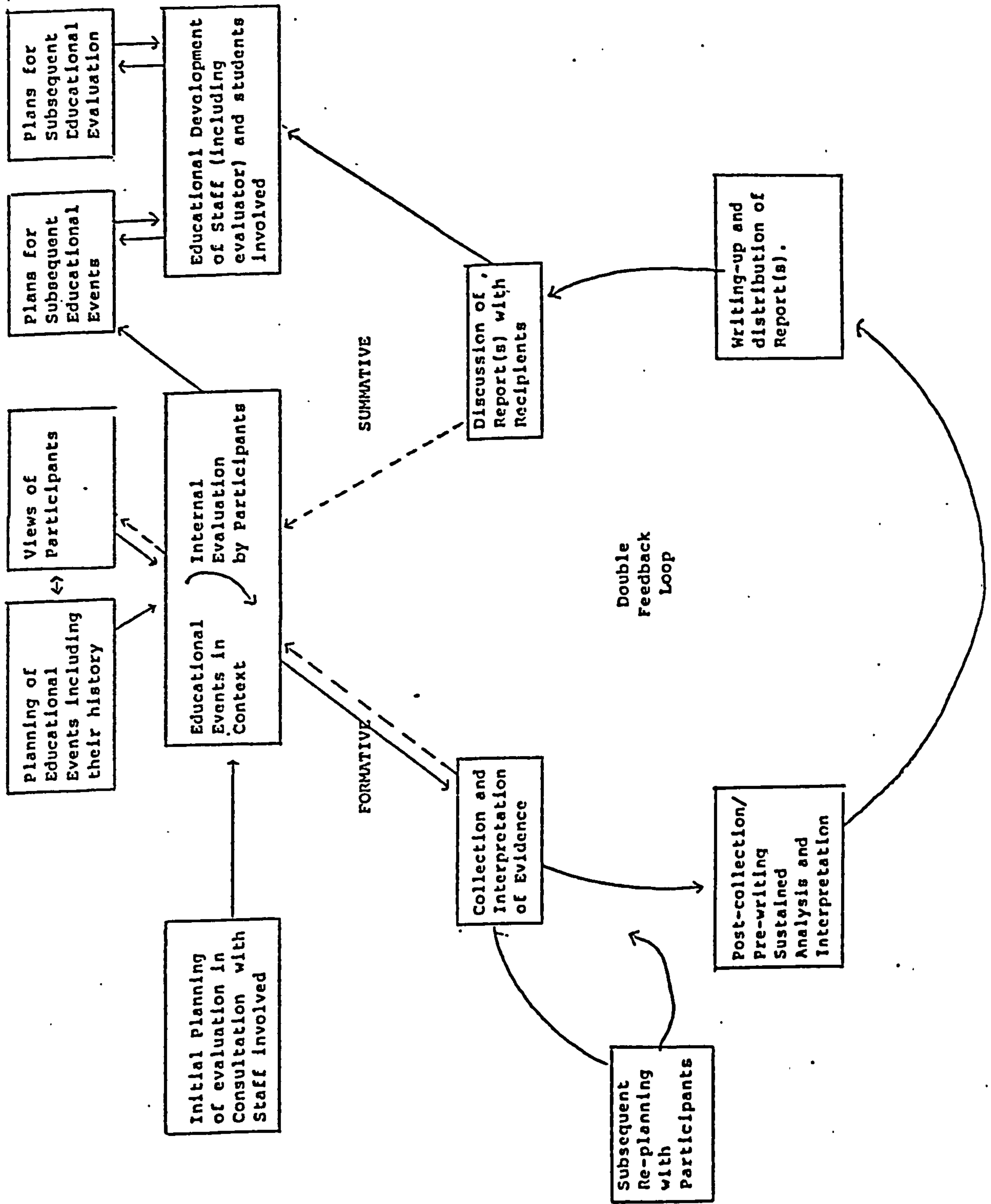
Table 5.2



Curriculum Evaluation Model

(After Coles, C.R. and Gale Grant, J. 1985)

Table 5.3



CHAPTER SIX

METHODICS: METHODS USED AND THEIR SUPPORTING NATURALISTIC METHODOLOGY

6.1 Introduction

In this Chapter I describe, together with the underlying methodology, the methods used for my inquiries for the Faculty of Medicine, in the following order: major methods -- participant observation and unstructured interview; minor methods -- purpose-designed questionnaires and use of documents. The methods selected themselves, as the inquiry was one of discovery rather than testing and verification (chapter 5). This type of inquiry, the "responsive" evaluation of Stake (1975), is characterised by its openness to a variety of naturally occurring inputs, its lack of pre-set structure and its emergent design (Guba & Lincoln 1981:198). Analysis of all four methods is essentially the same: identifying and focusing on the significant (Eisner 1979), and the concerns and issues (Guba & Lincoln) of those involved, namely the 'stakeholders' (Stake 1975). Bogdan and Taylor (1975) place personal documents and unstructured interviews in the same chapter: they see their analysis as broadly equivalent. Guba and Lincoln (1981:247) claim when describing document analysis that "the basic problem of formulating content analysis is identical with that of organising and interpreting notes from unstructured interviews and from participant observations." I will therefore outline the analysis of my two major research methods (participant observation and unstructured interviews) in a single section (section 6.4) after describing the collection of evidence by the two methods. Besides theoretical discussion, some practical detail has been included in this Chapter for reasons which are explained in Chapter 7 at the beginning of Part Two.

6.2 Participant observation

6.2.1 Theoretical discussion

Participant observation is based on the natural skills of observation, perception and interpretation (Kelly 1955, Bannister & Fransella 1971), made rigorous by awareness, systematisation and care. We are all natural scientists, constructing reality "out of the interpretations we place upon our fundamental experience" (Smail 1978:31). In other words we try to make sense of our experiences and to increase our understanding and control of

events, through reflection and experiment. Participant observation as an empirical research method has a history in sociology (Glaser & Strauss 1967; Blumer 1969; Schatzman & Strauss 1973; Ritzer 1980) and in education (Becker et al. 1961; 1968; Snyder 1973; Parlett & Hamilton 1972; Delamont 1981; Harden 1986; Fleming 1988). It is not a soft option (Blumer 1969; MacDonald 1985) -- quite the opposite, for it does not use a pre-mapped protocol. This flexibility, based on judgement (Stake 1967; Eisner 1979), is seen as one of its strengths: "Human beings as instruments possess at least one virtue lacking in all others -- judgement, along with the flexibility to be able to use it... Humans as instruments have been dramatically underemployed" Guba and Lincoln 1981:72. Douglas (1976) sees observation studies as the basic test of truth and validity. This view is also held by Guba and Lincoln (1981:192): we "are most convinced by... direct experience... the absence of a time lag between observation... and recording is a major guarantee of validity." Accordingly all data or evidence collected by observation in natural settings is valid, especially if it is collected over an extended period of time (Selltitz 1959; Becker 1970; Hammersley & Atkinson 1983; Atkinson 1984; Fleming 1988). Caution must be exercised over interpretation and analysis. However, understanding a situation is central to interpretation, and participant observation greatly facilitates understanding (Selltitz 1959; Blumer 1969; Parlett & Hamilton 1972; Eisner 1979; Jacob 1987). One reason for this better understanding is that observation maximises discovery and the generation of new ideas (McCall & Simmons eds. 1969; Stake 1975; Guba & Lincoln 1981; Jacob 1987). Atkinson (1983;1984); Harden (1986) and Fleming (1988) both point out that health care education lacks research based on observation in natural settings.

6.2.2 Forms of participant observation

The forms that participant observation may take have been variously classified. McCall and Simmons (1969:9) describe three types, as follows.

Type 1: Participant Observation

The field worker observes and has a role in the setting. He/she may or may not play an active part in the events observed; interviews may or may not occur.

Type 2: Informant Interviewing

The field worker interviews people who have taken part in an event that he himself has not observed.

Type 3: Enumerations and Samples

The field worker observes in order to fill in an observational schedule. Here there is a high degree of pre-selection of what to observe.

Type 3 is less flexible and responsive than the naturalistic participant observation of type 1. Type 2 also has limitations if used exclusively, since 'observations' are largely second-hand: it is the talking about action or practice described in Lynch et al. (1983) and Lynch (1982). All three types can be used together.

Writing about the same time, Gold (1969) describes four categories of observation based on two independent dimensions, participant/non-participant and overt/covert.

1. Participant Observation

The field worker fully participates but does not disclose that he is researching.

2. Participant-as-observer

As 1, but with disclosure.

3. Observer-as-participant

The field worker typically makes one visit for structured observation; he is known to be researching.

4. Complete Observer

The field worker is out of view; those studied do not know that they are being researched.

More recently Guba and Lincoln (1981:196) have extended these categories to eight by including another dimension, namely natural/contrived situations. Most educational research accounts do not commonly use the differentiated terms. This is probably because no one set of terms has been agreed and universally accepted, with the result that the terms have no common currency (see section 6.8 below).

6.2.3 Continuum of participant observation and interview

I did not contemplate covert research or contrived situations, for the aim was to investigate naturally occurring teaching and learning. I saw both teachers and learners as the 'experts': anything that they said, did or thought was potentially of interest to me; a covert role could not tap this expertise as effectively as an overt and interested role. I had to have a 'high profile'; even the 'lurking', so named by Delamont (1985), would have been inappropriate. My naivety helped the teachers and students to explore their own knowledge, beliefs and assumptions and to discuss them with me. In the initial stages I used participant observation (participant-as-observer) exclusively, though conversation freely accompanied observation as in most social/educational settings, and this readily led to interviews (see section 6.3 below).

'Observation', generally speaking, emphasises seeing. But, the 'observation' of Parlett and Hamilton (1972) and of educational studies in general is much more than visual. It includes attention to conversations between researchers and participants, as well as between the participants themselves (for example staff and staff; student and student; staff and student). In this sense there is a fine dividing line between the conversations of participant observation and unstructured interview. When is talk an interview and when is it conversation? If after a teaching session the teacher and researcher find themselves talking about the teacher's teaching, is this different from either (1) meeting each other in the corridor and deciding to talk about the teacher's teaching on the spot, or (2) arranging to meet later to talk about the teacher's teaching? Clearly both processes (interactive participant observation and interview) merge into (and emerge out of) each other.

6.2.4 Two special features

6.2.4.1 Privileged perspective

One important point to note is that participant observation gave me, even at the beginning

of my research, a range of experiences which was at once greater than that of any of the staff or students, e.g. I 'attended' simultaneously two kinds of Third Year attachments, namely Obstetrics & Gynaecology, and Medicine, and within Medicine, three different medical attachments (chapter 8). My experiences were also unique in another way: I mixed freely with staff (at all levels of seniority) and with students. I was thus privileged to share many perspectives of the same event.

6.2.4.2 Scope

My participant observation included everyday timetabled events, e.g. academic/clinical seminars; teaching/business ward rounds; lectures etc., and special timetabled events, e.g. examinations and assessments; plenary feedback sessions in the Fifth year; the Fourth Year Conference; visiting speakers etc. It also included non-timetabled events, both everyday ones and special ones: e.g. before, in-between and after timetabled sessions, coffee/tea breaks and lunch/supper times; clinical clerking; travelling by mini-bus/car; reading/chatting by notice-boards/pigeon-holes; visiting students at their homes etc. In practice all these events were inter-related in the lives of the students and the lecturers; and so they were in the life of my research.

6.2.5 The emergent evaluator

6.2.5.1 Prior experience and initial expectations

Fortunately I had previously observed many hours of teaching-and-learning as a teacher, but especially as a supervisor of teachers-to-be on teaching practice (chapter 4, section 4.1). In this sense, I felt fully at home and was able to record and to interpret the complex range of teaching situations I encountered. However, I had no particular knowledge or special expectations of the Southampton undergraduate medical course. In this sense, I had no preconceived bias: I did not need to pretend to be dumb (advice often given to field workers (Becker 1970)) as I was dumb! Fortunately my scientific background (biology, chemistry and biochemistry, together with postgraduate university research in microbiology) made much of the course familiar.

In addition, as a former member of staff at the local College of Education (at that time part of the Southampton University Area Training Organisation), I knew some of the

clinical and non-clinical academic staff. I had myself attended some undergraduate science courses at the University, and as a result had negotiated the use of facilities and university undergraduate course options for Fourth Year Biology students at College as part of their degree course.

Neither the staff nor students had been involved in this kind of educational research before. Nevertheless, for the purposes of the evaluation, staff and students were the experts (see above), and I constantly told them so. It was their perceptions, comments and actions that were of value to me. I was merely someone who was interested, who would listen, observe, record and interpret -- a novice who needed their help. And they did help, both staff and students alike. They showed me the ropes; I was quick to learn. All my data collection was based on and in confidentiality, in the openness, trust and understanding which developed between us.

My educational perspective, however, was different from that of the staff or students. University academic staff and doctors teaching on the medical course usually have no educational qualifications. The perspective I brought to the medical school was based on practical and theoretical knowledge which spanned different levels of formal education. And this perspective developed as my experience and knowledge accumulated within the Medical School.

6.2.5.2 Initiation

My participant observation began when I was invited to attend the 'long and short case' viva examinations of the first graduates (chapter 2, section 2.3.6). The short cases were for all finalists: each student had to elicit specific physical signs of two or three selected patients and to answer questions. The long cases were for those few finalists who had unsatisfactory end-of-attachment assessment during the year. These students had to clerk a patient chosen from the speciality where they were judged weak, give a full presentation of the patient's case and answer related questions.

There was understandably an air of excitement and expectation: the internal and external clinical examiners, and the finalists themselves were obviously delighted to be involved in this unique occasion, witnessing the successful completion of the first full cycle of the undergraduate course. Over coffee, lunch and tea I had the opportunity to talk to the examiners about my proposed research: they showed interest, even enthusiasm, saying that

they were not surprised that Southampton saw educational evaluation linked to course development as important. I also had ample opportunity to talk to graduates whilst they waited for their long and short case vivas. A number of them came back to talk to me after they had had their viva. As a group they had been pioneers and they wished me luck with my pioneering role: many of them claimed that this role was a key innovation of Southampton.

This initiation into evaluation for the medical school was for me very fruitful. I was confident from my previous experience as a college lecturer that I could converse with staff, students and pupils within diverse educational settings; this experience demonstrated that I could do the same within medical education. I also learnt something of value about the medical school curriculum - firsthand knowledge of finals, and secondhand knowledge from students and staff as they reflected on the course. Immediately I knew something about Year Five which many medical students and staff did not know. It was satisfying to hear that the staff, both from Southampton and elsewhere, and the students regarded my proposed research as worthwhile; they were very supportive.

6.2.5.3 Confirmation

My first in-depth research was for two terms (Autumn and Spring) focusing on Year Three clinical attachments, in Medicine and in Obstetrics & Gynaecology (chapter 8). The Deputy Dean wrote to all the consultant clinicians concerned explaining my appointment and introducing me, saying that I would contact them in the near future to discuss their involvement. My participation was originally planned to be as unobtrusive as possible, a kind of fly-on-the-wall approach; this is how I discussed the research before I began. In the event, however, I was involved by both staff and students in various ways and to different degrees, and it was only for a very few that I was the intended fly-on-the-wall. I will return to this point when discussing Third Year attachments in medicine (see chapter 8, section 8.5).

"Observation as a technique, is typically confined to a single setting, thus eliminating the possibility of comparisons and contrast" (Guba & Lincoln 1981:207). I had the advantage of comparative observation; the Third Year attachments were a naturally occurring experiment. Comparisons were of two broad kinds: (a) Medical attachments could be compared to Obstetric & Gynaecological attachments, but also (b) the Medical attachments themselves could be compared with each other. Such non-interventionist experiments are

very relevant and rewarding (Guba & Lincoln 1981:74). Concurrent comparative observation (chapter 8) showed for example that there were distinctive teaching styles of individual clinical firms, even distinctive styles within firms. The firms themselves were mostly unaware of these differences. When I was talking to individual clinical staff about particular events, they would often say "Well, there's no other way to teach that, is there?" Not only were there other ways, but the staff on another firm, using perhaps the same ward, might well be using a different way to teach the same content. Though staff were largely unaware, students were frequently only too well aware of differences. Student dissatisfaction tended to centre on these differences: "We're not allowed to put our patient's notes straight into the patient's file, but their students do."

As my research progressed I began to focus on such concerns and issues (Parlett & Hamilton's "progressive focusing", 1972; Guba & Lincoln 1981). Specific themes began to emerge, as evidence was collected and organised.

At first I saw the timetabled events, the scheduled teaching and learning sessions as the key time for participant observation. But I also spent as much time as possible with students, to get to know them, and for them to get to know me. This also followed the particular model of evaluation adopted by Faculty -- that I would try to see the course as the medical students saw it (chapters 2 & 4). As it turned out, time spent in this way was very instructive: not just additional, but key information was available to me from this informal student talk. Listening to students talking, sometimes heatedly, between themselves, highlighted assumptions and perceptions related to their course -- assumptions and perceptions that were necessary to adequately interpret adequately the evidence collected (chapter 8).

In keeping with the character of naturalistic non-contrived research (Guba & Lincoln 1981:74) the design evolved to include 'New' Out-Patient clinics (chapter 9), after participant observation of the Medical attachments, on the basis of the evidence and its interpretation. The success of the naturalistic methodology and method was thus confirmed.

6.2.5.4. Consolidation

The particular focus for study was always decided after discussion involving especially the Dean, Deputy Dean, Dr Coles and myself. Sometimes Head of Firms/Course Co-ordinators requested me to study 'their' attachment/course, e.g. Ophthalmology, Surgery,

Early Medical Contact, Muscular-Skeletal Course. It was not possible to satisfy all of these requests.

After the focus was chosen, key members of staff were contacted, initially by the Deputy Dean (section 6.2.5.3), but in subsequent research I contacted the staff concerned myself and negotiated the research directly. I was able to include an overview, as it grew, of my previous work for Faculty.

At the first meeting with staff I explained the purposes of the research and the methods I would use, stressing that I would give on-going (formative) feedback as well as final (summative) feed-back (Scriven 1967) -- the educational intelligence of Bruner (1966) -- by way of a written report, for themselves and for the Dean. In this way staff were involved with the research during the research -- obviously some more than others, depending on how they saw both the research and the opportunities.

I could not introduce myself nor explain my research to students before the first timetabled session, though gradually students heard of me 'via the grapevine'. As time went on I worked with the same students more than once; for example, I did Third Year attachments, Fourth Year projects and the house officer year with the same student intake.

The ethical problem which often bedevils participant observation studies, in one sense did not apply, as the research was for Faculty with the full knowledge and approval of the participants, and with personal confidentiality maintained throughout. Indeed it could be argued that it would have been unethical for Faculty not to evaluate the medical course for curriculum development. Also, both staff and students told me often and in many different circumstances that my research activity did not adversely affect their teaching or their learning; quite the opposite, it helped them to be educationally more aware and more knowledgeable.

My work with particular staff was much more circumscribed. Medical students are taught by a large number of different staff, so that even after I had introduced myself to a member of staff, they could forget who I was and mistake me for a student. (This was part of the Faculty's role for the evaluator), such mistakes occurred in lectures with all 120 students present, as well as in small groups of 4 to 8 students. Needless to say, this always provided entertainment, but it also showed that my presence as researcher was

largely unnoticed. Becker (1970:47) sees this as a mark of research credibility, since it demonstrates validity and reliability, for the behaviour/comments of participants were not distorted by the research (Becker 1970:46).

Many researchers are now of the persuasion that any participant observation data is valid, as it is generated in the context of the naturally occurring situation (Hammersley & Atkinson 1983; Fleming 1988). They are also of the persuasion that observational studies are impossible to replicate because of the uniqueness of the interaction in time and place (Guba & Lincoln 1981:209). Validity and reliability are associated with interpretation. Maintaining objectivity is very important; care should be taken not to become a full member of the group. Full membership was impossible for me: my role was unique; this was recognised and appreciated. Participant observation over time increases the validity of interpretation since "final conclusions can be tested more often and in more ways than is common in other forms of research" (Becker 1970:52), and the observer "will see, if not everything, most things" (ibid: page 56). Participant observation allows data and interpretation to be appropriate (Guba & Lincoln 1981:74), and grounded in the situation (Glaser & Strauss 1967; Schatzman & Strauss 1973; Glaser 1978).

Finally, one aspect of consolidation was that my part-time three-year contract was extended to a full-time five-year contract on the basis of my research (chapter 4). Initially I had had no room provided as a base; since I was always in the field, this was quite sensible, though importantly, I had the use of a secretary who would take telephone messages for me and type up my field notes and reports. However, as I became established and when the Medical Education Group was formed, I was given a shared room along the Dean's corridor. Fortunately the folly of this was obvious: the apparent "power alignment" (Williamson et al. 1977) would have made my 'neutrality' suspect. Other accommodation was soon provided.

Only once did any teacher (a visiting clinician) show hesitation when I asked if I might observe; I had had no opportunity before the timetabled session to ask permission or to explain my research. However, this was early in the research; on subsequent occasions this particular teacher was most welcoming to me. (Interestingly, the students I was with at the time said that if I had been refused access to observe they would have walked out with me.)

6.2.6 Distribution of observations

After deciding which component course to study, I observed as many timetabled events in that course as possible. I could observe all the events whenever students were taught as a year group (120), e.g. the first-six weeks of the First Year course. However, if my time was divided between two areas of the curriculum, e.g. Fourth Year Ophthalmology and Fourth Year projects, I attended all the timetabled events -- in this case the Fourth Year Ophthalmology course -- and fitted the research on projects around them. If the student year-group was divided into small groups, either occasionally (Biochemistry tutorials) or for the course (Third Year attachments), I attended the sessions randomly but with an eye to obtaining an overall view. This was unless I was asked to attend a particular session or sessions by a member of staff or by the students, or unless I wished to observe a particular event belonging to a course, for example an assessment.

Where I had to sample a course, I attended teaching and learning sessions randomly, since I did not wish to establish a routine approach. On Third Year attachments, for example, I avoided always attending the teaching ward rounds or the weekly session on X-rays. Though the picture would be more complex and more patchy as a result, I filled in some of the linking perspectives by talking to staff and students. Random sampling avoided stereotyping in the wider sense and artificiality; it also allowed "wide-angled" observation (Fleming 1988). An expect-me-when-you-see-me arrangement was established with the clinicians; they readily agreed (chapter 4).

6.2.7 Interaction with staff and students

I spent much of my time in the field especially with the students (chapter 4). As I said (section 6.2.5.4), because I could not explain my research to students beforehand I adopted the technique of turning up very early to the first timetabled session. If it was a small-group session, then when the first student(s) arrived I was in the room and could introduce myself, explain my research and methods, and answer any questions they might have. When other students joined us, I was then usually introduced by the earlier students. This was useful, because I could see immediately how my role had been interpreted from what the students said by way of introducing me. If it was a lecture programme I was observing, I turned up about ten minutes before the lecture. By this time some students out of the 120 would already have arrived in the lecture theatre; I selected a group to sit by. (In the Medical Sciences building the entrance is at the back of

the lecture theatre; you can look around and decide where to sit without being intrusive.) I then introduced myself and explained my research to the particular students, who then included me in their conversation whilst waiting for the lecturer to arrive. Because of the immense value of this talk before sessions began, I adopted early-arrival as a research tactic; I adopted late-leaving also.

Being accepted is central to this kind of participant observation: and how one dresses contributes to being accepted. In clinical situations I wore a white coat like the medical students, and a skirt rather than trousers, following the advice given to all female medical students. In non-clinical situations, again I dressed like the students, often wearing trousers or jeans.

Travelling also provided its own opportunities. I, like the students, often had to travel from one site to another. I tried to maximise the 'sampling', often changing sites at mid-day or during a natural-break. Means of travel was various: for example, a car (mine or the students'); public transport; a regular hospital bus for staff, students (and specimens), or the special mini-bus provided for students. But travelling with students, even hectic dashes across town in the pouring rain, gave excellent opportunities for conversation: an increased understanding developed between myself and the students as we all experienced the same difficulties together.

Conversation is natural in participant observation. I always gave staff and students encouragement and opportunities (by being around and by listening) to talk whenever they wished; both took advantage of this. Conversations provided a mechanism for informal formative feedback as appropriate. Also staff and students asked for information about the course, not only about the course-in-action -- that is, my research evidence -- but also about the course-on-paper; often their knowledge about the course was somewhat patchy or inaccurate. I ensured that staff and students knew how to contact me if they wished: staff generally used my work phone number; students frequently used the student pigeon-hole under "M", as well as phone and letter post.

Staff and students always readily accepted me and my role: in fact they were very interested and very impressed that Faculty had such a research programme to find out about teaching and learning. They frequently claimed, students in particular, that my post was a real innovation by Faculty (see section 6.2.5.2 above). (The Medical Education Group was not founded until 1979.)

They saw me as interested and (I am glad to say) approachable: they readily answered my questions and volunteered information they thought useful to me, for example they gave me information about changes of timetables or venues, and they warned me of people (students, staff, patients) who might prove "difficult". Students asked me to go to other voluntary sessions, such as post-mortem demonstrations, and to make use of resources such as the pathology museum and the library. They shared their own materials with me, e.g. course hand-outs, text books, clinical manuals, and gave me their patient-case notes, essays, projects etc. freely. I was also invited to many and various social events. Interestingly, when a phase of my research was coming to an end, students would ask what I intended to do next: they expressed pleasure whenever my research continued to involve them.

The research was enjoyable in many ways and I made many friendships and acquaintances. It was very exciting too, because of its many surprises; not only surprises of procedure (for example that I was not a fly-on-the-wall as participant, and that early and late arrival conversations were most rewarding) but also surprises of evidence and its interpretation. Much of this was not what I expected and was quite unpredictable. As Guba and Lincoln (1981:194) and Eisner (1979) so clearly point out, observation of this kind is much more than seeing: it is the achievement of understanding. Douglas (1976:120) encourages researchers to see any experiences of participant research as new, for old experiences may hamper understanding.

6.2.8 Arriving at a record

6.2.8.1 Recording

"Systematic and analytical participant observation depends upon the recording of complete, accurate, and detailed field notes" (Bogdan & Taylor 1975:60). Guba and Lincoln (1981:203-206) outline the various kinds of recording of data. My observations included attention to both the content and the process of the encounter, as well as to the context: this was reflected in my field-notes and in my processed notes. I had to be careful not to get too interested in the content, for I commonly found the content fascinating and interesting. In one sense, it would have been very easy to forget why I was there, especially as I was asked to join in, for staff welcomed my comments in action or participation, since I was honest and did not wear "the cloak of competence" (Haas & Shaffir 1982, chapter 8) so common in students. In another sense, because my role in, and my knowledge of, the

course was unique, it was easy to remain objective (Guba & Lincoln 1981:209) and to exercise the "educational conneurship" of Eisner (1979).

Unless I was in a lecture, when I used A4 file paper, I used a standard shorthand spiral-backed note-pad for my jottings, and a pencil (I always carried at least one spare pencil). Biro's are often unreliable, especially when writing on a vertically held pad. Commonly I left spaces between my jottings so that I could work them up later (see next section, 6.2.8.2).

In the field my strategies for recording changed with the situation, although I always, whenever possible, made rough notes or jotted down even a single word to help later when transcribing my field notes (Schatzman & Strauss 1973). Sometimes I could make substantial notes, for example in a formal lecture or seminar teaching session, when students would be taking notes too. Here I could write down the content material, use of aids, hand-outs etc., as well as general comments about the situation (for instance "lively", "too hot and rather stuffy"). I noticed especially 'setting-up comments', highlighting statements, admissions, questions, challenges, value judgements etc., and by whom they were made. Examples of these are: "What have you done on ECG?"; "You really must know the cranial nerves -- if you know nothing else about the nervous system"; "We know very little about how this drug works"; "What is 'bronchospasm'?"; "I thought you had to have a check-list"; "Southampton lays great emphasis on the social history". I sometimes used different colours to help. Taking field-notes in this way seemed the natural thing to do and was fully accepted by staff and students alike.

In clinical tutorials, ward rounds and case presentations, most students did not take notes. (This surprised me somewhat at the time; later when I came to know how prolific students' note-taking in Years One and Two was, I was even more surprised.) Even in these situations I managed to write down what was needed to enable me to recall specific details later on when I was processing my field-notes by recreating the situation.

Ward rounds and bedside teaching were problematic to record; however, a white coat with large pockets helped enormously. I usually stood behind the students, so that I did not stand between the clinical teacher and student, but in the middle of the group. In this way it was easier to hear and to see all round; I found very early on that if I was at the end of a line of people I could miss much of the conversation and the focus of observation (as of course anyone else could, students included). However, I sometimes changed

my 'adopted' position if I wanted to see the situation in a different way, or if the situation demanded it. I always noted technical terms, information about the patients, sequence of events, and if possible who was asked to do what; also any general comments made by staff, students and patients.

In casual talk, for example during coffee breaks or immediately before and after sessions, I did not take notes -- this would have seemed quite out of place -- but I made notes as soon as possible afterwards. Though everyone knew that I regarded any talk as important data (and I would often refer to points raised in such settings later when chatting and in more formal interviews), note-taking would have been intrusive.

6.2.8.2 Processing

All the field notes were processed as soon as possible after the event and always within 24 hours (except on a very few occasions). Any "top-copy" field notes that I had taken, in formal lecture teaching sessions for example, might only need brief annotations before filing; the same applied to course hand-outs, schedules etc. However, most of my field notes had to be decoded and reconstructed from the rather sketchy raw data. This I did first in the note-pad itself. It was broad-lined and I left many spaces, so that I could insert further details directly onto the pad (section 6.2.8.1), often working in a different medium -- that is, my original notes were in pencil and my further details were in biro. Then I brought in extra paper as needed. I recorded from these annotated field notes into a dictaphone; and an audio typist typed up my final-draft notes. This technique is similar to that described by Schatzman and Strauss (1973:95): "a single word, even one merely descriptive of the dress of a person or a particular word uttered by someone usually is enough to "trip off" a string of images that can afford substantial reconstruction of the observed scene." Atkinson (1981) and Fleming (1988) also describe this technique.

It is impossible to record most actual speech verbatim in field notes (unlike interviews); where my field notes contained speech, the message was taken down. I checked the particulars with staff or students afterwards if necessary. Atkinson (1981) used this technique in his study of the clinical experience.

6.2.9 Overview of participant observation

Participant observation involves formal and informal encounters, both of which yield

data. Soon there were many first-hand experiences I shared with staff and students. It was easy to engage in conversation, quite spontaneously, at all levels of generality (abstraction) and of specificity (particular details of events) and, as with all conversation, at all levels of banality and profundity. Schatzman and Strauss (1973:52-53) claim "the researchers awareness of and capitalisation on his sensitivity is perhaps his most valued resource and tool for discovery." Guba and Lincoln (1981) devote the whole of their Chapter 6 to the topic the evaluator as instrument: here they outline the major characteristics the key one being human judgement or the "naturalistic enquirer is constantly searching for that which is unique, atypical, different, ideographic, individualistic (page 129)" rather than the norm. My experience certainly confirmed the importance of sensitivity (Schatzman & Strauss 1973:52-53) and judgement (Guba & Lincoln 1981:129). One important attribute was an ability to stand back and understand the interaction as a whole. People do things for reasons, and generally reason about what they do, within the requirements, as they see them, of particular situations. My aim was to understand naturally occurring teaching and learning.

My research design and technique developed as I proceeded. In this sense it was like Becker et al. (1961) and like Edwards and Furlong (1985). This is common with naturalistic research. It was clear to me that people enjoyed being studied -- but, as Schatzman and Strauss (1973:60) comment, "by a partly known person, not by a stranger". Staff and students claimed to enjoy being involved and to have the opportunity to talk about their experiences as they occurred, as well as to reflect on past experiences and to discuss their expectations of those in the future. I was shown an abundance of friendliness, interest and goodwill.

6.3 Unstructured interviews

6.3.1 Theoretical discussion

Face-to-face conversation is a recognised and well-trusted means of giving and receiving information. Dexter (1970:136) affirms the tradition in research, for "conversation with a purpose" is perhaps the oldest and most respected tool we have. As natural psychologists (Humphrey 1986) and natural scientists (Smail 1978) we are able to use our sophisticated skills of communication, which involve informal collection and analysis of data, to collect and analyse data more systematically when we see the need. In essence, therefore, "interviews are an extension of everyday interpersonal skills" (Coles & Mountford 1988).

Guba and Lincoln (1981:154) go so far as to say "interviewing -- whatever form it might take but particularly the unstructured interview is the backbone of field and naturalistic research and evaluation." Rogers (1957), and Bannister and Fransella (1971) see the interview as the means to explore personal concepts and perceptions.

In naturalistic research interviewing often accompanies participant observation (Becker & Geer 1957; Trow 1957; Cicourel 1964; Parlett & Hamilton 1972; Eisner 1979; and many recent curriculum evaluation studies, for example volumes edited by Burgess 1985 and House 1986). As outlined in the previous section on participant observation, interviews in the present investigation merged into and emerged from participant observation. Where interviews were prearranged they either grew organically from participant observation involving the same people, or were 'grounded' in participant observation. By this I mean that I never interviewed students and I rarely interviewed staff whom I had not already worked with earlier in my role of participant observer. We therefore shared many common experiences of teaching within the Medical School and we knew each other, often well. Thus the interviews were never once-off or isolated. Also, and importantly, interviews were confidential. Initially I restated this aspect of interviews many times, but gradually it became a taken-for-granted part of my work. I obviously stressed the confidentiality of interviews when necessary and whenever interviewing people for the first time.

In this way acceptability was built up, especially with students when we moved through the course together. My role was similar to the student in that I had no power and I was not part of the permanent institutional framework. In this sense I fitted the evaluation model as originally conceived (chapter 4), but it also immediately provided a bond between myself and the students. Acceptability was not only the key to accessing information, it was significantly instrumental to the quality of information, and to the quantity and quality of unsolicited information.

The fact that we (myself, staff and students) shared many experiences and knew each other did not detract from the emphasis I always adopted at interview, namely that the interviewee was the 'expert': that they needed to teach me, since they were knowledgeable. I always made sure I helped them to teach by being the ideal student, enthusiastic and eager to learn! The interviewee knew that the information I collected from them and interpreted would be presented to Faculty (the Dean and head of Firm/Course Co-ordinator and Dr Coles) so that there was a chance that it might help to change things, through

course development which was intended to follow evaluation. This encouraged interviewees to take their role of 'teacher' seriously.

6.3.2 Kinds of interview

The literature on interviews and interviewing is extensive (for example, Dexter 1970; Douglas 1976; Gatz & Hoagland 1978; Guba & Lincoln 1981; Lincoln & Guba 1985). Nine common characteristics or dimensions can be identified (Coles & Mountford 1988):-

I	II
1. Formal	or informal
2. Structured	or unstructured
3. Focused	or unfocused
4. Initiated by the interviewer	or by the interviewee
5. Pre-arranged	or spontaneous
6. Face-to-face	or at a distance
7. Individual	or small group
8. Isolated	or in association with other forms of data collection
9. Covert	or overt.

These represent the ends or poles of the dimensions; obviously there are degrees of, for example, formality and informality -- that is, there are stages in between. They range from 'constrained' at the lefthand side (formal) to 'less constrained' at the right handside (informal). The commonest interviews are formal, structured, focused, overt, interviewer-initiated, prearranged, face-to-face, individual and isolated: these characteristics are largely 'constrained'. Such interviews are used to test and to verify ideas. The interviews I commonly used were informal, unstructured, unfocused, overt, interviewer-initiated, face-to-face, individual and in harness with other research methods. Prearranged and spontaneous were used equally. (I should stress again that interviews were only used in association with participant observations.) These characteristics are largely 'unconstrained' and are used to discover and to explore ideas.

6.3.3 Preliminary aspects of interviews

6.3.3.1 Who to interview

Deciding who to interview was not a problem; access was not a problem either (see section 6.3.1 above). I always interviewed all staff concerned, with one exception, namely the Introductory Course to Clinical Medicine; here, because of the very large number of staff involved, I restricted my interviewing to key members of staff such as the organisers, co-ordinators, plenary lecturers and tutors of groups in which I participated.

If the number of students was manageable I interviewed all of them; where the whole group of students (120) was involved I interviewed as many of them as necessary. For example, when researching the first five weeks of the First Year course, I interviewed a random sample of students during the five weeks. It was noticeable that after interviewing about 20 students the same concerns and issues repeatedly came up: this is the "point of issue saturation" (Guba & Lincoln 1981; Coles 1985). Issue saturation is reached when further interviews with different people raise no new points of issue or concern.

Nevertheless I continued to interview students spontaneously throughout the remaining weeks: this data confirmed the issues already identified and extended the details. I continued to work with these students as participant observer on the Anatomy Course for the rest of the year. The only new issue of significance which arose at interview, was that some of the students gradually began to realise that "settling in" at University had actually played only a small part in the difficulties of the first five weeks of their medical course. Also, in the follow-up study of the Introductory Course to Clinical Medicine, I interviewed a stratified sample (exactly half of the students), as I needed to interview students who began their Third Year with each of the different rotations. In this way I collected data from all the speciality attachments. Also, for the longitudinal study of students-cum-graduates (nine years -- five undergraduate and four graduate) (chapter 12), I selected students in Year Three who represented the eight different rotations, who were male/female, mature/straight from school. Such a sample enabled a rich variety of evidence to be collected, to allow candid exploration of what was important to students-cum-graduates, which in turn gave as wide a range of interpretation and perspective as possible.

6.3.3.2 Arranging an interview

As stated above many of the interviews were spontaneous and thus spontaneously arranged. The length of interviews varied greatly, ranging from a minimum of about 10 minutes to a maximum of about 3 hours (this was exceptional), with an average of about an hour to an hour-and-a-half.

Interviews that were prearranged were often agreed when I met people: for this purpose I always carried my diary. I also made arrangements by telephone, and even by letter; in the latter case I suggested a means of reply, for example by including a phone number (with a warning about the answer-phone service), the student pigeon-holes under "M", or a FREEPOST addressed envelope for mailing. If the agreed time or place later proved inconvenient for the interviewee, I readily arranged another time. Both staff and students were very helpful: only rarely did I wait or go anywhere fruitlessly. No-one ever refused me an interview. When making the appointment, I always took the opportunity to outline the purpose of the interview: this was to help discussion and to avoid misunderstanding. With this in mind, I always made the appointment myself, never asking a secretary to make appointments for me. I also indicated the expected length of the interview - about an hour.

6.3.3.3 Location of interview

The location of the interview and the degree of formality is important in establishing rapport. I usually interviewed staff in their rooms or offices, also in a seminar room or laboratory, on the ward and in the Biomedical Building (on Boldrewood concourse or in the coffee bar). I interviewed students most often where they were being taught or where they were working.

Sometimes, and not infrequently, I interviewed students in their room in a University Hall of residence or private lodgings, and I also interviewed in my own home. When students were at the General Hospital I could interview in my office if that was convenient for them. I tried to make the interview as informal as I could. Sometimes I was not able to control the formality of the environment but I could control the formality of the social interaction.

6.3.3.4 Purposes of interview

My purpose at interview was to sketch the context or general area of focus for discussion -- for example, the muscular skeletal course, or revision, or teaching -- and then to find out what staff or students thought and did as a result of the course and their particular curricular experiences. In short, my purpose was to learn about the course as they perceived it: to hear them talk about the teaching and learning in their own words and on their own terms. At first they were surprised at my interest: but they came to accept and even to welcome it. All came to realise that I was interested in any course-related topic they wanted to bring to my attention or to discuss -- that I was interested because they saw it as important, because what they saw as important was what I was interested in. There were no right or wrong answers. I conveyed this to staff and students and said that I expected differences. I was interested in hearing whatever they had to say.

Sometimes in a small group interview students or staff would argue amongst themselves: if this happened, they often said at the end how much they had enjoyed it and learned from the experience. Even in interviews with individuals, this was frequently said, especially by students. I believe this expression of gain was genuine because of the friendliness I was shown and continued to be shown. Students even asked me for references; when I pointed out that others would be able to give a reference with more authority, they said that I knew them better than anyone else.

Some may question the validity of this kind of interactive interview evidence. I believe that I did not artificially alter the staff or students ideas and perceptions. That I made the majority more aware of their ideas and perceptions I have no doubt, for talking and reflecting is the natural way to increase conceptual awareness and to structure knowledge (Bruner 1972; Barnes 1976; Schon 1983; 1987). An example of such increased student awareness was where three final-year students successfully changed their 'long case viva' assessment behaviour as a result of reflection (Mountford 1987). However, I am equally sure that no member of staff or student said anything just to please me, that is that they said anything that was untrue. I was of course aware of the phenomenon of "selective reinforcement" (Perry 1970), but since there was nothing I particularly wanted to hear, it seems unlikely that I could have been guilty of this. I was interested in what all those involved had to say and I simply showed my interest: being 'deadpan' would have been inappropriate. This kind of interviewing is similar to the "client-centred" therapist or counsellor (Rogers 1961, 1969; Smail 1978). Guba and Lincoln (1981:167) say "rarely, if ever,

can one conduct a nonstandardised interview on the basis of goodwill alone", there must be "trade-off". Some trade-offs were simply having someone to talk to, someone who would listen. Quite often at interview staff or students would ask for advice; advice connected with the medical course but also advice on a wider front. I was a source of information, both formal and informal, to staff and students (chapter 4) and, as has just been mentioned, discussion which resulted in an increased awareness was always very satisfying for everyone. Students also welcomed reassurance on occasion.

6.3.4 The "unfolding" interview

I used unstructured interviews since it was essential to obtain free responses from the interviewee: they needed to be able to reply in their own words from their own point of view. Unstructured interviews are suited to obtain unanticipated responses and unique perspectives (Gatz & Hoagland 1978) or to explore complex issues (Guba & Lincoln 1981). A key feature is to listen and to assume that everything is important until it is shown otherwise. Denny (1978) describes the interview as "unfolding". The unfolding structure is usually based either chronologically or topically, that is, the interviewee either describes events, issues, concerns as they occurred in sequence or grouped to show relationships. (This is equivalent to the topographical and topological structure respectively of analysis of Becher and Kogan (1980) (see section 6.4.2 below).

The structure of the interview itself was responsive to the needs of the interviewee; it was possible to follow any leads that seemed profitable. It is important to remember to begin from where the interviewee is: in other words to begin with open but focused questions, such as "Tell me about....?" or "How is it going?" This can be followed-up by more eliciting questions such as "Can you tell me a bit more?" or "Will you give an example of that?" or "Why do you think it was like that?" It is useful, as the concerns and issues are identified, to engage in "progressive focusing" (Parlett & Hamilton 1972). Concerns and issues are often marked by value judgements, for example "I liked ..." or "The worst part of it was..."; reflexive questioning, e.g. "The worst part of it?", can be useful here (Perry 1970; Coles 1985; Coles & Mountford 1988). This technique is commonly used in non-directive counselling (Rogers 1969, Smail 1978).

It may be necessary to clarify the purpose of the interview further or to ensure that the interviewee understands the nature of the questions being asked. This is an on-going need during the whole interview. Also, it should never be assumed by the interviewer

that they understand what the interviewee is saying. Meaning has to be negotiated and attended to throughout, as in teaching and learning (Barnes 1976). Obviously, since the interviews grew organically from participant observation or were 'grounded' in participant observation knowledge (section 6.2), it was much less likely that misunderstandings would occur: we had a lot of shared experiences.

It is useful to summarise information at intervals during the interview. This allows the interviewee to see if there is anything else they want to add. It is also useful to summarise in the form of a question, for example "Are you saying ... ?", since this checks understanding and accuracy of recording, and hence validity and reliability of data.

Another useful technique is to ask questions which take the interviewee outside the immediate interview such as "If someone on the train asked you about ... what would you say?" or alternatively "If a friend asked...". Answers to these two questions may well be different from each other and it is informative to explore the differences with the interviewee. It is also helpful to ask the interviewee to predict, such as "How do you think your year would vote on...?" "How would you vote?" Again comparing answers can be very revealing. Interestingly, it may be quite difficult to get students to cast a vote initially: they may reply "We would never be given the choice"; then it is necessary to stress that the situation is purely hypothetical and persuade them to treat it as such. Estimates can also be instructive; after students have described their revision progress or how they spend their study time each week, this question might be asked -- "If you have ten units of time, how much did you spend on...?" When interviewing in a student's room in their home, looking at and talking about the wall displays related to the course, and the bookshelf, can give this kind of perspective too.

Of course, factual information may be necessary, and straightforward closed questions must then be asked.

Gatz and Hoagland (1978) and Guba and Lincoln (1981) outline some basic considerations to keep in mind when carrying out unstructured interviews. They also give typologies of questions.

All interviews must end; sometimes time just runs out. However, more commonly the end is reached when the interviewee has 'unpacked' all they can in a given topic area -- when they have 'taught' the interviewer all they can. I always provided opportunities for

the interviewee to ask questions during the interview and certainly towards the close. At the end of an interview I thanked the interviewee and reminded them to get in touch if they wished to add or to modify anything subsequently. In my experience no-one has ever changed anything and only rarely added anything (unless, of course, they had agreed at interview to add something later).

6.3.5 Confidentiality

As I have already said, all interviews were confidential. There were also two other kinds of confidentiality. On a few occasions I was given information by staff which was prefaced by "This is off the record" or "Within these four walls only". Such statements put the comments into a special kind of confidentiality. Another formal kind of confidentiality arose early on in my research. I was invited on three occasions to attend and to participate in the Year Three end-of-clinical-attachment assessment sessions. At these sessions particular students were of course discussed and their grades finalised. Institutionally such sessions were confidential: often students did not know the various components of their final grades. Though my presence at these sessions was welcomed by staff and it was useful for me to see the assessment discussion, I needed to be quite free from such knowledge when talking to students. As a consequence I declined any subsequent or similar invitations.

6.3.6 Recording and processing interviews

Recording and processing was very similar to recording and processing participant observation (section 6.2.8). From the beginning I decided not to tape-record interviews since verbatim transcripts were not required: occasionally an interview was so 'good' that I wished I had had it on tape! Guba and Lincoln (1981:173) see tape-recorders as an unnecessary burden since they "can make one a victim of the 'laters' -- later I will listen to these tapes...". Also I would not have been able to collect the range of interview evidence that I did collect, because of time spent listening to tapes, and importantly because of the range of interview situations.

During interviews I always took notes, brief ones with staff, more detailed ones with students. I found that academic staff could be quite uneasy if my note taking was substantial, even though all my data was confidential. However, I did not experience this unease with doctors: this may be because they typically write down notes when taking histories

from patients. I noted any direct speech of particular interest by asking for time out, as it were, saying for example "I would like to get that down. It's very interesting. Did you say ...?", writing quickly at the same time. This was also an easy and important way of testing the reliability and validity of the evidence.

As with participant observation field notes, I amplified my notes as soon as possible after the interview and dictated the final version into a dictaphone for audio-typing (section 6.2.8).

6.3.7 Overview of unstructured interviews

Unstructured interviews provided an excellent means of identifying previously unknown and unpredictable issues and concerns and to explore their complexity with staff and students. Since interviews were based in participant observation they were constructive and fluent: shared events were frequently referred to, especially when defining the context or illustrating, extending and clarifying points. Students and staff said they gained from the interviews also, especially those students whom I interviewed over a period of years. Student awareness was undoubtedly encouraged by interviews, involving as they did reflection and thinking about thinking.

I am sure that neither students nor staff said anything that was dishonest. There was no reason why they should be dishonest with me and every reason why they should be honest, because, as was said before, their evidence might perhaps bring about change via curriculum development, thus facilitating their task as teachers and learners. The essence of the interview was to candidly explore in confidence, whatever was important from their point of view. Interview data was rich and varied: I explained that I expected such differences.

6.4 Analysis of interactive data (participant observation and unstructured interview)

6.4.1 Two phases of analysis

In general, analysis can be thought of as the organisation of data or evidence to produce a view or an interpretation which makes sense and which can be shared (Fleming 1988). Blumer (1969:43) expresses the same process rather differently: "Scientific analysis requires two things: clear, discriminating analytical elements and the isolation of relations

between these elements." Thus analysis rests on human judgement (Conant 1947; 1952; Bronowski 1951; Medawar 1979).

There is no sharp break between participant observation and unstructured interview in the present study: the evidence from both was analysed in the same way and simultaneously, since the two data-gathering methods often merged into each other. As Lynch et al. (1983) and Lynch (1982) point out, data can be gathered from talk and observation in work as well as from talk and observation about work: and Schon (1983) describes analysis in work and about work by means of active reflection.

There are two phases to any analysis of this kind. One phase is the spontaneous on-the-job analysis which occurs whilst observing, interviewing, processing field notes, reading typed-up notes or when simply reflecting and taking stock. Such analysis is part of being human: we do things for reasons, but we also reason about what we do (Miller 1977; Smail 1978; Humphrey 1986). The other phase is the formal systematised programme of analysis which precedes writing-up, when the parcel of evidence is complete. (In one sense my parcel of evidence was never complete, since I was to evaluate the Southampton medical curriculum. Curriculum data was divided into 'parcels' for convenience only in much the same way that a timetable is for convenience. All my data and its analysis contributed to a view of the curriculum as a whole.) Phases of experimental research described as a recurring cycle of asking questions, collecting data, making a record, analysing data (Spradley 1980), are useful in as much as they provide a structure for thinking about or for talking about particular research. However, separate phases are quite artificial since they are seldom if ever realised in such orderly sequence in observational studies.

6.4.2 From typed-up notes to frameworks

Participant observation and unstructured interview both provide a wealth of 'rich' data. This richness takes two forms; firstly the sheer variety and range of items, and secondly the variation within any one type of item -- for example, students' comments on a particular teaching session may differ widely as between students, and staff's comments may be different again. Analysing data of this complexity would be very off-putting if phase one, on-the-job analysis, had not already occurred and if the particular contexts of collection could not be readily re-constructed mentally at the time of more formal analysis.

Typed-up notes need to be read and re-read many times. Familiarity with the 'top copy' is essential: not only familiarity with content but also familiarity with the accumulated top copy text itself, the 'lie-of-the-text' knowledge, so to speak. Reading through is a concentrated activity of exploration and inspection (Blumer 1969:40-47), which is not pre-set, routinised or prescribed. It is guided by knowledge of the actual context of evidence collection, ideas generated in previous on-the-spot analysis and reflections, together with more general theory and ideas. This activity is a filtering process: key points begin to emerge which are equivalent to the 'domains' of Spradley (1980) or to the "discovered classes" of Schatzman and Strauss (1973:110/111). Schatzman and Strauss liken this filtering activity to a "lever" since for them a lever denotes "any thinking device that both distances the analyst from his data and provides a new perspective on them, so he may enter into a new relationship with his data" (page 118). These emerging points provide the focus of subsequent analysis. Some points will occur frequently, thus providing the usual educational setting or event description and analysis, whilst others will be much less frequent, even unique. Eisner (1979) describes this filtering as an "ability to perceive the 'rules' through which educational life is lived... to distinguish the significant from the trivial and to place what one sees in an intelligible context. This process is not serial."

I will use the example of a medical attachment to indicate the kinds of points which may provide a focus. Such points are: the general shape of the session, for example how patients are selected for teaching; also how the general shape may change, for example when the session is taken by a new doctor perhaps, or when non-routine materials such as ECG print-outs are used for teaching. The overall tone and mood of the session may be informative, as also are questions and answers, for example the type of question asked and by whom; the type of answer given and by whom; the answers that are accepted or not accepted. Highlights such as: advice given, e.g. what the examiners are looking for; blackboard, OHP use, e.g. what is emphasised and why; differences of opinion, e.g. what points are contested; grumbles, e.g. what annoys students and staff -- all these are usually indicative of what staff and students consider to be important and significant. Such points should be attended to with particular care. These are the "analytic descriptions" of Schatzman and Strauss (1973).

Such emergent focus-points are then classified as material for further analysis and further follow-up or for putting to one side. The points for analysis are transferred to large sheets of paper, and coded and marked in some way to facilitate visible patterning or

clustering. Such clustering indicates relationships between the points classified under study; further thinking-through of the top copy text and the clusters helps to make sense of the relationships. The 'domains' (Spradley 1980), "discovered classes" (Schatzman & Strauss 1973) or the 'rules' (Eisner 1979) are further analysed to determine what inter-relationships exist. This provides the "analytic descriptions" of Schatzman and Strauss (1973:110-111) where "the organisational scheme is developed from discovered classes and linkages suggested or mandated by the data." The analysis may be developed further by linking these analytic descriptions to the existing theory of the particular discipline, for example sociology or education. In this way "substantive theory" with its "own identity is established" (Schatzman & Strauss 1973:110-111). Substantive theory is the final level of analysis for Schatzman and Strauss.

Other researchers have suggested different nomenclature and taxonomy for the categories identified. Becher and Kogan (1980) have named sequential relationships "topographical" (equivalent to a street map of London) whilst they have named issue relationships "topological" (equivalent to the conventional map of the London underground). There is a move from the more concrete and descriptive (topographical) to greater and greater abstraction (topological), based on the concrete. Coles (1985) describes their use in medical education research. He sees the activity as qualitative factor analysis; the technique is recommended by Coles and Mountford (1988) for the analysis of interviews. Woods (1985) describes six categories, namely speculative analysis, classifying and categorising, concept formation, models, topologies and theory, on a scale of increasing abstraction, for the purposes of a full-blown analysis. Not all analyses of investigations use all six levels, however.

Fleming (1988) suggests that "frantic searching the literature" may help to provide a cohesive and coherent view of the analysis at the point where relationships have been established. This is the first level "straight description" of Schatzman and Strauss (1975:110-111). This point -- the framework of ideas and theory -- is emphasised by Eisner (1979) and by Coles and Mountford (1988).

Increasingly, observation is seen to be theory-driven (Popper 1968; Chalmers 1978; Hodson 1986; Gott & Welford 1987). I often took a word or a phrase that staff or students had used when I was looking for a name to give to the emerging explanatory framework. This helped me to make sense of the relationships identified. For example, students used "learning firm" to describe a particular approach to the organisation of Obstetric &

Gynaecology attachments. I adopted their expression. Sometimes a name or phrase used much later by staff or students confirmed my previous analysis. For example, a small group of Fifth Year students used the phrase "copycat-doctor student" to describe some of their peers. This clearly matched an analysis I had made several years earlier -- 'doctor-centred' students (see chapter 8).

Explanatory frameworks can themselves be explained and developed further to produce models or topologies (Woods 1985). When more than one dimension is identified, a matrix can be built up to show complex relationships (Fleming 1988); in this way theories are constructed (Glaser & Strauss 1967; Schatzman & Strauss 1973; Bogdan & Taylor 1975; Guba & Lincoln 1981) or models (Coles 1985). These can be fleshed-up and given more substance by going back to the top-copy text for further information concerning details of the explanatory frameworks, dimensions or matrix. Fleming (1988) describes this process as requiring "some imagination and creativity but it is largely painstakingly hard work, checking and cross-checking." It is also exciting.

An example will help at this point; it is drawn from Chapter 8. One team of doctors involved in Year Three attachments introduced their attachments to students as follows: "It's good to have you working with us. You can be a great help." Repeatedly during the attachment the doctors re-stated this point that students were "working with us". I decided to use this as a point of focus, even though espoused theory may not correspond to theory-in-action (Argyris & Schon 1974). I charted the data in terms of this "working with us" statement: What characterised this approach? What were the outcomes or the associated actions? At the same time I looked for alternative approaches. Was there an alternative? If so, what would the alternative approach be like? No team of doctors made explicit statements to the effect that the students would not be working with them during their ten-week attachments. Analysis showed that there were differences in approach associated with teaching organisation. Some were clear-cut, e.g. the optional/compulsory nature of the timetabled clinical teaching sessions; others were of degree, e.g. the formality and coverage of topics. Since particular circumstances of clinical sessions, for example the patient concerned or immediate ward activities can affect the general pattern, a casual observer could be forgiven for thinking that there was no significant difference between approaches.

6.5 Validity of analysis of interactive data (participant observation and unstructured interview)

The data collected in observational studies is itself valid (Hammersley & Atkinson 1983; Fleming 1988) since it was generated and collected in the authentic setting. There are techniques for testing validity at interview (section 6.3). The question thus arises: how can the analysis and the interpretation of evidence be tested for validity? I discussed my written reports with staff after they had time to read and digest them. This provided opportunity to establish the validity and reliability of interpretation, to share understanding. Occasionally, when I was discussing my written reports with staff, there was debate concerning a particular emphasis that I had given; for example, a member of staff interpreted the evidence as indicative of a lack of student motivation, whereas my interpretation was simply that students were expected to do too many things. However, I was never told that my interpretation was not a valid one, quite the opposite -- it was always seen as meaningful and certainly possible.

Over time, from 1977 to the present, I have returned (in different ways) to the same area of the curriculum, revisited my top-copy text and my reports, and continued discussions with staff and students (some students are now graduates), including the then Dean and Deputy Dean, and Dr Coles. My original interpretations have been confirmed and extended during this time. Furthermore my analysis fits in with common sense, the 'human sense' notions (Donaldson 1978) on the one hand, and with more 'general theories of education on the other. Specific theories of health care education in action are lacking. Observational studies, in contrast to interviews, questionnaires and inventories, are also few and far between in health care education (Atkinson 1983; 1984; Harden 1986; Fleming 1988).

6.6 Overview to interactive data collection and analysis

Collecting evidence by participant observation and by unstructured interview coupled with analysis is an extension of our natural human skills. Many researchers commend observation since words do not necessarily match deeds (Becker et al. 1961; Becker 1970; Argyris & Schon 1974; Harden 1986; Fleming 1988). The process is made rigorous by an awareness of the all too familiar (Delamont 1981; Schon 1983), so that the taken-for-grantedness can reveal different and new perspectives. Systematisation and attention to detail is also necessary', as is a continual attempt to see the whole, and to account for it.

As such the whole activity is not simply a technique or skill, but a way of looking (Fleming 1988).

6.7 Questionnaires

6.7.1 Introduction

Douglas (1976) suggests that questionnaires are used to avoid the "suffering" that "lone researchers" feel when doing field work. This feeling of loneliness and pain is described by other research workers, for example Wax (1971) and Denny (1978). Douglas (1976) calls questionnaires "mail-order research". He goes on: "putting a questionnaire in a mail box may demand some faith in the postal department and the unseen subject but it requires no suffering or courage on the part of the academic. He can remain safely in his office and avoid all those vulgar conflicts" (page 192). I must admit that I never felt this kind of loneliness or suffering -- quite the opposite, for I felt fully accepted and "at home" in my fieldwork. There was enough common educational ground in medical education for it not to seem foreign or alien to me. No doubt my prior experiences had much to do with this (chapter 4), but not everything: developing acceptability, a two-way process (section 6.2) was central.

6.7.2 Procedures used

Guba and Lincoln (1981:164) say "when an interview is tightly structured it begins to approximate a questionnaire." Oppenheim (1966) is a useful guide to questionnaire design and attitude measurement. I used questionnaires in my research as a form of structured interview (structured because they were self-administered) on three occasions. They were never sent to students I did not know or who did not know me. I always included a covering letter which explained the purpose and the reasons underlying it. The three occasions were:-

1. To collect simple factual information from Third Year students, at the end of Year Three, on the clinical instruments that they owned. This questionnaire was given out with the Part 2 examination question papers and collected with the scripts.
2. To collect information from Second Year students on their understanding of selected basic clinical terms and basic clinical activities, before and after their Introductory Course

to Clinical Medicine. The terms were: history taking, physical examination, case presentation and case management. The activities were researched by means of the questions: (a) 'What do you think are the doctor's main tasks when faced with a patient?' (b) 'The doctor usually begins by putting some questions to the patient. But how do you think the doctor knows what to ask?' An addressed FREEPOST envelope was included for postal reply.

3. I had worked with 23 students throughout their five undergraduate years. When they graduated, some suggested that we should keep in touch and extend the research into the graduate years (see chapter 12). We did this by means of postal questionnaires, simply because most were not employed in Southampton. Questionnaires and a sheet for address update were mailed to graduates every 6 months and an addressed FREEPOST envelope was included for postal reply.

The questionnaire items were always based on participant observation and interview, that is on concerns, issues or themes that had emerged in my research. They contained mostly open questions, but closed questions were used for very factual information. Some of the questions were based on the graduates' previous answers to earlier questionnaires (both the graduates' own personal answers and the group's collective answers). The validity of the question items was ensured because of their 'grounded' base. The validity of the answers rests with the students or graduates themselves: the validity of some of the graduates' answers was tested by re-asking the same question and by giving the graduates' their own previous answer to comment on later.

The response rate to questionnaires 1-3 above was always exceptionally high, almost 100%, sometimes even 100%. This was because of the mutual confidence, respect and trust that developed, over the years, between myself and the students and graduates concerned. Reminders rarely needed to be sent. I included an addressed FREEPOST envelope for postal return: this avoided any of the inconvenience of not having a stamp or envelope to hand. Often students and graduates included letters with their reply. These might be just friendly and 'newsy' or they might be a source of descriptive data, highlighting specific concerns and issues. It is as if the questionnaire and FREEPOST envelope provided the 'trigger' for the student or graduate to get in touch with me. I always wrote a note of thanks when a filled-in questionnaire was returned.

The questionnaires themselves were filed and provided the top-copy record of the research. Any letters were also filed with the questionnaires. Analysis was basically the same, but very much simpler, as for participant observation and unstructured interview: themes, together with patterns or relationships are looked for by a manual and qualitative factor analysis (Glaser & Strauss 1967; Schatzman & Strauss 1973; Becher & Kogan 1980; Coles 1985; Coles & Mountford 1988).

6.8 Documents and records

6.8.1 Introduction

Essentially documents were used in two ways: to help with the organisation of my research and to gain understanding of the undergraduate curriculum as a whole and in part, including the historical dimension.

Guba and Lincoln (1981:231) argue that educational enquiry has made little use of documents (unlike other types of social enquiry). This they see as wasteful, since documents are an excellent resource which should not be ignored. Two positive features are (a) they are "stable, rich and rewarding", and (b) they provide "well-grounded data" for they are an "in context" source of information -- that is, they arise from the context and exist in it (Guba & Lincoln 1981:232). In any naturalistic enquiry documents have an obvious part to play, as context (both the immediate and the historical) is important.

One problem that arises is confusion over the terminology of what constitutes a document or a record. Guba and Lincoln (1981:228) claim that "The methodological literature confounds this problem even further", for there is no agreed definition that is adhered to. Some authors only include written materials that were not prepared specifically for the research ('documents') whilst other authors also include written materials that are made only because of the inquiry ('records') (Bogdan & Taylor 1975); Bogdan and Taylor see personal documents and unstructured interviews as similar: letters can be regarded as both. Guba and Lincoln (1981) point out the difficulty of using for analysis the range of categories identified in the literature -- 320 different categories -- which leads them to claim that "the prospect of dealing with that number of possible cells boggles the mind" (page 229). They recommend that such standard categories should be abandoned in favour of flexible criteria.

6.8.2 Procedures used

6.8.2.0 Both documents and records were used in this study, e.g. timetables, examination papers, Faculty Minutes, together with diaries and letters.

The following range of documents and records were used:

6.8.2.1 Documents

1. Wide-view documents: these documents gave a broad perspective of undergraduate medical education at Southampton. They included:-

- (a) Minutes of Faculty meetings, such as the Interim Board of the Faculty of Medicine; the Curriculum Committee; Teaching Methods Working Party;
- (b) Personal files of members of staff, particularly of Professor Donald Acheson (Foundation Dean) and Professor Kenneth Munday (Physiology and Biochemistry);
- (c) Faculty's files for each individual student;
- (d) General Course Descriptions such as the University prospectus; the Faculty curriculum outline;

2. Narrow-view documents: these documents related to a particular part of the undergraduate course. They included:-

- (a) Information issued to staff and students at the beginning of a particular course, such as timetables (who teaches what, to whom, when and where); aims and objectives; the nature of assessment/examinations;
- (b) Materials issued during a course from staff to students, such as handouts of course content, summaries, history-taking sheets, for an obstetric or gynaecological history;
- (c) Student's written work such as filled-in history-taking sheets; written case histories for case presentation; projects; essays;

(d) **Assessment/examination question papers.**

6.8.2.2 Records specifically written for the research inquiry

These included:-

(i) **Diaries:** I asked certain students to keep a diary (on A4 sheets provided) of the day-to-day events including weekends (connected with their medical course). Other events were only recorded if the student judged that they were in some way significant (e.g. illness; chance meeting in a pub with a disabled person; music lesson which competed with course work).

(ii) **Letters:** mainly from students but also from staff. Staff letters were usually asking for information or specific advice. Student letters were usually giving information and keeping-in-touch. Letters were not directly 'solicited' by me but written within the context that I was always interested to hear what staff/students had to say. I always replied to letters even when they were only keeping-in-touch.

6.8.3 Comment

Use of documents/records may appear to be "fact-finding research" (Harden 1986) which may have limited value since "what the Faculty say is taught may be different from what is described in the curriculum documents and different again from what students say happens in practice." Trying to identify such mismatches is an important aspect of naturalistic research.

Wide-view documents (1(a)-1(d)) provided the context of the particular course under study. The contemporary and historical context could be mapped, as could links with other courses. Such analysis has been likened to the activities of a historian.

I used narrow-view documents, especially course documents (2(a) above) extensively during my enquiries for the Faculty of Medicine. They provided data which enabled me to contact all staff involved, before the course began, to arrange an interview: my inquiries could be described in general outline, questions answered and the day-to-day working arrangements negotiated. The course timetable enabled me to organise my research programme, for example where to be, with whom and when. The aims of a course

specified in documents provided the intended learning outcome, as did the assessment/examination documents (2(e) & (d)). Handouts (2(b)) illustrated the emphasis of the course, what was considered important by the staff; students' written work (2(c)) illustrated what students saw as important. The records or diaries ((i)) that students kept contributed to an understanding of the contemporary context, but also, and importantly, indicated the range of student perspectives, since they recorded student judgement. Letters ((ii)) provided either follow-through information (from graduates, beyond the undergraduate course) or follow-up information (from students, within the undergraduate course), which was a useful source for triangulation of evidence and for learning about graduate and student insights. Such data may be seen as "news" rather than "science" (Nisbett 1980) and of little value: however, it helps to provide the necessary context for interpretation of all data.

There was no problem concerning the authenticity of documents; all documents were genuine. Also there was no problem with the availability of documents: I had access to all, though some were confidential. Analysis followed the pattern described for participant observation and interview (see section 6.4 above).

6.9 Written reports for Faculty

All my evidence was collected in confidence: the same confidentiality applied to my written reports. At the end of each episode of research I wrote a report (often substantial) for the Head of Firm/Course Co-ordinator, the Dean and Dr Coles. Apart from one occasion, each of my reports concerned one attachment or course only: thus for each Medicine attachment I wrote a separate report. The exception was the report on the first five weeks of the First Year course: with the agreement of Anatomy, Biochemistry, Man Medicine & Society, and Physiology I wrote a single report in order to help staff discussion and to promote a common understanding, since the concerns and issues identified had a common interactive origin. Successful solutions needed to be sought collectively.

Because of the formative feed-back, staff in one sense knew the content of my report before they received it: in another sense they did not, because of the particular emphasis I adopted when bringing things together.

I always discussed my report with the Head of Firm/Course Co-ordinator concerned, sometimes more than once. I also discussed more widely if the Head of Firm or Co-

ordinator invited me to, for example at a regular staff meeting or with a chosen group of staff. Of course, I also discussed my reports with the Dean and the Deputy Dean (usually separately) accompanied by Dr Coles.

My reports were never given to Teaching Methods Working Party, though some of the findings were the focus of discussion at meetings. Also they were never given to students. In the first instance these decisions were taken in order to protect confidentiality and to exercise caution; after all, my research was a new venture. However, these policies were never reconsidered (chapter 4).

PART TWO

CHAPTER SEVEN

SELECTION OF MATERIAL FOR THE PRESENT STUDY AND OUTLINE OF ARGUMENT

7.1 Introduction

Towards the end of my term as evaluator, the realisation that I had been given, over the years, a unique opportunity to observe the whole medical course in action -- not exhaustively, but able to form a wider close acquaintance than any other person -- prompted me to try and make use of this privileged position to try to address the problems of the course as a whole, however daunting that might be.

Clearly I had to be selective both as to the material I had accumulated, and as to the issues I tackled. Equally clearly, the perspective of the whole course that I had gained suggested that I should tackle the most comprehensive issues I felt capable of identifying. I knew that I was not alone in regarding the 'whole problem' as difficult to grasp, perhaps intractable. Yet it was a 'young' medical school, only brought into being in the previous fifteen years.

To select, and yet to do justice to the whole, meant not concentrating on the theoretical at the expense of the data researched, nor on the data researched to the exclusion of theory. The result is an attempt to convey the flavour of the observed interactive research and to address, however imperfectly, a number of issues of central educational interest (which might, by dint of further thought, be synthesised into a single paramount issue). The result should contribute something positive to educational case-histories, if not to development within the institution studied.

7.2 The data chapters

Chapters 8 to 12, which form the bulk of Part Two, present a great deal of evidence, gathered chiefly by participant observation and interview, selected from inquiries made over a period of years at a young medical school, Southampton, beginning shortly after it had produced its first graduates. The material has been selected to throw light on the teaching and learning taking place. The course structure at Southampton and the full ex-

tent of the enquiries carried out have been described in Part One (chapters 2 and 4 respectively). It will be remembered that the first inquiry was into Year Three Medical attachments, chosen by the Faculty because Year Three was regarded as a pivotal year in the Southampton course, and because the Medical attachment was regarded as having a general significance above that of the other clinical attachments (the Introductory Course to Clinical Medicine at the end of Year Two was largely 'geared to' Medicine as specialty).

This choice by the Faculty was fully vindicated. Inquiry into the Medical attachments, conducted in the first year of evaluation, proved extremely fruitful, both in terms of the evaluator gaining acquaintance with the 'chalk face' of medicine and of medical education, and in terms of the insights won into the general nature and problems of the teaching and learning of medicine and into the particular problems of a particular institution. This phase of inquiry provided the data reported in Chapters 8 and 9 and gave rise to the data reported in Chapter 10: these three chapters form a block concerned with the Third Year Medical attachment.

The nature and problems of the teaching and learning of the non-clinical part of the curriculum have much in common with 'theoretical' courses in other forms of education, both vocational and non-vocational; those of the clinical part are peculiar to, and of course essential to, medical education. Medicine is, first and foremost, an interactive profession, and at its heart is the 'encounter' between doctor and patient. Central to the argument of the present study is history taking, that encounter in which doctor and patient communicate and articulate the patient's presenting complaint. The importance of history taking was strongly stressed in the Introductory Course to Clinical Medicine. The history obtained was declared to be the chief determinant of the diagnosis -- physical examination, the other interactive component of this doctor-patient encounter, being strictly subordinate to it. This message was reinforced by the explicit teaching on the Medical attachment. Counter to this message was the far greater time dedicated, on the Introductory Course, to physical examination than to history taking, and the whole convention of teaching arrangements -- the implicit teaching -- found on the Medical attachments. It is these attachments (not the Introductory Course) which are reported on extensively in Chapter 8. History taking was found to be a major activity of students on the ward. But it was taught, not by demonstration, nor by supervision, nor by instruction, but by testing or assessing its results by means of formal case-presentation (verbal) and by means of case notes (written), supplemented -- sometimes generously supplemented -- by informal ex-

changes or discussion. From the student's point of view, apart from such retrospective help, learning to take a history was done by solo practice, unobserved and unsupervised.

Participant observation over ten weeks (the length of a Medical attachment), in close company with students, as described in Chapter 8, and including observation of students taking histories, indicated differences between them in their responses to the learning task that they were presented with. Two groups 'literal' and 'non-literal' are distinguished at the end of Chapter 8 (section 8.4.5).

This task, as distinct from the way in which it was taught, was differentially construed according to the concept of history taking imparted to, or formed by, the students. Two major axes of this concept were, first, external -- the place of history taking in the overall process of clerking -- and, secondly, internal -- the content of history taking itself.

This concept was in the first place largely shaped by the Introductory Course, but it was also endorsed by some clinicians. It amounts to a linear view of clerking, coupled with a linear view of history taking. On this view, traditional clerking is a linear process consisting of history taking and physical examination, in that order, followed by decisions on diagnosis and patient management, in that order. Similarly history taking itself is a fixed linear sequence of questions to be put to the patient in its entirety. (The term "traditional clerking" has been used in order to simplify the account into a four-stage process: a full account would accommodate tests and, for instance, prognosis; these would not affect the linearity of the model.)

This twofold linear view of clerking and of history taking, as will be reported in Chapter 8, was accepted by 'literal' students. It was also promulgated by some clinicians, some of whom accepted it as a valid model of the clinical process (chapter 10), whilst others (chapter 9) rejected its validity as a model of what the clinician does, but accepted its legitimacy as a teaching instrument. Other clinicians, and the 'non-literal' students, rejected the linear view in favour of a dynamic view in which history taking was a self-evolving component of a self-evolving process of clerking -- not unstructured, but not predetermined either, whether in content, sequence, or admixture.

The source of the linear view, which conflicts with the observed behaviour of clinicians (chapter 9), was, at least for the students, the stated aims of the attachments (more precisely, the one aim which related to clerking -- "to continue to develop the skills of

history taking and physical examination"). These aims prescribed history taking and physical examination as skills to be acquired on the ten-week attachment, but excluded, by silence, diagnosis and patient management. They similarly excluded 'clinical medicine', which can be briefly defined as knowledge of diagnosed conditions and of their management.

However, not all students on attachment found their teaching organised around these aims. Much of Chapter 8 is devoted to the contrast in the ways in which two clinical firms organised their teaching and of the differential learning which resulted. One firm (A), adhering more closely to the aims, adopted a style of teaching called here 'training', and its 'non-literal' students responded by adopting a style of learning called here 'doctor-centred'. Another firm (B) disregarded, in large part, the limitations of the aims, and adopted a style of teaching called here 'working', and its 'non-literal' students responded by adopting a style of learning called here 'patient-centred'.

One aspect of history taking, or of clerking in general, was common to all ward-teaching (the staple kind of teaching in a hospital attachment): all the patients used for teaching purposes were (a) already diagnosed and (b) medically known to the clinicians. But the purpose of clerking is to arrive at a diagnosis (leading to management). Students who clerked patients under the constraints of the aims, confining their clerking to history taking and physical examination, were in a learning situation remote from the normal exercise of clinical skills; but even those students who were not under such constraints were still acquiring those skills under a considerable handicap, namely that, though they were faced with patients unknown to them (but not undiagnosed), they did not see history taking, or clerking more generally, performed on an undiagnosed patient or on a patient whose diagnosis was unknown to the clinician. Such was the conventional teaching and learning situation in hospital attachments.

The various pieces of evidence reported in Chapter 9 are selected for the light they throw on this anomalous situation. All of them describe doctor/patient clerking events, available in the hospital context but not all used, or not generally used, for teaching purposes. Firstly (9.1): a non-routine teaching occasion in which a clinician clerked a patient 'unseen' -- that is to say, in this case, a hospital in-patient, already diagnosed but not previously seen by the clinician in question and whose diagnosis was unknown to him. Secondly (9.2): observations made by the writer in a New Outpatients clinic precisely in order to see hospital clinicians carrying out the intrinsic function of clerking, that is to

say, arriving at a diagnosis by a combination of history taking and physical examination. Thirdly (9.3): reports of four other varieties of clerking experiences which some students were enabled to benefit from, namely: on 'take'; in a Return Outpatient clinic; in a non-teaching hospital; and with a non-teaching firm. These different encounters with hospital patients not only broadened the students' experiences -- itself a benefit -- but also provided them with fruitful learning in a number of ways, including fast feedback on their own performance from clinicians.

In Chapters 8 and 9, attention is given both to the students (the learners), and to the clinicians of Firms A and B (the teachers). In Chapter 10 the views are recorded of the clinicians of a third Medical firm, on the teaching of clinical medicine in this pivotal part of the course. As with Firms A and B, significant differences of view are found between groups of clinicians, and between some clinicians' dynamic concept of clerking and the linear concept underlying the stated aims of the attachment. This variety of view is found to co-exist with a low level of discussion of teaching and learning problems.

The standard teaching procedure of the hospital ward, in which neither teacher nor learner observed the other taking a history (the student did not observe the clinician, and the clinician did not observe the student), and in which the student's history taking ability was tested in terms of its findings in a teaching situation in which the patient's condition was well-known to the clinician and events were wholly under the control of the clinician -- this traditional procedure, based upon the bedside, enjoyed great prestige. Its learning potential was especially high for the learning of clinical medicine -- the recognition and treatment of disease. Yet the learning of clinical medicine was not included in the aims of the Year Three attachment. Its non-inclusion was a source of uncertainty to students, and constituted another significant point on which the views of clinicians differed and in which teaching practice was often at variance with the stated aims.

The data reported in Chapter 11 continues and concludes the theme of history taking, or, more generally, clerking, as a focus of insight into medical education. The General Practice attachment which ran, at the rate of half-a-day a week, concomitantly with the other Year Three attachments, did not enjoy the prestige of the Medical attachment. Retrospective inquiry among the students, conducted by interview, revealed that the learning potential of the General Practice experience was high, a fact which was recognised initially by some students, and over the course of the year by others. Its value arose from the different circumstances in which the doctor/patient encounters took place, as compared to

the hospital. The doctor was not in total control of events; the patient was, frequently, undiagnosed at commencement; and the whole process of clerking was carried out within the space of a relatively short consultation. In this situation, some students for the first time observed a doctor taking a history and were themselves observed taking a history; they also conducted patient interviews and examinations in an authentic context in which they were, in hospital terms, 'the first to clerk'. Feedback was fast, and shared the dynamic (selective and self-evolving) character of the experience itself.

A further finding of Chapter 11 is that students were able to make comparisons of their experiences, not only between their single long Medical attachment and their four short General Practice attachments, but also between different General Practice attachments -- a form of comparison not available to them in Medicine. It is argued that such comparisons provide useful material for discussion and reflection, which contribute to learning. It will also be argued that there are two distinct sources of value in the General Practice attachment which belie its low prestige: the first is the authenticity of the clinical encounter to which the student is introduced; the second is the acquaintance made with the largest sector of clinical medicine, that of Primary Care, in which many students will eventually spend their professional lives.

Chapter 12, which completes the presentation of data, follows a small number of students into the early years of their professional lives, when they are still gathering hospital experience as young postgraduates. Some of their undergraduate clinical experience was not confidence-building. The questions very tentatively explored in the data reported here are: What are the sources of clinical confidence? Is clinical confidence acquired related to a linear/static or to a dynamic view of knowledge? Is the kind of clinical confidence related to career choice between hospital medicine and General Practice?

7.3 The final discussion

The final chapter (Chapter 13) consists of three parts: a Summary of the findings presented in Chapters 8-12; a recapitulation of Methodology and methods used; and a set of fourteen Recommendations arising from this study. Each of these three parts is followed by a discussion section. The first two of these discussions, following the Summary (section 13.2.3 'Teaching and learning: an integrated approach') and following the Methodology review (section 13.3.2.3 'The new view of science') are short, whilst the

third (section 13.5 'The fourteen Recommendations presented discursively') is relatively extended.

It will be argued that the dichotomy, linear/static versus dynamic, which can be applied to concepts of clerking and to views of knowledge, can also be applied to medicine as presented to the student by conventional ward teaching where the focus of the teaching is on diagnosed patients, and as presented by other forms of clinical encounter, particularly the General Practice consultation, where the focus of teaching is on interaction with the patient. (The dichotomy might further be matched to the educational dichotomy between conventional and progressive.) The view put forward here will lay emphasis on the dynamic interplay between theory and practice proposed by Schon -- on the role of reflection, or its social form, discussion, in that interplay, both in learning and in professional practice, itself regarded as perpetual learning. Reflection and discussion need to be fostered in education and one step in this direction could be the creation of a theory of medicine designed to enable students to 'make sense' of their learning experiences.

NOTE: On the names in the following chapters, see Notes to the Reader, page *xix*.

CHAPTER EIGHT

PARTICIPANT OBSERVATION WITH YEAR THREE MEDICAL ATTACHMENTS

"Medical students are trained to follow systematized history-taking, physical examination and ordering of special investigations in a standard sequence which experienced doctors themselves do not operate." (Walton 1984:53)

8.1 Introduction

8.1.1 Attachments observed

This chapter is devoted to Third Year clinical attachments in medicine. (In the organisation section which follows, I repeat details of the Third Year as a whole in order to give a full background perspective.) My research gave me a fortunate and unique position: I attended more than one attachment simultaneously. In a sense, as I have already said, my experiences formed a naturally occurring experiment. Before my participant observation began, the decision was made that I should write reports on each individual attachment for the Head of Firm concerned, with copies for the Dean and Dr Coles; in this way, greater confidentiality could be maintained. However, writing individual reports did not allow formal comparisons to be made, though such comparisons provided issues for discussion with the Dean and Dr Coles. This study provides the opportunity to make formal comparisons.

My research methods were participant observation and unstructured interviews. The focus of research was five Medical Attachments (three different Firms), and four Obstetric & Gynaecology attachments, as shown in Table 8.1.

Researching these attachments involved about one third of the students in the Third Year group as a whole. Observations of Obstetrics & Gynaecology attachments are not reported in the present study.

8.1.2 Organisation of Year Three

Year Three of the curriculum has the greatest overlap of theory and practice. Students are introduced to hospital clinical work by way of six attachments during the year.

Medicine (10 weeks)	Surgery (10 weeks)
Obstetrics & Gynaecology (5 weeks)	Psychiatry (5 weeks)
Child Health (5 weeks)	Medicine-with-Geriatrics (5 weeks)

One ten-week attachment is 'paired' with two of the five-week attachments (as above) so that Medicine (10 weeks) is 'paired' with Obstetrics & Gynaecology (5 weeks) and Child Health (5 weeks); whilst Surgery (10 weeks) is 'paired' with Psychiatry (5 weeks) and Medicine-with-Geriatrics (5 weeks). Each Third Year student attends all six attachments during the year, but in one of eight sequences or rotations. The rotation for group 'A' students, for example, begins with Medicine, moving on in turn to Obstetrics & Gynaecology, Child Health, Surgery, Psychiatry, and finally, Medicine-with-Geriatrics. Group 'F' on the other hand reverses this order: they start with Medicine-with-Geriatrics, and move on in sequence to Psychiatry, Surgery, Child Health, Obstetrics & Gynaecology and finally Medicine.

In the Second Year students indicate their preferred rotations (first to third choices): most students are allocated to their first or second choice.

Apart from hospital attachments, students have community General Practice attachments and follow a series of lectures. The relative time allocation is three days per week for hospital clinical attachments; half-a-day per week for General Practice; and two half-days per week for lectures. Wednesday afternoon is unscheduled as it is 'sports' afternoon: this is University policy for all undergraduate students. Medical students on the whole spend Wednesday afternoons in course-related study. Such study includes clinical practice.

The Intermediate Part II examination is taken at the end of the Third Year. This exam is based on the biological sciences related to medicine.

Traditionally, medical students spend the whole of their Third Year in clinical hospital attachments, six months Medicine and six months Surgery. In Southampton not only are the

five-week specialty hospital attachments included, but the community attachment in General Practice and the continuation of a lecture programme is also included as part of the Third Year curriculum. Southampton Third Year medical students are thus unable to 'immerse' themselves completely in hospital clinical attachments: their time, both formally (the timetabled time) and informally (their study time) is divided, and so is their attention.

8.1.3 Aims of Year Three clinical attachments

The general aims are the same for all six clinical attachments, though the emphasis may vary with the different clinical specialties. For example, it is commonly stated that the patient history is more important in Medicine than in Surgery. Also there are skills and knowledge which are specialty dependent: for example, taking a cervical smear and passing a vaginal speculum, and the stages of normal labour, are skills and knowledge specifically related to the Obstetrics & Gynaecology attachment.

The general aims of the clinical attachments are:-

- (a) To continue to develop the skills of history taking and physical examination;
- (b) To introduce students to the effect of clinical disorders on the patient as a whole and upon his family;
- (c) To reinforce systems course teaching on basic sciences and mechanisms of disease.

In preparation for these attachments students have an Introductory Course to Clinical Medicine which takes place in the summer term of the Second Year. This course begins with two weeks full-time concentrated study in which students are introduced to the skills of history taking and physical examination, followed by two afternoons per week for eight weeks in which students visit hospital wards to practice and so to acquire history taking and physical examination skills. There is an assessment at the end of the Introductory Course.

The general aim "to reinforce the systems course teaching on basic sciences and mechanisms of disease" (see above) is a feature of Southampton Medical School. It embodies the intention that there should be a blurring of the distinction between pre-clinical and clinical courses, as does the continuation of the formal lecture programme into Year Three.

It is interesting to note that this particular aim was not included in the general information document that Year Three students were given at the time of my research. It was, however, included in the documents for the Obstetric & Gynaecology speciality, in the following form: "The revision of reproductive physiology and its application in clinical obstetric and gynaecological problems".

8.1.4 Interpretation of the general aims of Year Three clinical attachments

Each attachment has its own particular timetable (see Table 8.2) which fits into a more general yearly timetable. Thus particular timetables show the interpretation or emphasis adopted by any attachment. (In this respect it is useful to compare the Obstetrics & Gynaecology timetables with the timetables of two selected Medical attachments.)

Students were scheduled for each of the timetabled events. (The exception to this will be described in Chapter 9: Firm B's students on Thursday afternoons had three alternatives on offer, namely (a) a 'return' out-patients clinic; (b) a small local hospital, and (c) a 'twinned' Firm -- another consultant Firm, to increase the range of patients seen by students; the students themselves organised their Thursday afternoon rota.) The Monday and Friday afternoon lectures were held at the other local hospital. Students were expected to clerk their in-patients (patients on the ward) in their 'apparent free time' or to use the time usefully in connection with their clinical attachment.

8.2 Initial interviews with medical firms selected for the research

8.2.1 General features of the interviews

At the end of August, before the Third Year attachments began, I arranged to interview the Heads of Firms involved, primarily to meet the clinicians and to give them a chance to meet me. I could explain the research and they could ask me questions. They had received a letter from the Deputy Dean outlining the research project focusing on Third Year attachments.

Medicine attachments had been chosen as an example of a ten-week attachment, because there seemed to be a general consensus among clinicians that the Medicine attachment, rather than the Surgery attachment, was fundamental to medicine and hence to medical education. The particular clinicians interviewed were of the same view. They were

adamant that research into medical education should certainly include Medicine attachments and they all seem pleased to have the opportunity to put the case for Medicine attachments and for Medicine rather than Surgery.

I explained that the intention was to monitor three Medicine Firms by participant observation and interview: my presence at any particular session was planned to be as a 'fly-on-the-wall', to be as natural and unobtrusive as possible. We discussed how participant observation would allow me to share a variety of timetabled experiences, and unstructured interviews would give staff and students the opportunity to raise their own (the group's, the Firm's) concerns and issues relating to both the Third Year attachments, and to the medical curriculum in general. In this way the important points for consideration would emerge as we worked together: discussion would facilitate understanding and interpretation. I assured them that I would be pleased if they would always get in touch with me whenever they wished, and checked that they had my contact address and 'phone number.

I asked if we could work on the basis that I would turn up to attend timetabled sessions whenever I could -- an 'expect me when you see me' arrangement. They agreed to this without any hesitation at all, as long as I was similarly willing to accept them as I found them. This was exactly what I wanted. Finally, I asked them to tell me about Third Year attachments, stressing that it was their personal views that I was particularly interested in. I needed to learn from them: I could only do this with their help. I also stressed confidentiality of the interview data though I made sure they knew that their comments might be used (anonymously) in my written reports for themselves and for the Dean.

The interviews at the venue suggested by the clinicians, lasted from half-an-hour to well over an hour. The clinicians, though busy, gave unstintingly of their time.

The initial interviews are presented in outline Firm by Firm.

8.2.2 Firm A

I interviewed two senior clinicians of the Firm (Dr John and Dr James) together; this was at their request. I had spoken to Dr James by phone to arrange the interview. (At that time it seemed doubtful that I would be able to speak to both of them (due to holidays) before the Third Year attachments began. Because of this, Dr James reassured me saying

that anything that Dr John said would also go for him, since his ideas were "completely in line with Dr John's".)

Both clinicians were interested to hear of the project and unhesitatingly agreed to be involved with it. Dr James outlined in some detail the problems that a medical school in the USA had lived through because of a recent evaluation there: apparently the evaluation team had not understood the complexity of the particular situation nor the general complexity of medical education. As a result their interpretation of the data and especially their recommendations were quite inappropriate and not at all helpful.

Both clinicians readily assured me of their full co-operation and that of their Firm. They outlined the organisation of the Firm, together with the names of other clinicians and the positions they held.

Dr James stressed how the first group of students in any year were different from all other groups because they were not biased by any previous Third Year attachment. However, Dr John disagreed with this, saying that the first group was no different from any other group: there were always good groups and bad groups, regardless of whether they were first or last.

Dr John then gave a friendly warning that we must not expect too much from any evaluation of medical attachments and especially an evaluation of this kind, by participant observation, since having an observer in with students would make the students' problems very different, "so that we cannot put much faith in any problems that are identified". They assured me that my presence would not affect the staff in any way, and ended by saying that they and their team looked forward to working with me.

8.2.3 Firm B

I interviewed two clinicians from this Firm, separately.

Dr Ingram was very interested in the project and delighted at the prospect of being involved. He outlined the organisation of the Firm and the people I would work with. One key feature was that his Firm was 'twinning' with another in the hospital, so that more patients could be seen by students. Weekly visits by students to a small non-teaching local hospital also increased the number of patients available. He then began to talk about the

patients and wondered what they would think of having an evaluator around: he pondered aloud the question of what the ethics of this were. He was interested to know if other doctors had raised the question, and if they had, what they had said. This issue had not, in fact, been raised with me by any of the doctors I had talked with. When I told him this he promptly replied "It may be better just to ignore the matter and see what happens."

Dr Ingram was pleased that the Firm would get feedback from the research. We discussed the nature of the feedback: the rather informal on-going formative feedback and the written summative feedback. He explained that the first two weeks "may be rather chaotic" since he was going to be away, and also that "a lot of rust needs knocking off the Firm" as Third Year students had not been on attachment since May.

Laughingly he said "I want to warn you that a lot of shocks are awaiting you." He outlined some of these: eight o'clock starts; weekly visits to the small non-teaching local hospital by some of the students; students 'sleeping-in' hospital when the Firm is on 'take'. He said that Faculty did not know he used the local hospital for Third Years, nor of their sleeping-in, adding that Faculty frowned on sleeping-in. Dr Ingram then phoned Dr Soul and asked him when I could see him: he explained that I was "doing a time-and-motion study on them and seeing how the Third Year students liked their teaching!" He thanked me for talking to him and said he thought such research was needed. He welcomed the opportunity to be involved.

I interviewed Dr Soul two weeks later. He went over a rough draft of the students' timetable explaining the various sessions. He also explained that the aim of the Third Year attachment was for students to learn to take a history and do a physical examination with increasing competence. I asked if there was a tutor system (Firm C had one); he said there wasn't but added that both he and Dr Ingram helped with any student problems or queries as they arose. He told me not to hesitate if there was anything that I wanted to discuss at any time, and added that he had found talking about the research project and Third Year attachments most useful.

8.2.4 Comparison of interviews with Firms A and B

There were clear differences between the first interviews with the two Firms.

Firm A: described the organisation of their Firm and assured me of their full co-operation; this included the co-operation of clinicians who were not interviewed. They saw either the first group of students in the year as ~~different~~ or simply good and bad groups of students. They warned me of the problems of evaluation, using a medical school in the States as an example, and claimed that findings from participant observation studies needed to be examined with care and acted upon with extreme caution, if at all.

Firm B: helped me to see who I would be working with and in what context; this included going over a draft student timetable and the aims of the attachment. They told me about the non-authorised components of their attachment, components that Faculty didn't know about. They also saw their patients as part of the context; the ethics of monitoring by participant observation was raised and then put aside. They were glad to be involved, and looked forward to the feedback and findings. I was fully involved in the interview discourse.

8.2.5 Firm C

I also interviewed three members (one individually and two together) of another medical Firm at another Southampton hospital, which had Third Year students on Medicine attachment. A summary of these two interviews is included here for comparison.

Firm C: discussed the attachment in terms of the curriculum as a whole, mentioning specifically: the systems courses; teaching in Pathology, Physiology, and Biochemistry; the project in Year Four; and the Introductory Course to Clinical Medicine. They had identified problems with the attachment: "everyone expects too much from the students" and "the midway assessment is often omitted"; and more widely, with the curriculum: "it's very bitty". They also had suggestions as to the kinds of changes they would like to see made to improve matters. A key one was more Pathology teaching in Years Three and Five and less Biochemistry in Years One and Two. They outlined the aims of the attachment laying stress on the links with the previously taught Physiology, and included comments about the difficulty of implementation. They said I was welcome to join in with their Firm and to contribute to the debate on Third Year attachments and the medical curriculum at Southampton in general. I came away with the impression that such debate was customary with them.

8.2.6 Comparison of interviews with Firms A, B and C

Though there were obvious similarities between the three Firms, there were clear differences. The emphasis of these differences can be summed up as follows.

Firm A explained the organisation of their Firm and helped me to see their perspective on medical education and evaluation.

Firm B discussed the organisation of the Third Year attachments and saw the research as useful.

Firm C helped me to see the wider curriculum debate and their particular contribution to Third Year attachments.

I had not expected such differences, but I wondered if they would show in their teaching.

8.3 Teaching sessions at the bedside

8.3.1 Bedside teaching

8.3.1.1 The basic pattern

The basic pattern of bedside teaching is as follows.

1. The small group of students attached to the Firm and a clinician from the Firm assembled in the seminar room.
2. The clinician chose and named a patient, on the spot.
3. The student who had been allocated the patient and who had thus previously clerked them, gave an oral case presentation of the patient.
4. The clinician asked questions of the student presenting, and of the other students, and they asked questions of the clinician.
5. The clinician and students went on the ward to the patient's bedside.

6. The patient's case was further discussed around the bedside, during which questions were put to the patient.
7. A part physical examination of the patient (usually the affected system) was then carried out by the clinician/particular student/all the students. The clinician always determined the particulars of the physical examination.
8. The patient was thanked, and the clinician and students left the bedside.
9. The clinician and students left the ward; generally they went back to the seminar room to conclude the discussion of the patient's case.
10. The discussion might be widened to include other medical conditions that were related in some way to the patient's condition, and to matters of treatment, tests, pathology, physiology etc.

'Tutorials' and 'ward rounds' on the timetable for Third Year clinical teaching on the two Medical attachments both followed this basic pattern. (Occasionally no particular patient would be the focus of teaching; in this case there would be no case presentation or bedside teaching. This might be thought of rather as a tutorial.) If more than one patient was seen this might be thought of as a ward round. Neither Firm A nor Firm B expected Third Year students to attend the Firm's business ward rounds.

In Sections 8.3.2-8.3.9, I compare and contrast Firms A and B by considering selected aspects of the bedside teaching session that I observed, including clinical staff and student comments. But first I outline in Section 8.3.1.2 the two Firms' common approach to Third Year attachments and then identify themes (topological analysis) which show differences in approach.

8.3.1.2 The common approach

Both Firms set the scene by saying to students: "You must work, as no one else can work for you. Take all the chances you've got" "Find things out for yourself, and you can do this best with more patient contact" "In clinical medicine, like most things but more so, you get out of it what you put in. It's really up to you". But there were differences in

how the Firms saw the students meeting this general advice; these differences were embodied in the emphasis of the Third Year attachment.

Apart from Firms clearly telling students that they would get out of the attachment what they put in, the Firms had other features in common. They advised students to put in all the time they could ("Be on the wards as much as you can"), and to get organised in order to make good use of their time. Organisation involved organisation at the individual level and at the group level, such as patient allocation or rotas for 'take'. Both Firms made their displeasure plain to students if patients had not been clerked by the students in a reasonable time after admission. No excuses were accepted: clerking was, after all, the secret of the attachment's success and the basis of Medicine. (It was especially difficult for students to find sufficient time to clerk at the beginning of the week due to other timetabled events; see timetable (table 8.2).)

To help students remember the general criteria of success both Firms repeated the aims of the attachment periodically when the occasion seemed appropriate for whatever reason. Reasons varied: for example, to introduce students to the attachment; to chastise them; to reassure them; to encourage them. More often than not students were reminded of the aims of the attachment in some such form as the following: "You must all leave the Firm with the ability to (1) get a history from the patient, just a simple history not a complex one, (2) present the history in a written form that others can read, (3) do a physical examination missing nothing. Even if you can't diagnose you mustn't miss anything." What is to be noted is that the the second and third aims, namely the social side of medicine and reinforcing Years One and Two biomedical sciences teaching (see Section 8.1.3), were not usually mentioned.

Another feature common to both Firms' teaching was that clinicians frequently took the opportunity to give students a framework for thinking about, or rules-of-thumb for looking at, clinical medicine (a) in theory or (b) in practice or (c) both. Examples are as follows:-

- (a) Categories of chest dysfunction, causes of heart disease (theory);
- (b) How to interpret ECGs, the four stages in sequence of physical examination (practice);
- (c) The anatomy of the nervous system and the examination of a particular patient for the clinical signs of nervous disorder, basic anatomy and functions of the heart and

how to listen to heart sounds, put into practice later when examining a particular patient, (both theory and practice).

Of less apparent benefit to students was the way in which patients were selected for teaching. Students felt they learned most from sessions which were based on their 'own' patients -- a patient whom they had clerked and now presented. But which student was called upon to present was, from the students' point of view, a matter, usually, of pure chance, and opportunity was not equitably distributed. Clinicians selected patients on different grounds, as between the two Firms, but this random effect on the students was the same. (This point is amplified in Section 8.3.2.2.)

In what follows I treat each Firm as a homogeneous group of doctors; in fact they were not, but the major emphasis of the Firm was clearly discernible, not only by what clinicians said, but also by what clinicians did. The Head of Firm, the Consultant, had the greatest opportunity to influence the teaching on his Firm. There are two aspects to this influence:-

(a) Consultants are in direct contact with the University Medical Faculty; all details of attachment organisation, attachment aims, overall course aims etc. are sent from Faculty to the Consultant; the Consultant then informs the rest of the Firm. Any comments that any particular individual member of staff wishes to make about a student or about the attachment or the curriculum generally would normally be channelled through the Consultant to Faculty. The Consultant can therefore be thought of as the 'communication filter', comparable to a head of department (or, in schools, sometimes a head of year or house). The Consultant interprets and channels the information from the centre to the periphery as well as to the centre from the periphery. Consultants therefore have a key role and influence.

(b) Secondly, and related to this, the Consultant manages the work of the Firm -- the clinical work, research work, and educational work that the Firm undertakes. His influence extends not only to the declared specialty (such as cardiac medicine, respiratory medicine, gastrointestinal medicine, i.e. the medical specialty) but also to the implementation focus, which includes emphasis, attitudes, values, assumptions, etc. This distinction may perhaps be seen as the cognitive and affective domains of the specialty: the two are very interrelated, both affect each other.

8.3.2 Timetabled sessions

The evidence presented here was collected when attending timetabled bedside teaching sessions. Since I arrived early and left late, I have included conversation from the pre- and post-periods where appropriate (see section 6.2.7).

8.3.2.1 Student role

As has just been stated, both Firms reminded students of the aims of the attachment quite frequently, but often in an incomplete form: history taking, physical examination, and writing patient notes were the skills to be acquired. The Firms differed, however, in the role they assigned to students in this learning.

Firm A

The role of Firm A students was implied rather than being made explicit: it was exposed when staff were answering students' questions. The important focus for Firm A was the timetabled sessions; without these sessions the aims of the attachment could not be achieved. They told students: "As students you are expected to turn up to everything" "I know there is a lot for you to do but make sure you don't forget what's on the timetable" "Remember, it's important that you come to the timetabled sessions". These staff comments show the importance attached to the timetable.

Because of the priority given to timetabled sessions, students faced the difficulty of trying to clerk patients when there was not much time available; they had to work round timetabled session and round ward restrictions, such as no clerking before 10.00am, or at meal times, during visiting hours etc. Doctors on the Firm usually took note of students' comments such as these and agreed that it was difficult to find time. Often they explained that problems were due to the overlapping curriculum at Southampton and encouraged students to be more systematic and to develop a routine, a routine for the week and a routine for clerking: "Do be systematic, you'll feel the benefits".

Students complained at intervals that the timetabled X-ray sessions were "a waste of good time as far as I'm concerned". They claimed they found it very difficult to derive any information or useful ideas from these particular sessions, partly because, though the X-rays were on display, they frequently couldn't sit near enough to see properly, and the

items to note were rarely pointed out -- they were just talked about. If they were pointed out it was generally because they were so small that no-one but an expert could see them! The doctors usually sympathised but always stressed that reading X-rays was a very important skill that could only be learnt by seeing X-ray plates and discussing them. They suggested that students try to sit nearer the front, but that they shouldn't consider skipping the sessions: "You need to go to the X-ray sessions, that's why they're on the timetable".

Students regretted that they were not learning practical skills and techniques such as taking blood, putting up drips and inserting catheters. Occasionally they mentioned this to the doctors on Firm A: a typical reply was "You're here to learn history taking and physical examination, and you're only here for ten weeks. History taking, physical examination and the timetable come first. Those skills can come later. You don't need them just now".

Firm A placed great importance on the timetabled sessions: none should be missed. Clinicians saw these times as times for teaching students. This priority was accepted by students. When clinicians were delayed or if they failed to turn up for teaching, students were understandably dismayed. Typical student comments on such occasions were: "This happens far too often -- that we get no teaching; it's just not good enough" "How can we learn if they don't turn up to teach?" "This is pointless, we'll never learn to take a history or do a P.E. if they don't turn up". (Clinicians are caring for patients as well as teaching and doing research: sometimes emergency patient care will prevent them from teaching.) Students by and large seemed 'lost' when timetabled sessions did not materialise. This no doubt reflected the emphasis given to teaching by the clinicians, but it also reflected how students spent most of their time in Years One and Two: they were largely formally taught.

Another point related to the students' role of being taught during timetabled time was that they found it difficult to ask for help outside these times. Firm A was a large Firm and the students had no one person to relate to. This student/teacher relationship, with no one person in charge as far as the students were concerned, also showed itself in other ways: students did not know who to inform when they were sick, for instance; and it was epitomised on the last day of the attachment when they wondered whether to say goodbye to staff, and if so who to, and also whether they should thank anyone or not.

One group spent quite some time debating these points on the last day, then drifted off, coming to no decision.

Students on Firm A naturally compared themselves to their peers working on Firm B. Almost unanimously they felt Firm B students had a better attachment. They diagnosed the differences: "The atmosphere counts. They're OK on our Firm, but I feel we need to get to know our staff better, like Ingram's students do" "We do too much hanging around. They're so much more involved. That's what you need isn't it -- to be involved" "They seem to be needed and in the centre of things, they're there when it happens -- the action" "It's simply that their students are part of the Firm and we are not".

Though the students were not included in their own Firm's ward work, they were invited to join in with Firm B on occasions: "I was invited to tap a patient's knee when none of their own students were around. It was great!"

Students on Firm A described their own position; "It's just that we're never in the centre of things, we're always on the margins and held at bay"; "We never really feel at home; people are OK, I can't put my finger on it, but we are rarely really wanted and so always on the edge" "There's very little real support and encouragement, and it's not all that easy to function in a kind of vacuum". These comments were very passionately expressed by the students, perhaps all the more because of the contrast with Firm B and their students.

Most students on Firm A were not learning practical skills and techniques of clinical medicine -- for example, taking blood, putting in drips -- that 'being' part of the Firm necessitated. They regretted this. Some worried about it especially when they looked forward to the Fifth Year and to what they would be expected to do then with only the 'project' Fourth Year in between: "There seems such a mismatch between what you are expected to do as a Third Year student and as a Fifth Year student. If we don't learn how to take blood now, when will we? If our project doesn't require taking blood we'll end up in Year Five without knowing how". There were immediate problems and inadequacies also associated with the lack of these skills: "I'm always afraid that someone will ask me to do something simple, but that I won't know how to do it. I almost creep around the ward worrying about it. How good it would be to be able to offer to help" "We need these skills, not only for the skills themselves, but also to contribute" "The students on Firm B do drips and take blood and they're also able to clerk first" (section

8.4.4.1). These students genuinely felt inadequate and threatened, needing always to take from others and having nothing to give in return.

One of the staff on Firm A came to the same diagnosis: "The key problem for students is their status, they're not part of the team. They could be seen as an imposition on staff, on the nurses as well as the doctors, and on the patients as well. Some patients object to undergoing the physical examination by students and they may well reject students. The response of the patient is so important. If students are not part of the team, it's so much more tricky".

Firm B

Firm B on the other hand explained their view of the students' role to the students very clearly. It was part of their welcome to the Firm. Dr Ingram introduced himself and then went on to say: "The first thing that I want you to know is you should not regard yourself as the lowest of the low. You come here not only to learn but to help. And you can help. You can pick up things when following up your patients. You can do this perhaps more easily than the Houseman: he's very busy. So consider yourself part of the Firm, an important part. If you don't enjoy your work with us, it's half your fault. If you don't know your own patients, it's all your fault. If you can't speak to your patient because they're dropping off to sleep, or they've had a stroke, if the patient won't speak to you for any reason, then take any opportunity you can to talk to their family, or to the nurses, or to us. You must try to get a history. If on the other hand you are not allocated patients, if you haven't got any, then it's your leader's fault: and there's no excuse for that. Get yourselves organised. Elect a leader for doing the patient allocation and the rotas for Thursday afternoon and for 'take'". All of this was said very positively, with enthusiasm and energy.

Dr Ingram then went on to talk about the small local hospital that was used for Third Year student teaching on Thursday afternoons. He explained that it was not really a teaching hospital, so there were no other students. This meant that the clinicians were very keen to teach and to talk to students, as were patients: "They have time on their hands and they welcome students to stop getting bored". He explained that he had twenty-five beds there and that the patients who were admitted had just as good physical signs as anywhere else. "Get yourselves organised. There's transport: if you pass a bottle

of sherry to the driver he'll take you for nothing!" Dr Ingram outlined the alternatives. Either students would go to outpatients (to follow-up patients and to see their progress) or to the local hospital or to the 'twinned' Firm. He expanded this point: "We are very lucky, we are the only ones with teaching in this specialty, and that is very good teaching". Then for the first time he became rather subdued and said in a flatter, quieter tone: "You might hear students speak of mixing the Firms. This is blasphemy: they remain completely separate". He explained no further, but he continued very positively. "If you have any problems with the attachment, contact me or Dr Soul and don't think twice". He told the students the extension number and said how good it was to meet them.

At intervals during the attachment students were reminded how helpful they could be. For example, Dr Ingram described an in-patient with a stroke who had developed deep vein thrombosis: "You as medical students can pick this up. You can be a great help to the Firm -- checking the systems, keeping your eyes open". He then pointed out that this was the one sure way to achieve the aims of the Third Year attachment.

Two points which showed to students that they really were part of the Firm were:-

(a) Membership of the Doctors Mess: "They have asked us to join and we have opened a bar account. We pay a deposit of £5. If there's any money left we are paid back at the end of the attachment or we can leave it in and draw on it whenever we want to come back". The Firm also organised drinks at the nearby pub and a social evening with the students.

(b) Use of 'bleeps': "We've been given a bleep so that we can be called to come and join in on the ward whenever there's something special or if we can help". Also, clinicians called students from across the ward to involve them in patient care. Thus students worked with Firm B on the wards, they were shown clinical signs and performed clinical techniques under guidance, for example taking patients' blood, tapping a patient's knee, catheterising a patient. They were also kept up to date on patients' progress and were regularly asked for their opinions. Likewise students would automatically go to members of their Firm who were on the ward and they would ask questions or give information etc.

In this atmosphere students comments were very positive: "It's great to feel part of the Firm, and to be useful rather than a hindrance and hanging around rather aimlessly" "I really feel accepted and wanted -- we all do" "Our Firm is very accessible and very friendly. It makes all the difference". Students welcomed the opportunity to learn clinical techniques; "It's so helpful to know how to take blood for instance, you feel useful and it makes you feel confident" "Being able to do things on the ward seems to help you feel in control and the whole experience is so much more relevant" "Some doctors say Third Years should only take histories and do physical examinations, and leave the other skills until Year Five, but it's much better to be learning now and to have something to offer and some responsibility".

Summary Most students on Firm A had not found their niche: their learning environment was detached from the everyday activity of caring for patients. The majority of students found this uncongenial and artificial, even though the doctors themselves were approachable and readily accepted their teaching role. However, students were left to their own devices in the intervals between the timetabled teaching. This was unlike Firm B, who blurred the distinction between the teaching sessions and the intervals between: the students were involved in sharing with the doctors the everyday activity of caring for patients. They enjoyed this apprenticeship, feeling they were learning in an exciting, relevant and meaningful way.

Firm A saw the students as students, whilst Firm B saw the students as valuable colleagues.

8.3.2.2 Patient Selection

Firm A

Firm A selected patients for teaching purposes according to their particular clinical condition: they aimed (a) to cover the main or core conditions that students would meet, and (b) to introduce students to interesting cases.

(a) In order to ensure that the range of conditions was covered, the students were asked to keep an up-to-date record, on display in the seminar room, of particular patients used for teaching, together with their ward and clinical condition, and the date and doctor concerned. For example (see over):-

Teaching Record

Date	Name	Condition	Ward	Doctor
09.11.--	Mary Green	Pulmonary embolism	U/C	James
10.11.--	Kevin Kelly	Jaundice	L/C	John
16.11.--	Chris Clark	Chest pain (MI)	L/B	Hopkins
17.11.--	Mary Berlie	CVA	L/B	Emmerson
17.11.--	Alick Spencer	CVA	L/C	Emmerson

23 different conditions were included on the list for the second ten-week attachment.

Firm A also encouraged students to allocate patients with an eye to their condition: each student should have patients with different conditions to clerk. As one doctor put it: "It is essential for students to see the full range of patients. Since students allocate their own patients, they must make sure that each student sees a wide variety. This makes sense, because students learn best from experience. They see things and they need to recognise what they see. Medicine can be summed up in seeing for yourself and recognising for yourself."

Another doctor began a teaching session by going over a list of the clinical conditions that the students were supposed to have covered. He read this off from the above sheet: "Let's have an example of chronic lung disease today. Who's got a patient with a chronic lung disease?" Paul's patient had chronic bronchitis, and so he was chosen. Teaching sessions for Firm A often began like this, with the doctor checking with the students and the list as to which patient conditions they still needed to cover. This idea appealed to students: they wanted to cover the common conditions, but as the attachment progressed, they began to realise that such coverage could be sacrificed to interesting patient cases.

On one occasion towards the end of an attachment when a 'neuro' patient was needed, a student asked if his 'neuro' patient could be chosen as he was 'puzzled' by the patient's case. The clinician welcomed the student's offer. In the seminar after the bedside teaching, the student concerned challenged the patient's diagnosis, arguing for quite a different one. The clinician, however, claimed that there were no real grounds for contemplating a different diagnosis and advised the student to "have another think". This was the first

time that I had seen a medical student suggest a diagnosis which was not recorded in the patient's file and which was not the same diagnosis as the doctor's. I saw such challenges at teaching sessions twice more on Firm A but never on Firm B.

(b) Clinicians were always very animated when teaching sessions focused on interesting patient cases. Students welcomed such enthusiasm, but they were also concerned. For example, none of the students could answer a simple question about piles; after the session one student said "We will end up knowing all the obscure stuff but not the common complaints that we will encounter routinely as housemen and doctors." They continued discussing the problems of learning medicine in highly specialised hospitals such as medical school hospitals. They felt there were dangers in too much specialisation for themselves as students and for the patients as well: specialisation tended to see people as smaller and smaller parts, so that it was easy, if you weren't careful, to lose sight of the whole person, the sick individual.

Sometimes students were asked by clinicians what they wanted to cover at the next session, so that they (staff and students) could prepare for it. Sessions prepared in this way seemed to me to be more formal, inflexible and stylised: a few students trying to outwit the clinician whilst most students appeared more subdued than usual.

A very different method of patient selection occurred on one occasion (see section 8.3.3), (it is the norm at some other medical schools). Students had a week's notice that a particular clinician would take a given teaching session and that they were to "work up two patient cases". Students organised amongst themselves who should present the cases: two students volunteered (section 8.4.5.3). The case presentations of these two students were usually polished; they used many technical terms. At the teaching session in question the case presentations were very polished indeed.

Firm B

Firm B selected patients for teaching because of the quality of their physical signs: "There's a lady with anaemia and renal failure on the ward; she has very good signs. Who's clerked her?" The quality of physical signs might be pointed out to the students at the end of a teaching session. For example after bedside teaching when the group were back in the corridor, Dr Soul said: "Mr Jones has very good physical signs for a diagnosis. Go and check him over later individually, but remember don't tire him."

If patients without good physical signs were the only ones available, the clinicians generally made this clear and explained that they were selecting patients for different reasons: "Mrs Skinner hasn't got very many physical signs, but she's an unstable diabetic and you can learn a lot from just talking to her about herself. Find time and you'll see what I mean."

Clinicians on Firm B were not concerned if the students attached to their Firm left without receiving teaching on a particular common patient condition: they took a long-term view and concentrated on making the students feel valued and able to contribute. "If students don't do CVA, they will do before too long. You have to use the best patients available and make students feel keen and believe in themselves. They need to feel part of the Firm and able to contribute."

A point for comparison

A point related to the selection of patients (already touched upon in Section 8.3.1.2 above) for timetabled teaching sessions is worthy of note. A student whose allocated patient was selected for teaching would present the case before the patient was visited in the ward. Further discussions took place around the bedside and were usually followed up in the seminar room. The patient was also physically examined. Thus it was understandable that students said they learnt most from teaching sessions which focused on their particular patients. It was noticeable that after about three weeks of attachment students on Firm A were very keen to get a balance of which students presented cases for teaching. They thought the selection of patients by chance was working against them. Certainly there was not an even distribution of students presenting cases: the numbers of cases presented by individual students were very unequal: "Each student needs to present their patient; we learn most when we present. Since patients are chosen by disease we need to be more systematic when allocating patients. We need to allocate according to disease."

Firm B's students, in contrast, were largely unconcerned about the imbalance of patient presentation by students. This was probably due to the fact that students worked with staff as part of the Firm, and so they discussed cases/patients routinely whenever convenient; they did not need to wait for teaching sessions.

8.3.3 Session Dynamics

If any student joined the group late, clinicians on Firm A usually just continued with the seminar teaching session -- that is, they ignored the student's late arrival. Clinicians on Firm B, on the other hand, always commented: it might be a quick remark "So you didn't get up early enough", or more usually it put the student in the picture "Adrian's just started to present his patient with diabetes, Mrs Skinner".

Another point of difference was that teaching sessions were frequently used by Firm B to ask their student how things were going: "Have you found your feet yet, or are you still in a daze?" "How did you get on at X (the local hospital)?...and the biopsy session?...out-patients was extra busy, did it make any difference?" Only once did I observe a clinician from Firm A ask a student what they thought about the attachment, and then it was in the ninth week so that it seemed more for the doctor's benefit than for the student's.

On the whole, Firm A's sessions were more formal and less relaxed than Firm B's. Firm A was a larger Firm, so that more clinicians taught the students; they were thus less able to build up a strong rapport with the students. Also, unlike Firm B, they did not routinely talk to students for any length of time between teaching sessions. Firm A may have known the students' first names, but they didn't use them much. Firm B did.

Students initiated questions and made comments during teaching sessions much more frequently on Firm B than on Firm A: these were usually simple questions, for example "How would you write that up?", but the students seemed altogether more spontaneous and ready to participate much more fully.

The same comment can be made for patient participation during Firm B's teaching session. Patients often joined in spontaneously: for example, one patient said "Press harder, that's no use, all you're doing is tickling me!" as a student examined her. She began to laugh and the whole group joined in. She then apologised to Adrian (the student who had clerked her previously) for not telling him that her back pain was now far less troublesome because of the rest that she was having in hospital. Nor was not uncommon on Firm B for patients to say: "I'm learning a lot too. It's good to have you around examining me and talking like this."

Another interesting feature around the bedside concerning doctor/student/patient communication was that on Firm A it was not uncommon for the student to ask the patient a question through the doctor; nor was it uncommon for the patient to reply to the student through the doctor. Thus the doctor relayed conversation and information from student to patient and vice versa, adopting the role of 'interpreter', though the language used was plain English and easy to understand. I observed no occasion where communication was facilitated by this process: it seemed to be a ritual. Early in the attachment students on Firm B adopted the same routine at times: they were promptly told by the clinician "You are allowed to ask the patient questions directly, you know." Students didn't always take the opportunity to do this, but the ritual never became established as it did on Firm A.

A related point is that Firm B encouraged their students to talk to patients whilst they were examining, unless talking would interfere, for example if students were listening for chest sounds. Again students didn't always act on this advice, but most did some of the time.

Students on Firm A were often warned of the difficulties which occur when doctors talk with patients, especially over meanings of words such as 'giddy', 'palpitations', 'continuous pain'. Clinicians frequently used the group to demonstrate their point: "The same word doesn't have the same meaning for everyone. What do you understand by 'giddy'?" One student offered "You feel you're turning around." This was accepted by the clinician. He added "Yes, that is basically an eighth nerve complaint." Another student suggested "You may feel faint"; again the clinician agreed, this time saying that there were various causes of faintness. I didn't observe Firm B explaining ambiguities of vocabulary meaning in this way to students, (section 8.4.4.1).

I observed one excellent example of linking a teaching session more widely to general clinical practice in Firm A. It was in the ninth week of the ten-week attachment, and the session was taken by the clinician who asked the students to "work up two patient cases" for presentation. The session moved to a point concerning the 'late' admission into hospital of a patient - 'late' in the sense that the patient's diseased condition was quite advanced. The clinician asked the student presenting the case if the patient was an emergency admission; the student replied "No". When the clinician enquired further, it turned out that the student did not know the definition of an emergency admission. The clinician explained that there were basically two kinds of hospital admissions: patients sent in by GPs or admitted directly through Accident and Emergency from the local

community were emergency admissions; patients admitted through outpatient clinics were non-emergency. This particular patient was, in fact, an emergency case. The student now explained that he thought an emergency case was "when a patient was brought into hospital after collapsing in the street, say." It seemed that the other students in the group were unsure of the differences too, and that they were pleased to have this clear picture of admissions.

To revert to a point mentioned in Section 8.3.2.2 above; I observed students from Firm A on three teaching occasions contest a patient diagnosis. On each occasion they argued well for another diagnosis; each time the clinician maintained his original position concerning the diagnosis. I did not observe a student challenge in this way at a teaching session on Firm B, though students did disagree informally with the clinician when discussing patients. They frequently offered their opinion, but not in the fully articulated way that the students on Firm A argued.

Apart from student-initiated participation, clinicians controlled how much and in what ways students participated in teaching sessions. It was usual for Firm A not to involve all the students individually in teaching sessions; half would usually be involved whilst the other half looked on and listened. Firm B on the other hand commonly involved all the students individually, to some extent at least, during each teaching session. This point is expanded in the next section (8.3.4).

One final point: because of the relaxed atmosphere at teaching sessions on Firm B, the students happily took criticisms from clinicians. (Only once did I see students on Firm B take fright at criticism and that was with the first group of students in their first week of attachment.) A typical episode was when Dr Soul marched to the bedside, greeted the patient, and immediately addressed the student who had just presented the case: "Adrian, you did not mention Mrs Skinner's respiratory symptoms; in fact you said she didn't have any. You didn't mention the rash that she has, due to the antibiotics that her GP prescribed. And finally you didn't mention the gastrointestinal infection that her workmates have had. All of these factors are very important. They could all help the diabetes to get out of hand." Dr Soul was obviously concerned about these omissions -- you could tell from his manner as well as from his message. But his tone was supportive. The patient picked this up and began to give further information about herself to the group quite spontaneously; the students listened attentively; finally we moved to the

edge of the ward where we began to talk about diabetes generally and its problems, including long-term problems.

8.3.4 Teaching the skills of physical examination

In all bedside teaching sessions the clinician and the students focused on the patient's physical signs: in this sense bedside teaching always involves teaching the skills of physical examination. The extent and the style of this teaching varied. The particular patient concerned clearly had a significant influence, if only because some patients had very good physical signs for diagnosis and for clinical medicine, whilst other patients had very poor signs (section 8.3.2.2). However, consistent variations were discernible between the general approach of the two Firms. The account that follows concerns these consistent variations.

Firm A

Firm A frequently advised students to be systematic, and logical, and to develop their own system of physical examination as there was no one right way -- a system needed to be developed by each individual that is right for the individual. Students took this advice to heart, at least initially.

Three principal modes of teaching were distinguishable.

Mode 1 One clinician (and two other clinicians who each taught the students on one occasion) had a technique for teaching physical examination which usually involved half the student group or more and which presented physical examination in a simple matter-of-fact way. For example, Gwen was asked to examine the nervous system of a patient; whilst she was examining, the clinician talked to the other students about the general techniques of nervous system examination and at the same time reassured Gwen by skillfully keeping an eye on what she was doing. He subsequently asked first Catherine and then Sylvia to take over the examination of the patient's nervous system and, each time, he gently reminded the students concerned, and the group as a whole, to be systematic and logical.

He tried to improve all three students' techniques as they were examining. He did this very directly and very carefully. For instance, he said: "When you are testing the eye

with a torch, you must come in from the side, since the two muscles responsible for movement need to be tested separately to know how they are being affected." Also: "When testing feeling with cotton wool, its better to touch the skin once or twice rather than to tickle the patient!" and "When testing the eye reflex, touch the cornea with cotton wool, not the scleroid." When Catherine was testing the patient using very gentle pinpricks, the clinician explained: "You want to make one or two pricks, not too many, in one area and then progress up to the axillary point." He went on to say that the two-point discrimination pinprick test was the most sensitive test: "If the two points are more than two millimetres apart it would be abnormal not to feel them as two on the fingers." He then asked the students what they must always do when carrying out the pinprick test. The students' suggestions were not what the clinician intended. He then asked a more direct question: "Why must you use a sterile needle?" Gwen promptly said "To prevent transference of disease." This was the answer he wanted.

Sylvia had some difficulty testing the same patient's arm reflexes. Here again the clinician gave some very clear and helpful directions: "When you are testing arm reflexes, always pull up the patient's sleeve and then you can see the muscles working quite easily"; also "If you increase the stimulus you might get better results; increase it bit by bit until you get a really positive result." When Sylvia moved to testing the knee jerk she again had problems. "Ask the patient to clench their teeth. It always helps," said the clinician, looking at the patient and smiling. When testing the ankle jerk he advised: "Bring the ankle over the other leg; many patients need this to show the ankle jerk." Finally he said "Remember: if you are testing vibrations, get a large tuning-fork; if you are testing hearing, get a small one". This was before Sylvia had begun to use the tuning-fork; she was obviously very relieved to have this advice.

What was especially interesting, however, at the above session, was the response of the students. Whenever the three students, Gwen, Catherine or Sylvia, were given advice on physical examination technique they listened carefully (as did the rest of the group of students) but they didn't always try out the new techniques; that is, they didn't always put the advice the clinician gave them into practice. The clinician made no comment on this: he did not ask the students why they practised or 'failed' to practise the revised method.

Finally, the students were asked how to test for patient co-ordination. The students replied in unison chanting "Get the patient to touch their own nose with their index

finger and then touch your outstretched hand which is in front of them." The atmosphere was very relaxed, but everyone was on their toes and very attentive. After the session, when the clinician had left, the students said that they had learnt a great deal about how to improve their examination technique for the nervous system. This was often the case when this particular clinician took the session. A practical framework for the particular technique of physical examination was clearly building up in the minds of the students; they felt more comfortable with this. But very often, more often than not, students did not actually practise, there and then, the technique as described by the clinician: they waited until later. When they practised later, however, they no longer had the benefit of the clinician's presence.

The above describes the usual approach of one particular clinician on Firm A to physical examination teaching. However, other clinicians on the Firm commonly had a different approach, which can be summed up as teaching physical examination either as an art or as a prescription.

Mode 2 Teaching physical examination as an art can be illustrated by the following example. Catherine was asked to examine the liver of a patient who had recently had an operation to remove gall-stones; three other students were also asked in turn to examine the patient's liver. Jane was one of them, and she asked if she was examining correctly. The clinician replied: "I can't tell you that. Everyone has a different technique. What you have to do is to learn and to practise. You need to feel the liver in the way that you feel is best. Try to imagine what is underneath your fingertips or the palm of your hand. Search for the edges, it's the only way." Jane listened attentively, but then asked again; this time she specifically asked if her technique was right or not. The clinician instantly replied that he couldn't say whose technique was right or wrong and that everyone had to sort out which was their own best way. He added: "I've not told anyone else that they have the right or the wrong examination technique, have I?", looking round at the other students for confirmation. Jane was unsatisfied but remained silent, as did the other students in the group.

This particular clinician described the physical examination of the liver as if it were an art. To the students, this conflicted with what they had been taught on the Introductory Course to Clinical Medicine, where most time is spent on helping students achieve the basis skills of physical examination. Between the black-and-white of 'basic skills' and the absence of a distinction between 'right-and-wrong' technique on the part of the clinician,

the students felt uncertain. This is not to say that there is no art in physical examination: virtually all clinicians acknowledge that there is. It is very common to hear doctors say: "I do it like this. You will see many other ways of examining the abdomen, but this is my way."

Mode 3 Teaching physical examination by prescription can be seen in the following examples: "Who taught you to examine like that? You never use the side of the hand" and "You don't expect to feel anything when you examine, going about it like that, do you? A bi-manual palpation is what it takes." More often than not, these clinicians did not explore who, if anyone, had taught the students to examine "like that"; at the same time they commonly failed to demonstrate the bi-manual (or whatever) palpation technique that they considered necessary. Understandably students claimed that this kind of response by clinicians when they were watching students' physical examination skills was most off-putting and even confusing.

These 'evaluative' prescriptions were in marked contrast to other useful practical prescriptions which clinicians give to students to help them improve their technique. Some of them have been already outlined at the beginning of this section; others are: "Always make sure the patient is comfortably lying down and warm so that they are relaxed, and always kneel to get level with the abdomen when examining it" "Tap gently for the arm reflexes so that you can detect if there are any differences between the two arms. If you hit hard like that, you will get no differences between the two because you will get jerks in both" "If you lean the patient over to the left you will hear the heart sounds more clearly."

This amount of variation, though understandable in the context, can create problems for students who are learning the complex skills of physical examination. Such problems are exaggerated because many students are not relaxed when approaching patients. As student doctors they physically examine people and ask people (many of whom are very ill) questions about topics that are not usually discussed socially. This in itself can be embarrassing. If to this is added the fact that at this stage students' skills of physical examination (and their skills of history taking) are very undeveloped, then their embarrassment is likely to be even greater, and certainly no less.

Other features

Firm A had two other features of physical examination teaching which were not uncommon. Firstly, staff may have spent quite some time describing physical features verbally. The following is an example. After all the students had listened to the chest of a patient with chronic bronchitis, the clinician asked them what they had heard. Several of them said that the sounds were like "bronchial breathing". When no other suggestions were forthcoming the clinician said "It's not bronchial breathing that you can hear, though it is very difficult to say why not. You need a 'bronchial breather' to compare the difference, or to have bronchial breathing sounds firmly fixed in your mind." Perhaps the former was possible: at the time there were other patients on the ward with chronic bronchitis, though the clinician did not take the group of students to listen to any other patients' chests. He pursued the latter alternative, by describing at length the unmistakable sound of bronchial breathing and the conditions that were usually associated, using technical terms throughout. He also included the added sounds of rhonchi, crepitations and pleural rub, pointing out that it is often difficult to distinguish between a low-pitched rhonchus, coarse crepitations, and a pleural rub. The students listened attentively throughout the verbal description. After the session the students began to talk among themselves, agreeing that they couldn't remember much of what had been covered, and they decided to forget the session. The students' position was particularly difficult because, though the clinician described bronchial breathing in detail (together with three additional sounds), he at no point said why the students' unanimous suggestion of bronchial breathing was incorrect. Though he gave students clear advice when he said "You need a 'bronchial breather' to compare the difference, or to have bronchial breathing sounds firmly fixed in your mind," he did not follow up the former; and in following up the latter, too many details of bronchial breathing were included, as well as intrusive additional material.

Secondly, staff may spend quite some time 'demonstrating' physical signs in patients who are without these particular signs. The following is an example. When examining the groin of a male patient, one of the students detected enlarged lymph nodes. The clinician pointed out that this was not an uncommon finding in healthy patients. However, he then took the opportunity to 'demonstrate' the appropriate physical examination technique used to elicit inguinal and femoral hernias, including the details of how to detect if the hernia was strangulated. All of this was with a healthy patient. The clinician frequently reassured the patient that he had no hernia and at the end he thanked him for his co-operation and patience. This might be termed a 'full-blown' example of 'demonstrating'

physical signs that are not there. However, Firm A quite often included for comparison examples of non-existent signs in their bedside teaching. Comparison of actual phenomena is a very vivid and telling teaching-and-learning technique, but, to a novice student, comparison of an immediate concrete phenomenon with a description of a non-concrete phenomenon can be confusing, especially when the concrete phenomenon itself cannot be seen and has to some extent to be constructed by the student.

Firm B

Firm B typically involved all the students in practising their physical examination skills at each bedside teaching session. The involvement of some students might only be relatively slight -- for example, feeling the trachea, listening to the heart/lungs, palpating the spleen/liver/kidneys -- but each student in some way participated. Clinicians' use of the students' names helped here. Firm B also regularly ensured the involvement of all students during each teaching session in another way. They asked the student who was examining to talk out loud, whilst they were examining, about what they were doing/not doing and why; what they hoped to find out and why; what they were finding/not finding and why. Students spoke out loud unless it interfered with their eliciting particular physical signs, for example breath sounds; in this case students would talk before and after the examination. Clinicians also talked through their own demonstrations of examination techniques. The patients also benefited from these student and clinician commentaries, and frequently said so.

The following illustration of how clinicians on Firm B generally managed their bedside teaching sessions is taken from an early stage in the first ten-week attachment. In the seminar room, one of the students, Adrian, briefly outlined the problems of the chosen patient; he had previously clerked her. On the ward, after greeting the patient, another student, Francis, was asked to examine her cardiovascular system whilst the rest of the group looked on. The clinician stopped Francis periodically and asked him to say what he was finding out or to explain what he was trying to do and why. Francis began to talk out loud and the clinician commented on what Francis said or did. Where Francis's examination technique was wrong or inadequate, the clinician demonstrated a better technique or corrected Francis's style, whilst talking at the same time. At certain points in the examination sequence the clinician enlisted the help of other students. When Francis began to examine the brachial pulse and the apex beat, the clinician asked him to stop and invited other students to try to perform these spot examinations instead. He com-

mented on their technique before asking Francis to resume his examination of the cardiovascular system. Another way in which the clinician involved students was to randomly pick a student who was looking on and ask "What would you do next?" After the student had given their suggestion, the clinician replied in three basic ways: (a) "Yes. Will you do that then -- take over the examination now" (b) "No. Have another think" and (c) "Yes, but we won't do that now" -- this was the reply to a student who suggested taking the patient's blood pressure.

This mention of blood pressure prompted the clinician to look at the patient's blood pressure chart and to ask Adrian if he had taken the patient's blood pressure. Adrian said "Yes, it's a/b." The clinician replied: "It doesn't give that here. It gives x/y. You had better do it again." He then turned to the whole group of students and asked them if they could take blood pressures. They all said yes, but even so he advised them to get more practice later, on their own: "Don't miss any opportunity." Adrian was glad to be corrected and all the students were pleased to have the advice. Criticisms from clinicians were generally taken in this positive way by the students of Firm B.

The clinicians on Firm B commonly 'prodded' students in bedside teaching sessions: for example, "You've not done much; come on, examine the respiratory system" "I wouldn't like to rely on you examining me" "You seem to be examining with your hands tied behind your back." Such 'prods' enlivened the sessions and helped everyone to relax, including the patients: they were very often taken by patients as a signal for them to join in, and they did join in.

Examination techniques themselves were described in a very straightforward way, rules-of-thumb were given, and theory was also included. The approach adopted by the clinicians was the same as that described earlier in this section for the one clinician from Firm A (Mode 1).

8.3.5 Patient Notes Teaching

Patients notes are legal documents. All students were frequently reminded of this by clinicians: "Writing patient notes must not be confused with writing notes at a lecture or seminar; or even the jottings you might make when clerking a patient. They are important legal documents."

Firm A

Firm A assessed students on their patients notes. Students were told of this very early in their attachment: "As students on this Firm you will be assessed on your patients notes. We will collect them in on Tuesday of each week and you will get them back later on in the week with comments." And Firm A were true to their word: they did just that. Clinicians spent a lot of time going over the notes students wrote about their patients, and they took this task seriously. The comments to me, by one clinician, indicate this: "Students need to be able to write patients notes: they should develop a routine and stick to it. In order to help them, they hand in their notes on one of their patients each week and we comment on them. We try to do a quick turn-round. I hope it helps them: it takes up a lot of our time! It is really intended to pick up those students with bad habits so that they can be rectified. Students don't find it all that easy to write notes systematically; they must be systematic. Part of their difficulty may be because clinicians all have a preferred order and style for writing notes; and this seems to confuse students, however much you try to explain that they should develop their own order and stick to it." Even with this degree of supervision and feedback, students wrote many more sets of notes than they handed in.

A particular session

At the session where the first set of notes was handed back to the students, the clinician said: "They were a mixed bag: some quite good, others quite bad." He handed out copies of a Report by the Working Party on Problem Oriented Medical Records (POMR), saying that they might find it useful. It was not used directly in that session. The rest of the session was taken up by the clinician giving a detailed outline framework for students to adopt when clerking a patient and writing up the patients notes. He began: "Remember that the history must give a clear idea of the cause of symptoms and signs." Regarding symptoms he said: "You need to ensure what a patient means by the terms they use. For example, symptoms such as diarrhoea and palpitations: these mean different things to different people. This is especially so in medicine, less so in surgery. If you explore the problem with the patient, this is the history." He then went on to tell the students that they must write up their patients notes in a systematic way, following the systematic sequence of inquiry, and that patients notes included irrelevant material, and symptoms which may be negative. He added: "You may find this surprising." He advised that the central feature was the patient's presenting complaint, so that the "HPC (History of

Presenting Complaint) needs to be explored in depth." He continued: "Remember SE - Systematic Enquiry; PH - Past History, and this may be part of the present history; FH - Family History; SH - Social History; DH - Drug History including allergies." He gave this general run-through and then added: "It's right to get a history from a relative if the patient can't give one."

He then turned to the physical examination and the recording of it. "Always give an introductory statement about the patient. Observe them: are they nervous, frail, sleepy? The general examination is not part of any system -- for example skin, mucous membranes, thyroid, temperature, breasts. Then you go on to the specific systems. In recording the systems, always put the one first that the patient presents with. CV - Cardiovascular System; RS - Respiratory System; ABDO - Abdominal and Genito-Urinary Systems; CNS - Central Nervous System. Do these four for all patients. LMS - Locomotor System. Don't forget the pulse. Avoid using the term 'good', better to use 'normal'. Jugular Pressure; Blood Pressure; Heart Sounds; Apex Beat: 'loud' is too relative, only use 'loud' if it is a pathological loudness. I sketch a cardiogram in the notes; it may be more useful to you and to a later reader, than writing it all out in words."

"Keep your order of examination each time and write up 'Inspection; Palpation; Percussion; Auscultation'. Typical descriptive terms that are useful, say for instance, if the liver is enlarged, are 'soft, firm, hard, smooth, irregular, tender'. And you need to be careful: is it enlarged or is it pushed down? You only know this by the upper border; feel the upper border. Give details of any mass in the abdominal cavity. And the liver, spleen, kidney, put it all down even if it's not fully felt. Always give the outcome of a test, for example knee jerk, and say whether its present or absent."

"When you write, don't use a small 'o' for No and a 'dash' for Yes. It's fashion now, but it may not necessarily be in ten years time, so it won't be understood then. And it must be just as quick to write No or Yes. Patients' notes are kept for good. Also they are a record for others. They are not like your own notes on all the other parts of your course; they are very different. You should give a summary at the end which gives the main points, and also a differential diagnosis. Remember, this will teach you to think."

He then began to talk about POMR which the Firm liked the students to use though they didn't use that format themselves: "The POMR approach gives a list of all the problems at the front. This is good: but don't leave them as problems. Convert them into a diag-

nosis, at least a tentative one, and suggest the causes. You can think of the problem list forming a data base. There are active and inactive problems: you have to decide which is which and number them 1, 2, 3 in order of priority. But you have to diagnose and treat the active problems; you leave inactive problems alone for the moment. You then use SOAP for progress notes, but this takes time. SOAP stands for Subjective, Objective, Assessment, Plan."

"One other thing -- notes on patients after the death of the patient -- you can sign to keep them or you can put them on to microfilm."

This was a very intensive but welcome session for the students. The clinician gave general instructions and advice on how to go about taking a history, doing a physical examination, and writing up both. He also put these activities into the wider context of medicine and into the local context of Firm A. There was a great deal for students to take in: particularly points that had been written on the students' own patients notes, which were handed back. Students were not specifically asked if they had any questions, but one student asked, at the end, what (were students) to do about the difficulty of finding time to clerk patients and to write up their notes. The other students joined in asking similar questions: finding time to clerk and to write up patients notes was a key issue for them. The clinician was sympathetic and said that they would get quicker with practice but that they must not miss any of the timetabled sessions; this was in response to a couple of students who made a comment that the X-ray sessions were of very little value to them.

After the clinician had gone the students began immediately to talk among themselves. They saw writing patients notes as a major problem, especially since they had to hand them in each week for assessment. They all claimed that it was very difficult, if not impossible, for them to use POMR when the doctors on the Firm didn't use that system themselves. They reassured each other by agreeing that it was perhaps unnecessary to adopt the format of POMR. They resolved to "polish up a set of notes to hand in each week" and to see how things went.

Firm B

Firm B, on the other hand, only asked students to give in a set of patient notes for feedback half-way through the assessment (week 5) and in week 8 shortly before their final

assessment. The clinicians acknowledged that the Firm could do more to help students write notes by checking them regularly, as the following comment by a clinician shows: "This time we only looked at the students' notes at their midway assessment. We could do more going through for students." However, throughout the attachment students on Firm B were encouraged to write up their notes, and then to look in the patient files to see what clinicians had written about the same patient. Such comparisons would help students to see what they might have done: if students did not understand why their notes might have been written differently, they were told that they needed to check with the clinician concerned. Also, and importantly, students were asked by the clinicians on Firm B to put their notes into the patient's files: "Students' notes can be useful. They can pick up details that we miss. Students' social histories are particularly helpful, but not only their social histories."

This feature of students putting their notes on their own patients into the patients' ward files had the result that the clinicians did not need to formally assess their students' notes -- that is, take them in on a regular basis each week -- because they could see them routinely whenever they opened a particular patient's file. Not only this, but students' notes on all of their patients were checked informally in this way, and not just a "polished up set" on one patient. The students were happy with this arrangement. They were also happy that they were not asked to write patients notes in the POMR format.

It is interesting to note that, as the attachment progressed, students from Firm A regretted in principle that they were not asked to include their patient notes in the patient ward file. However, they did not regret it in practice, since they had many more patient notes to write (next section 8.3.6) and their notes were expected to be 'polished' and in the POMR format.

8.3.6 Quantity versus quality

Firm A

Firm A was a large Firm with very many patients to care for; by comparison Firm B was a small Firm. The approach to Year Three attachments promoted by Firm A was, in the words of the Head of Firm: "Students need to clerk as many patients as they are able to; this is most important. It will ensure they have as much patient contact as possible. They really need this." This emphasis was echoed by other doctors on the Firm: "It is essential

that students see the full range of patients. They have plenty of patients to clerk on this Firm; there is certainly no shortage" "Students should spend time on the wards and clerk all the patients they can get -- this is the reason they're here."

Students willingly accepted this idea. Clerking as many patients as possible seemed helpful: one of the aims of the Third Year was to acquire the skills of history taking and physical examination, skills which could only be acquired by practising history taking and physical examination (section 8.1.3). But gradually the views of students changed: "We have so many patients, we spend all our time rushing about clerking them, only to find you have no time to think about them or to read up about them later on" "If we had fewer patients to clerk, then we could go back to those we did clerk and talk about their development and their condition in more detail. As things are at present, some patients even leave before we have finished clerking them. There are just too many patients" "I would like to clerk fewer patients, and to be taught on fewer patients but to include the progress of patients by revisiting them in teaching sessions. We don't look at patient development at all; we don't talk about the same patient twice, nor do we talk of secondary complications."

Clerking very many patients but only rather superficially caused another difficulty for the students on Firm A. This was their lack of perceived development over the ten weeks. Though they felt they had improved their clinical skills ("I know I can take a history and write up my patient notes better now than when I began; my physical examination and case presentation has not improved as noticeably, but again they have improved"), the teaching programme made no allowance for this. It still followed the same pattern; in no way did it seem to accommodate the students' development or improvement. This led students to wonder if the staff thought they were no better than they had been at the beginning of the ten-week attachment. Students were given no responsibility apart from their own learning: thus there was no formal recognition of any student improvement. This frustrated and worried the students. They began to get bored because their developing clinical skills were never put to any useful purpose; history taking and physical examination in themselves began to seem rather empty. They wanted and expected their experience on attachment to develop as they improved, and when they didn't they became disheartened. (The situation was perhaps all the more troubling for these students since they were attending GP surgeries for half-a-day per week on Tuesday mornings, and the GPs did build in extra responsibilities and more demanding tasks for students through the course of the ten-week attachment. The students appreciated their expanding role.)

The frustrations expressed by these students on Firm A were probably so great because of an alternative approach to patient clerking taken by Firm B -- an approach of which these students were only too well aware -- and also because of the advice of two particular clinicians on their own Firm. The advice was to go back to patients who they had previously clerked and who were still on the ward, and to see something of their progress. The large number of patients to clerk clearly worked against this. There was, however, another factor which prevented the majority of students returning to the patients they had previously clerked. This factor was highly significant for these students: they saw no real purpose in their clinical skills other than as an end in themselves, to fulfil the aim of the attachment which seemed all too purposeless. Comments from these students were: "I've no incentive to go back to patients, I have no say in their management and I don't participate in any way; I don't even discuss the management of patients I've clerked with the doctors" "We are told to go back and talk to the patients and to observe them, but no use is made of this, so its all rather pointless." However, a few students had a clearer purpose for developing history taking and physical examination skills, for these skills enabled the students to take responsibility in the life of the Firm. These students revisited the patients they had clerked and they derived benefit from this (section 8.4.5.3).

Firm B

The Head of Firm B had quite a different approach to Third Year attachments. In his own words: "Students must be made to feel keen and they can feel keen, by seeing patients -- not hundreds of patients, but seeing patients in some depth for themselves. They need to feel part of the Firm, to feel important, and that they themselves matter and what they say counts. The only way is for students to become immersed in what they are doing." He also stressed that "Students need to discuss their patients with doctors, nursing staff, and even other students. They need to get to know their patients and the patients' problems and ways of thinking about them."

Half-way through the attachment, in the seminar room at the start of a teaching session, the approach of Firm B was clearly articulated when one of the students, Charles, asked: "Are we getting enough history taking practice?" (This query stemmed from the large number of histories taken by students on Firm A.) The clinician replied: "If you clerk a patient and go back to them and check them daily, even go a second time after supper if you can, then you're doing fine. Be on the ward whenever you have the chance, make

the time, get to know your patient really well, act as a houseman, and you will get a great deal out of this attachment. And to answer your question: Yes -- if you do this you will certainly have enough clerking practice. Really think about checking up the problems of the patient." The students were glad to be reassured. They thoroughly enjoyed their attachment. They were delighted to hear that clerking fewer patients but in greater depth was not only acceptable but, for their clinicians, the right way to achieve a successful attachment.

The development of clinical skills and knowledge by students on Firm B was automatically formally acknowledged since the students were part of the team. They could contribute more quite naturally, as they came to have more to contribute. This student role of working as colleagues had another very important consequence: the clinicians learnt from students and acknowledged that they learnt from them. It was quite common for the clinicians on Firm B to point out to the students: "I did no Biochemistry as such. Come on how do you explain that?" "That's useful; thanks for reminding me; your views are likely to be nearer to the patient's than mine are." Only once did I hear a clinician on Firm A acknowledge that he was learning from the students. It was a bedside teaching session: the patient had malaria and at the end of the session, in the corridor outside the ward the kinds of malaria were briefly discussed. The students had a lot to offer and the clinician said: "This is how I keep up. I learn a great deal from my students." Interestingly, this was the session where the students had been asked previously to "work up two patient cases" for presentation (see section 8.3.2.2 above). In working up two patient cases, students had had the opportunity to approach their patients in a manner which approximated that of Firm B.

8.3.7 Firms' advice to students summarised

The key advice that Firms A and B gave to their students can be summarised, from the preceding Sections, as follows.

Firm A

Firm A's students were told to attend all timetabled sessions and advised to clerk as many patients as they could. Their clerking should be thorough and systematic. Students should aim to develop their own routine system of clerking which suited themselves, since

there was no one correct way. (One clinician advised students to attempt differential diagnoses since "It gives you an opportunity to think.")

Firm B

Firm B's students on the other hand were advised to become active members of the clinical team and to work as house officers. They should clerk their patients fully by returning to visit them daily on the wards and getting to know them as well as they could. In this way they would be able to give the clinicians very useful updates on their patients. The students were expected to make differential diagnoses (they were not actually told this as such, but working as 'house officers' and as a member of the team necessitated it); also to discuss patient management with the clinicians. The timetable was to be seen in the context of these activities; it was therefore one resource amongst many others, and students were advised to use it accordingly.

It will be remembered that the aims of the attachment did not include diagnoses or patient management (section 8.1.3). In the light of these different approaches, it is of interest to consider some further aspects of teaching and learning in these two Firms (sections 8.3.8-8.3.10).

8.3.8 Advice at end of bedside teaching sessions

At the end of bedside teaching sessions, when it came to what might be thought of as 'parting advice', the two Firms differed: Firm A very often gave no advice; Firm B usually did.

When advice was given by Firm A clinicians, it focused on the students' need to correct their physical examination techniques - those techniques which had just been practised at the bedside. Such advice was at two levels: either general advice, e.g. "You want to be more systematic" "Try to put your examination together: make it more logical," or specific advice, e.g. "Come back in your spare time and check the patient's reflexes" "You should all make time to listen to Mr. Thorneloe's chest, and try to get 'coarse crep' sounds firmly fixed in your mind." This advice provided feedback on the session, mostly feedback relating to students' inadequacies and how they could improve. Improvement seemed to be seen as a solo activity for the students.

In addition, Firm A clinicians advised their students to go to as many post mortem demonstrations as they could. Sometimes this was prefaced by asking, for example, "How many of you have been to a post mortem in the last two weeks?" Usually the majority of students had not, so that, needless to say, they felt guilty and even ashamed.

Firm B clinicians took a different approach. Only in the first weeks did they advise students after a bedside teaching session to practise a specific physical examination technique, for example "Practice taking blood pressures; don't miss any opportunity." After this period of initiation students were expected by clinicians to realise that any inadequacies in their techniques, identified in their teaching sessions, would need to be corrected, and corrected as soon as possible. Students willingly and automatically took on this responsibility: they knew only too well when they had demonstrated poor techniques and they were only too keen to improve. General 'chivvy' of students sometimes occurred, for example: "You're all rusty! How many patients did you see in your Year Two clinical preparation course?" The students' reply was 'about ten'. "Well, you need to do another ten at least before you can say you're any good!" Such comments were usually made lightheartedly; the students usually used them for guidance (c.f. section 8.4.4.2 below). Since the students were working on the Firm, they not only practised their examination skills on their own, they also used the clinicians they were working with to check their skills with them.

Throughout the attachment, the kind of advice given to students from Firm B clinicians at the end of bedside teaching sessions looked beyond the actual teaching session itself, to link the shared experience to aspects of relevant theory, medical practice, everyday life, etc. Some examples: after seeing a diabetic patient, the clinician advised students to "Read around diabetes in any textbook or journal you like. Get hold of me if there are any queries"; after teaching on a patient with a myocardial infarction "You should be able to answer any straightforward question on the management of heart attack and on the condition itself: read about it and ask about it"; or more general advice "Learn your pharmacology through your patients; it's easier that way. Know the drugs, all of them, that your patients are on, and very importantly, know why they are on them" "Don't forget to talk to relatives: all of you make sure you talk to some of your patients' relatives during this week. Draw on your own experiences widely." After a remark that anatomy was a waste of time for all but surgeons and "they learn it all again anyway!", the clinician continued (he seemed to make the statement to underline his main point): "There are two bits of anatomy that you need to know. The anatomy of the heart and blood vessels, and

the anatomy of the nervous system. This is absolutely so". He advised the students to take the first opportunity they could make to go over the anatomy of the heart and blood vessels, and that of the nervous system: "You'll see the difference when you clerk your next patients, if you know these." Thus Firm B linked their advice at teaching sessions to their own clinical activities and to those of their Third Year students.

8.3.9 'What if?'

A technique that was used quite frequently by Firm B that was not used by Firm A (I did not see it used and the students said it was not used) was the use of the "What if?" question in seminar discussion. The basis of this technique was that the clinician would begin by saying "What if?" and then go on to build up a vivid picture of a particular patient case. It was usually an emergency case. He would then stop quite abruptly and ask the students "What would you do now? You're in charge." The students entered into the spirit of this very enthusiastically. One example was of an elderly businessman who collapsed in the street. The main message of the clinician was: "Before you attempt any resuscitation, make sure the airways are free. This is something which is often omitted, obviously with serious consequences." He then extended the case to an elderly businessman who collapsed in the street when he was with his wife: his wife began screaming and became hysterical. A further extension was: "What would you do if this elderly businessman collapsed in the ward?" In the end the students went through the basic procedures of resuscitation stressing that they would make sure that the airways were free. Another ploy that the clinicians used was to introduce such "What if?" cases by saying "You're in charge, the Consultant's on the golf course" and they would then build up the patient case.

This kind of approach was also used when the bedside teaching focused on a patient who had been an emergency admission to hospital. An example is a patient who came in on 'take' with a duodenal ulcer and haematuria. The students were asked by the clinician: "If you had been in charge, what would you have done when this man was brought in as an emergency?" Very often, as in this case, the students made several false starts and usually the clinician would say: "This just isn't good enough, is it? You need to do very much better. The patient would have died long ago." All of this certainly helped the students to think on their feet, and usually by pooling their ideas the students' combined suggestions would give adequate total initial management of the patient concerned when first admitted to hospital. Students enjoyed these sessions and said they learnt a great deal

from them. They certainly learnt very clear rules-of-thumb to apply when needed in emergency cases. They thus began to feel much more competent.

This kind of technique can be interpreted as creating "hot medicine" out of "cold medicine". These are terms used by Atkinson (1975): they are discussed in Chapter 13.

8.3.10 Teaching ward rounds

Occasionally Firm B would use the Wednesday morning timetabled teaching session as a teaching ward round: Firm A never used any of their timetabled teaching sessions for ward round teaching. Firm B's teaching ward round usually included visiting about six patients on the ward. Collectively the patients had a variety of problems and medical conditions; many of these were severe and very complex. For example, on one ward round there were four patients out of the six who were very much in need of help, and help of very many different kinds.

Patient No. 1 This patient had a nephritic syndrome and a pericardial rub. He was undergoing dialysis and was very depressed. Talking off the ward, Dr Ingram said that medical technology could give him twelve months good life. His condition could be eased; the pain would be better, but he would in fact be getting worse. The patient hadn't responded as everyone had hoped and it now seemed to be a losing battle. The collective decision had been taken that dialysis would stop as scheduled at the weekend and, if the patient did not show the kind of results that everyone hoped for, "we will just have to let him go." This patient had been seen earlier by one of the students: Peter had seen him in the out-patient clinic. There the patient had asked for drugs to kill himself. Peter remembered his words: "This life's no good to me. It's not worth living." Peter said it had been strange and very frightening to hear anyone quite sincerely ask for drugs to end their life. The patient had walked in to outpatients and had left again -- all seemed apparently normal. Peter said that for him the incident had been so real that it was ghastly -- but also so unreal that it was just unbelievable.

Patient No. 2 This patient had a duodenal ulcer and haematuria. He was an acute case and had been admitted to hospital on 'take'. Dr Ingram very noticeably did not ask the patient about his home or life in general. Later we learnt that the man's wife and two young children had been killed in a car crash, seven months earlier. This had been a harrowing experience for the patient and he was still very badly affected by it. He was

smoking very heavily. The clinicians wanted him to realise that he must stop smoking; this seemed an impossible task to everyone.

Patient No. 3 This patient had a change of bowel habit with symptoms of diarrhoea. There was at present no definitive diagnosis.

Patient No. 4 This patient had had a stroke and had developed a deep vein thrombosis. He was the patient Dr Ingram had referred to earlier as an example of where the students could definitely help the Firm and the patient: "You as medical students can pick this up. You can be a great help to the Firm and to the patient. Checking the systems: keeping your eyes open." The 'care team' expected the patient to be hospitalised for some time and they feared that he was going to have severe social problems.

When clinicians and students (together with patients themselves and others in the 'care team') discussed patients who had problems as great as these, clinical medicine took on a very different face. Medicine itself did not have an answer, and in most cases there did not seem to be an answer. This kind of teaching highlighted the problematic nature of medicine whilst at the same time allowing the students to contribute on equal terms with the clinicians, since the range of discourse was so wide and centred on the very general point of people trying to resolve human problems.

Students on Firm B experienced clinical medicine that was very much more problematic than the students on Firm A. Their role as one of the team ensured this, along with the following features: teaching ward rounds, such as the one just described; seeing patients holistically by clerking daily and talking to nurses, social workers and relatives; patients spontaneously joining in the teaching sessions because of the relaxed atmosphere; and importantly, clinicians saying routinely that they learnt from students (even Third Year students) and that students had a lot to contribute to both the Firm and the patients if they could all work together.

The quite different approach of Firm A, where students were viewed as students requiring to be taught, resulted in the students experiencing clinical medicine as much less problematic. It was artificially unproblematic. Students were not seen as one of the team but spent their time clerking as many patients as possible, which prevented the majority of them from following up patients they had already clerked, and also from talking routinely to nurses, social workers and midwives about particular patients. Patients them-

selves rarely spontaneously joined in the bedside teaching sessions, and only once, as I have said, did I observe a clinician say that they had learnt anything from the students. Students believed just the opposite: that they had nothing to contribute. The majority also believed that their teachers, the clinicians, knew everything that was relevant, and that they themselves could never achieve such detailed, all-round knowledge.

8.4 Students' perspectives and preoccupations

8.4.1 Introduction

The evidence presented in this section (8.4) was gathered principally from the many spontaneous discussions students on Medical attachment had with each other and which I heard over coffee, lunch and tea, and whilst waiting or working in the seminar room. Of the three topic areas treated below the first two are based exclusively on such discussions, while the third one also includes material derived from interviews with students and from observations. The particular discussions have been chosen because they illustrate points of argument or disagreement amongst the students themselves. Sometimes the arguments were serious and heated, but they were, nevertheless, always good-humoured. There were twenty-six students in all, thirteen on each of two Medical attachments, split in the ratio 7:6 and 6:7 between the Firms A and B. The discussion groups were composed of students from either Firm A or Firm B, or alternatively a mixture of Firm A and Firm B students. I sometimes joined in these discussions (one such occasion is reported in Section 8.4.3.4 below), but usually I listened and looked on whilst the students talked amongst themselves. Topics discussed were prompted either by the students' immediate experiences or by 'grapevine messages' of other Third Year students' experiences. As such, they may be seen as reflections on events or on action.

The evidence is divided into three topic areas:-

- (1) Concurrent Year Three non-medical attachment topics (8.4.2).
- (2) Pre-attachment topics Years One and Two (8.4.3).
- (3) Medical attachment topics (8.4.4).

8.4.2 Concurrent Year Three non-medical attachment topics.

8.4.2.1 Monday and Friday lectures in Year Three

These lectures were a continuation of the students' instruction in theory related to medical practice; they were part of the curriculum structure, the two overlapping wedges intended to promote integration (chapter 2). The lectures took place at a different hospital in Southampton from the one where these students were following their Medical attachment, so that time spent travelling between hospitals was 'lost' to these particular students.

All the students agreed that "They really are a nuisance, the whole week becomes fragmented." But students also recognised their value: (a) "If we didn't have these lectures, the year group would be completely split-up after Year Two. It's good to meet others in the year" (b) "They're a useful excuse to get off the ward; it's cast-iron" (c) "They're light relief, even though we have to trek up to the other hospital and some students even have to come from Winchester." Students coped with the fragmentation variously. One approach was: "You don't need to go to the lectures so long as you pass the MCQs. It's up to you" "The Monday and Friday lectures are poor, and poorly attended. It reminds me of the Summer Term last year, where people only turned up for the assessment of the Systems Courses. Skipping lectures is a good idea: they don't care, so long as you pass the assessment OK. So it's a waste of time going." Another approach was: "We can't miss the Monday and Friday lectures, no matter what the Firm would like to think. They are part of our course and they are assessed" "It's all very well saying that we have to spend our time clerking patients, but we also have to attend the lectures: they're important too."

Gradually over the weeks of the attachment students talked less frequently and less spiritedly about lectures; they just adopted a routine of either attending most or not attending most, according to how they thought they should spend their time.

8.4.2.2 MCQ grades for Monday/Friday lectures

Students had taken their usual end-of-course MCQ exam for the Monday/Friday lecture course. They heard on the 'grapevine' that the scores had been adjusted upwards. Some of the students were completely taken aback by this, saying "It can't be true. If it's a bad year of students then it's a bad year. There are good and bad years" "Surely, you must have a basic level of knowledge. You can't increase the scores to allow those who don't

really pass, to pass" "The MCQ exam tells you those students who know enough and those who don't, and any fudging of the marks is quite wrong. MCQs are objective." Other students questioned this view and challenged it: "It's quite OK to move the marks up or down. It's done regularly" "Marks tell you more about the test than they do about the students. If the standard is wrong, if it's too high, you just give everyone a few more marks; if it's too easy you just knock a few marks off everyone. No problem." This discussion was very heated and no student gave ground; but clearly for some students exam marks were absolute, whereas they were relative for others.

8.4.2.3 G.P. attachment grades

The same issue about exam grades arose within a different context. Again there was a difference of opinion amongst the students. Early in the attachment, one student came in to lunch and said that at the GP attachment that morning, they had been given an assessment to do anonymously. Apparently the aim was to look at the standards of the group. Students had also been told that they would be asked to take a similar assessment at the end of the attachment to determine how the group had progressed and, according to the student, from this a standard for the Final Year exam questions would be set. All the students were amazed at this and some students were appalled. The students debated whether it could actually be done: the consensus was that it could. But one of the students suggested that it would be unethical. Another student readily picked this up: "Surely there is a minimum standard which all Final Year students have to pass in order to graduate. You can't let each year set its own standard." Others in the group said that years always set their own standards. That even 'honours' one year may not be 'honours' the next year. It all depended on the total student group and who was marking. The debate continued: those students who thought there was a minimum objective and a set standard of marking got more and more adamant, whilst those students who saw exam marks as relative became more relaxed and even amused.

8.4.3 Pre-attachment topics Years One and Two

8.4.3.0 By the time the second group of students began their Medical attachment (week 11), the students were no longer speculating on the role of the Systems Courses or on staff expectations. Thus the comments included in the next two Sections (8.4.3.1 and 8.4.3.2) are derived from the first Medical attachment, in weeks 1-10, when students were just beginning their Third Year. Likewise in Section 8.4.3.3, I report an intervention I made

during the first attachment. Views on the Introductory Course, however, in Section 8.4.3.4, are drawn, like most of the material in this Chapter, from both the first and second attachments.

8.4.3.1 The role of the Systems Courses (Years One and Two)

All students were looking forward to their Medical attachment: after all, they had waited two years for this hospital clinical experience. However, they were apprehensive, some more than others, because of the role that the knowledge from the Systems Courses (Years One and Two) might play. If Systems Courses were important, as students had been led to believe, then they all felt under-prepared: this was so, even though they might have had a 'good' grade (A or B) in the End of Systems Courses Assessment, for the Systems Course knowledge was not 'at their fingertips'. It did not take long for students to become aware that (a) they could not in the main remember what they were supposed to remember from the Systems Courses, and (b) what they could remember was not always useful: it seemed that facts alone were insufficient. Some students were worried by their lack of knowledge: "I just don't know all the stuff I've learnt on my courses here; it will rot up my attachment," whilst others seemed undaunted -- they were reassured by the 'grapevine' message of last year's Year Three students that "Systems courses don't matter much on attachment." Some of these students, however, expressed annoyance that they had spent time and effort learning material which they had forgotten and which was apparently not necessary for attachments.

8.4.3.2 Clinicians' expectations of students

Students beginning attachments were very unsure of what clinicians would expect of them. Views ranged from being expected to know all of the Systems Courses material to knowing some of this material; interestingly, the latter students could not decide which particular material would be expected. Student discussions concerning clinicians' expectations regarding the Introductory Course to Clinical Medicine were animated. It was very noticeable that students tried to reassure each other by statements such as "Surely they can't expect us to have clinical skills: after all, that's why we're here." Even so, some students said "They'll certainly think we have the basic skills: that's what the Introductory Course was all about."

8.4.3.3 'Would you like to clerk hospital patients in Years One and Two?'

In the second week of the first attachment, students were discussing the problems they had when clerking patients. After a while I asked "Would you like to clerk hospital patients in Years One and Two?" Students began to discuss very enthusiastically: everyone joined in and everyone had an opinion. Some students thought this was an excellent idea: "You could get most physical examination techniques at your finger-tips so that you wouldn't need to think about them now" "You could start to think clinically, which would be great. I came to do medicine two years ago, and now I am finding it strange and somewhat frightening to even begin to think medically." However, other students said "No you couldn't do that. You couldn't make much sense of the signs unless you have gone through quite a lot of theory, as we have done." The students who wanted to clerk earlier came back, saying "But don't you think you'd make much more use of the theory if you'd done some of the signs? I do" "How much of all that theory do you actually remember? Do you use it? It makes me quite frustrated when I think what I don't know." And so the debate continued. Then one of the students said that he had heard from the students attached to the other local hospital that there was much more formal teaching before the students were allowed on the ward. He said he was glad not to be working there: "It's like a glass house."

Students extended the debate asking each other whether they would like to have more lectures now instead of ward work: "Not if we are supposed to learn how to take a history and physically examine." Students agreed on this, but they were still divided about the usefulness of early clerking experience.

8.4.3.4 The Introductory Course to Clinical Medicine (Year Two)

The Introductory Course to Clinical Medicine was criticised by all students, even those who found it useful. Much of this criticism centred on the enormous variation experienced by students: "It all depends on which doctor is teaching you. There seems to be no agreement as to what should be taught or how it should be taught. We could be at different medical schools; our course was so different." Some students felt very strongly that this amount of variation was counter-productive, since it made students more dissimilar at the start of their attachment and yet the staff expected them to be more similar as a result of the course.

One feature of the course which was a source of irritation for all students was the assessment: "We had been told that the assessment would be based on our history taking and physical examination techniques; that there would be no technical questions about clinical conditions. But it wasn't like that. I was asked about the differences between fine and coarse creps and what caused them. I hadn't a clue." This mismatch had affected quite a number of students. Also students had been taught separate body systems and yet the assessment for many students cut across the systems: "Julie was asked to examine the hands of the patient. She was completely thrown." Since students were awarded grades for the assessment, it seemed to them that their briefing and that of their examiners should have been identical: "We should not be penalised for what we did not expect and for what we had not been taught."

However, students interpreted the course itself variously. A few thought it useful: "It was a change, a nice end to the year, but I can't say that I learnt anything of real value" "I made some mistakes, was aware of them and quickly left them behind. That was good." Other students thought the course had not been useful: "It was so fragmented, what could it hope to achieve really? I learnt more in the first three days on the attachment here." Some students were obviously let down by the Introductory Course to Clinical Medicine: "When I started on my attachment I was in at the deep end. I was terrified just feeling so inadequate. I wouldn't like to live through that again" "I thought the Introductory Course would teach me basic clinical skills: it didn't. I don't think I learnt anything; if I did, I've now forgotten it."

8.4.4 Medical attachment topics

8.4.4.0 This Section (8.4.4) concerns those topics of medical attachments where students disagree amongst themselves. The data is divided into two broad categories: (a) relating specifically to either Firm A or Firm B (8.4.4.1), and (b) relating to all twenty-six students in general (8.4.4.2). Topics echo those of Section 3 above (e.g. ambiguity, cf. 8.3.3; physical examination, cf. 8.3.4; patients notes, cf. 8.3.5).

8.4.4.1 Data from Firm A

The ambiguity of clinical medicine A bedside teaching session in the first week of the attachment focused on the interesting case of a patient who had returned from Italy with an infectious disease. In the seminar room, summing up, the clinician said that the

patient's symptoms did not all fit together with the suggested diagnosis, for example, the double vision and the slight palsy. The students were uneasy and surprised, especially one student who asked "Why don't the symptoms, signs, and diagnosis fit neatly together?" Another student asked "How can you make a diagnosis then?" The clinician's reply was "Medicine is often like this." Again students were uneasy and somewhat taken aback, but one student asked a very practical question: "What can you do in a situation like this?" The clinician's reply was: "Wait to see developments and go on thinking." He then promptly asked the group if they had enough ophthalmoscopes to go round and suggested that they should spend the remaining time practising on each other; he gave the advice to "start on number 9 and work down until you can clearly see the back of the eye. Try to trace the blood vessels back." The students began to do this.

After the clinician left, the students immediately put down their ophthalmoscopes and began to talk amongst themselves about the problems of the mismatch of signs, symptoms and diagnosis. They discussed this at length, everyone chipping in. Eventually they resolved their dilemma by agreeing that the clinician had been having some kind of game with them, no doubt just to impress. But a couple of students seemed to go on thinking about it.

The ambiguity of words As already mentioned (section 8.3.3), periodically clinicians on Firm A drew students' attention to the ambiguity of words, especially in relation to patients' symptoms. They stressed the importance of this when taking a patient's history: "You need to enquire what a patient means by the terms they use. For example, symptoms such as diarrhoea and palpitations: these mean various things to various people. This is especially so in Medicine, less so in Surgery." The students had not yet attended a Surgical attachment, but they were willing to accept this rule-of-thumb on trust.

Some of the students when presenting patient cases very often used technical terms to describe the patient's symptoms and found themselves challenged. For example, a clinician queried the use of 'dyspnoea': "Did the patient actually complain of dyspnoea." The student rephrased her presentation: "The patient complained of breathlessness."

All students on Firm A recognised the ambiguity of words and recognised that it was necessary to understand exactly what patients said. They also acknowledged that technical terms should be restricted to signs and that symptoms should be expressed in the patient's own words. But some of the students found it very difficult to put these practices into

regular use, even by the end of the attachment. A few students, however, soon became competent, especially with their case presentation, where they became quite polished.

Physical examination Clinicians on Firm A advised students to develop a systematic, logical approach to physical examination, stressing that there was no one right way. Students valued this reasoned advice, but were puzzled, even confused, whenever clinicians were either prescriptive about examination techniques or unable to criticise a particular instance of a student's examination technique. Gradually some students appeared to take such inconsistencies in their stride; other students, the majority, remained ill at ease, claiming "It's unfair of the clinicians; they really ought to sort this one out."

Patients notes Firm A students handed in one set of patients notes every Tuesday; they were returned later in the week. One clinician was responsible for this during the first five weeks of the attachment. In week five, he returned the notes saying "Next week Dr Gillespie will look at them: it's useful for you to have a variety of opinions. Hand them in on Tuesday just the same." There was subdued comment from the students. After the session the students immediately discussed the issue of the benefits of different clinicians seeing their patients notes. For some students this was a nonsense: "Patients notes are patients notes; they're either OK or they're not. Surely any doctor can tell that." These students rationalised the situation in terms of doctors' workload: "We're half way through now; it's probably time for Dr Gillespie to take over; after all, Dr Emmerson's done his stint." A few students thought that they would benefit, as Dr. Emmerson had said: "I think Dr Gillespie will be harder on us; that might be useful." But a couple of students welcomed the chance of another opinion, saying that was just what was needed.

Some students on Firm A never really felt comfortable with the clinician's comment that most patients notes "more often than not include irrelevant material and symptoms which may be negative." They also failed to see the value of a case summary. Certainly they failed to see the value of the process of thinking out a summary for themselves as a disciplined exercise. These students seemed to consider details and lists as all-important. Other students gradually began to focus on case summaries, including diagnoses, since they found them useful, especially when talking to clinicians.

As patients notes are an aspect of evidence which also relates to all twenty-six students; this topic will reappear below (8.4.4.3).

Practical skills The majority of the students on Firm A were troubled by their lack of practical skills. They were troubled in two ways. There was the immediate problem that they could not contribute: "We need these skills, not only for the skills themselves, but also to contribute" "I'm always afraid that someone will ask me to do something simple, but that I won't know how to do it. I almost creep around the ward worrying about that. How good it would be to be able to offer to help!" For these students there was also the longer term problem: "There seems to be a mismatch between what you are expected to do as a Third Year student and as a Fifth Year student. If we don't learn how to take blood now, when will we? If our project doesn't require taking blood, we'll end up in Year Five without knowing how." A few students didn't feel inadequate and threatened in this way - always taking from others and having nothing to give in return. They realised that in a sense they could provide their own course: "We need to be more pushy; we have to ask if we can do things. Hang around and spot your chance." These students saw themselves progressing through the attachment not only in terms of their practical clinical skills but in other ways as well.

Topics covered in teaching Firm A based their bedside teaching on interesting patient problems and on covering a wide range of 'core' patient problems. The students kept a 'public' record on the seminar-room notice-board of teaching session topics that had been given, to ensure that this coverage occurred. The students liked this approach: "We cover all the important aspects, the bread and butter, but we also have some jam with the interesting problems." However, some students were increasingly concerned that they did not know -- in other words that they had not learnt -- the topics on the list. In week six, after a teaching session where the clinician had run through the list of topics, one of the students said that he could not remember doing at least three of them. Another student said very positively that they had been covered, but when she was pressed further she was vague about the details. Flicking through her file she summed up her position by saying "I know they must have been covered because I have made notes on them." At the same time a small number of students were quite unconcerned about which topics had been covered and which hadn't.

Eventually I asked the students how they found the teaching. A number of them said that often, after a teaching session, especially where technical vocabulary and new concepts had been involved, they felt no further forward. One student said "I wonder sometimes. The session seems clear and logical, and I could have asked questions, but there just didn't seem to be the need. Then when it's all over and I ask myself "What do I know now that I

didn't know before?" and I'm not at all sure. It often seems like nothing, and I think "Has it been a waste of time?" But then, I now know what I should know." Another student very succinctly said "Explanations don't often explain." They felt it would be useful to have a few diagrams for use on the ward teaching or even sketches, however imperfect. Another student said "It's the doctor's function to tend patients, not to teach." The students agreed that it was the doctor's function to tend patients, but some of them didn't agree that it was not their function to teach.

Summary As can be seen, some of the students were able to cope quite naturally with the 'relative' interpretations of the above situations. However, the majority could only cope by either ignoring the relativity, or explaining it away. As the attachment progressed the differences between the students increased. A few students who interpreted situations relatively began to gain control of their learning and gradually increased in confidence: "You just have to stand up for yourself or you'll sink. Talk to the staff as if they were colleagues for a start. Cash in where you can: try to be in the right place at the right time, with the right person." The majority of students found it increasingly difficult to say with conviction that they were making the necessary progress on their attachment: these were the students for whom relativity was not part of their thinking.

8.4.4.2 Data from Firm B

The skill of observation At the end of the first week, the bedside teaching session focused on a patient with "good physical signs for diagnosis". We stood around the bed looking at the patient. Dr Soul took the patient's hand -- his pyjama coat was already open: "What do you observe in this patient?" Dr Soul continued to comfort the patient while the students looked long and hard. Then David said "He seems to be breathing by his diaphragm mainly." All were silent until Jane said "His lefthand side is hardly moving, his right hand side is moving much more;" then further silence. Dr Soul, moving to point to the patient's neck, said "The veins in Mr Green's neck are enlarged, can you see?" After the students had agreed, Dr Soul said "What is obvious to one person is not always obvious to another. Remember that." We then thanked the patient and moved away into the corridor to continue the session.

Later as we drank coffee, I asked the students why they separated the respiratory and the cardiovascular systems. (I was looking at this as a biologist from a body-function point of view: I had not attended the Year Two Systems Courses nor the Introductory Course to

Clinical Medicine.) Adrian said that on the Introductory Course you were taught one system at a time; and that in the Second Year the two systems were taught separately. He went on: "I try to examine the systems together now, apart from the nervous system, otherwise you are 'toing and froing' the patient too much." I learnt that from examining Mr Green: he was getting so out of breath. I realised it just wouldn't do." (Mr Green was the patient we had just seen.)

The other students agreed that they were taught the body systems separately, in theory (the systems courses) and in practice (the Clinical Introductory Course). They understood the aim was "to see them as one" or "to put them together", but they said how difficult this was. They talked over this point for a while. Common sense told them that it was not just a matter of "putting the parts together", that is, the separate parts as taught. This was fairly obvious with physical examination: "You wouldn't need to do a pulse twice" "Observation could be done once." They then brought up the point that Dr Soul had made about observation and how different people observe the same things differently. They saw this as a joke. Given time surely they would know what was obvious, like Dr Soul himself.

Criticism of students

Initially when the clinicians on Firm B 'chivvied' the students about their clinical skills (for example, when the clinician already mentioned said at the end of the first week "You're all rusty"), the students thought the comment meant that they were very poor. As a result they were rather downcast. The students explained that they were used to being criticised and being asked to account for themselves when their marks were "not up to scratch", but rarely were they given praise. Most of the students wondered if this would also be the clinicians' approach; but two students were more positive: "Not if we work with them like they say. We'll get to know each other."

Outpatients clinics

Students were invited by Firm B to attend, on a rota basis, the 'return' outpatients clinics on Thursday afternoons. Patients came to these clinics to check on their progress. On Friday of the second week Adrian talked of his experience at the clinic the day before: "It was a waste of time" he claimed. He went on to explain why. After the first half-hour or so, where it was useful to see how the clinician welcomed the patient and then

reviewed progress since last time, it was all "rather much of a muchness". Adrian continued: "I had no time to get up on the case or to see the history as a whole...I didn't examine the patient or even ask them a question." The other students who were listening had not been to outpatients yet. They thought it sounded grim. They all agreed that it would be more useful for them if they could have just one or two suitable case histories and could read these up first; then they could see the particular outpatient and talk to them. In this way they would know more about their cases and it would all be much more meaningful; they saw no point in wasting time. However, Dan was more positive. He reminded the group that timetabled sessions were not compulsory: Dr Soul had said that if they had any more pressing things to do they should do them; so perhaps they should take the opportunity to excuse themselves from outpatients when it came to the point where they thought they could get no more out of it. The students vowed to keep this in mind.

Summary As the attachment progressed, the students became increasingly able to take charge of their own learning and to enjoy doing so. A few students gained more confidence than the rest, though all of the students were able to say with assurance that they were making good progress. Clear divisions were seen between students' perceptions on Firm A in respect of, for example, the ambiguity of diagnosis and of words, and the impact of both on history taking; in respect, too, of the ambiguities of physical examination technique and patient note writing; and, finally, in respect of variation in the concern shown by students over learning and remembering the topics taught and the taught sessions themselves. This degree of variation was not seen in students on Firm B, though there were differences between students. It seemed that the general approach of Firm A tended to foster and even increase students' differences, whereas the general approach on Firm B enabled students to adapt to the problematic and relative nature of clinical medicine.

8.4.4.3 Data from all twenty-six students generally

The points which follow relate to all twenty-six students. At the start of their attachment there was little apparent difference between the students on the two Firms. As the attachments progressed, the majority of students on Firm A continued to show their dependence on being taught and their dissatisfaction with the system when they thought they should be taught and were not. On the other hand, though the majority of students on Firm B initially showed dependence on being taught, as time went on they increasingly

relied on themselves to sort out their own learning, and their dissatisfaction with the system was very slight. In addition, the majority of students on Firm A were unable to cope with the problematic nature of clinical medicine and of being a Third Year student, whereas the students on Firm B began to expect both clinical medicine and their own learning to be problematic.

The term 'clerking'

Another aspect on which student opinion was divided and which concerned the acquisition of clinical skills was illustrated when in the second week of the first attachment students were discussing the activity of clerking patients. Some students were still unsure what clerking actually was: what did it include/exclude? The group came to no conclusions; there was no student who knew for sure what clerking was or was not. Then one of the students said "I don't seem to have improved since the attachment began; my history taking is still a mess." Other students agreed saying that they also felt they had not improved; they were obviously troubled by this. However, another student said "Come on, what do you expect? It's early days yet." The debate continued, some students maintaining that improvement should be continuous and visible from the start, whilst others disagreed.

Ward routines and organisation

All the students agreed that they had to know the ward routines and organisation: "There are set times when you can clerk and it's no use going outside these hours" "Sister won't let you clerk patients that are ill." But students varied as to how they assumed this knowledge should be acquired: "You have to learn the way the ward works, and the sooner you do the better. You need to spend time just moving around the ward and talking to nurses and to anyone else who's there" "You can do much worse than listen to patients who've been on the ward for some time." These students saw the need to teach themselves by asking and listening to all the staff and patients who already knew what they as students needed to know. Other students had an alternative view: "It is important that we know when we can do what, and what it is that we are expected to do: and it's up to them to tell us" "They should teach us all about the ward; how can we know otherwise?"

Instructions or advice from clinicians

Students became aware that different clinicians said different things: for example, "Never use abbreviations in your case notes; they must be able to be understood by anyone who reads them now and later;" but also "When you use abbreviations be careful: never be ambiguous. NAD is a good example: it can mean 'not actually done' and also 'no adequate diagnosis'." However, when students read patient ward notes written by doctors, they saw abbreviations liberally used. Some students were able to take these different, even conflicting messages in their stride, almost expecting them ("It's quite funny really. You only need three doctors and you'll get three messages!"), whilst other students found them very difficult to handle and were even upset by them. The general consensus of these latter students was: "I wish the doctors would sort out their differences amongst themselves and then agree what they will ask of students. It's all very confusing and unsettling. How are we supposed to learn what it is we are supposed to learn if the doctors don't even know?"

Students worried over which particular details of techniques for physical examination to adopt and how to put these techniques together for an integrated physical examination. Gradually the problems became solved for students on Firm B, since they could work closely with clinicians on the ward. Students on Firm A, however, generally had much more difficulty resolving these two problems; some students even ended the attachment without resolving them.

Patients notes and patient case write-ups All students had difficulty, initially, reading the patient notes. Difficulties arose from the handwriting, abbreviations and technical terms, as well as from the general inability of students to interpret them. When writing notes, students again had difficulty: they were unsure what to write. For this situation the students felt that "Initially I would like to hand in my notes frequently so that I can get feedback to know how I am doing. If you get the wrong emphasis at the start and you don't know, it's much more difficult to get on the right track." And some students were very unsure if they were on the right track: "Do I put down what the patient says, or do I have to condense it, or sort it out in any way?" Working with Firm B and putting their notes in the patients' files stopped the worry of such uncertainties: "It's a good experience to put your notes in the patient's file and to compare them with the house officer's -- that is, if you can read the house officer's!"

'Knowing why' is a feature connected with patient notes (also with history taking and physical examination (section 8.4.4.4)). Students felt they should know why they observed certain things, and why certain things that they observed were related, etc. They were also told that they should know why by clinicians. And yet, at the beginning of the attachment, they did not know why. A few students did not expect to know why. "I don't know why, but do I need to? I'm learning to do physical examinations and to take histories." Others were intimidated by not knowing why: "We need to know why -- for example, why some things are written up in patients notes and others not, and we can't find out. We need more help." These students were confused when they were told not to do what the house officers did, for example not to use abbreviations. They were also confused by the student who said "I saw the house officer put something into the notes he had not asked. He put that the patient gets very breathless walking upstairs, and he didn't ask the patient what it was like to walk upstairs." Some students hotly contested this: "No, that couldn't be" "You just didn't listen or hear properly" "Or perhaps he didn't write it up as you say he did. No house officer could possibly write anything down he hasn't done or asked." The students who were troubled were those students who interpreted everything very literally. Other students felt it was quite permissible, even sensible, as they put it, "to guess at times": for example, "You can tell if some patient would be breathless walking upstairs, you don't have to ask them."

8.4.4.4 Need students learn clinical medicine -- yes or no?

Students were told that they did not need to learn clinical medicine in Year Three since learning clinical medicine was not an aim of Year Three (section 8.1.3). They were also told that any clinical medicine that they did learn was a bonus. However, some clinicians, for example Firm B clinicians, were less 'dismissive' of clinical medicine learning by Year Three students. They recognised that students needed to learn some clinical medicine but that this 'some' could be learnt 'incidentally'. That is, if students on attachment concentrated on giving care to their own patients, by taking histories and making physical examinations and by following their patients through hospital and into the community, and also by discussing and reading around their patients' care, then students would automatically begin to interpret symptoms and to elicit signs, and in this way begin to learn clinical medicine incidentally. A few students on Firm B were able to work with the clinicians and to learn clinical medicine incidentally, like the clinicians said. A student comment illustrates this: "I learn clinical medicine by understanding my patients and the care they receive, and I feel I can remember it all. I can also recognise the same fea-

tures later in other patients -- I can with heart failure, I think. I know some students are learning from books: they can say it, define it, and give the lists, they're very good at that; but they can't use it on the wards, and that's no good." These particular students did not feel they were spending much time learning; they just knew! They said they had heard on the 'grapevine' that some of their peers on another medical firm at another hospital in Southampton were learning a lot of theory before they went on to the ward: "We don't know how fortunate we are!" (section 8.4.3.3).

Some other students also recognised that they needed to learn clinical medicine in Year Three: "You need to learn it; you need clinical medicine all the time. They might say you don't need it -- but that's just what they say." These students said that they needed the clinical medicine to take a history: "You have to begin to group your data to know from it what kind of questions to ask and to make hunches. But, for instance, you can only do this when you know what the causes of breathlessness are; if you don't, then you can't really do anything like that; you can only ask the next question as if it's on a list, in a rather purposeless way." These students saw the skills of history taking as very different from asking a list of questions (which was how history taking is formally presented on the Introductory Course to Clinical Medicine). Some students developed their clinical skills informally by focusing on their own patients and by talking to the clinicians on their own Firm. Other students would have liked a more formal approach: "We need to be given guidelines to sort out what goes with what, and how to check our hypotheses and even which hypotheses to have."

The majority of students, especially in the early weeks of the attachment, were presented with a dilemma: should they or should they not learn clinical medicine? "If we need clinical medicine, then they should teach it to us." Thus some students decided not to learn it.

Clinicians did teach clinical medicine: most bedside teaching sessions included clinical medicine, especially the seminar teaching at the end. Two approaches were adopted. Either a particular disease and its management was described in varying degrees of detail, or else a framework for thinking about a particular group of related disease conditions was outlined. An example of the latter is: after teaching on chronic bronchitis the clinician outlined for students three kinds of 'chest failure': (1) Chronic bronchitis, (2) emphysema, (3) asthma. The clinician gave the students a lot of detail throughout, but he included a simple framework for classifying these three conditions: "Chronic bronchitis

has a clinical definition, namely a productive cough for more than three months out of the year for two successive years. Emphysema has a pathological definition, namely an increase in size of the airways due to the destruction of the alveoli wall. Asthma has a functional definition, namely a reversible narrowing of the airways." Students found this framework very helpful.

Needless to say, because learning clinical medicine was not a stated aim of the Third Year, students were somewhat surprised when they were asked clinical medicine questions by clinicians. For some students this included even very straightforward questions on a particular condition or its management, but they learned to expect such questions. Other students recognised that clinical medicine, and questions related to it, were necessary if clinical attachments were to approach reality.

8.4.5 Putting teaching and learning Together

8.4.5.1 Students: 'literal' and 'non-literal' interpreters

In the last three sections (8.4.2-8.4.4), evidence was presented that demonstrated that students interpreted their own medical attachment experiences and those of their peers in either a literal or a non-literal way. Most students at the beginning of the attachment interpreted literally. However, as the attachment progressed, students who initially interpreted literally on Firm B, gradually became less anxious and more tolerant of situations, information, activities, etc. which were not clear-cut, but students with this characteristic on Firm A continued to show frustration and intolerance when there was no one answer or conclusion. Differences between these students on Firms A and B can be illustrated by constructing student profiles around the students' general views of their patient clerking activities at the end of their ten-week Medical attachment. Four profiles will be presented in the following order: (8.4.5.2) 'Literal' students: Firm A, Firm B; (8.4.5.3) 'Non-literal' students: Firm A, Firm B.

8.4.5.2 'Literal' students

'Literal' students on Firm A

These students saw the aim of clerking as "Getting a good history and physical examination in a reasonable length of time - say 45 minutes". (All students without exception at

the beginning of their attachment took a very long time to clerk patients fully: times ranged from one and a half hours to over three hours.) They were unsure of their clerking ability at the end of the attachment, though they knew they had improved. They were troubled by the status of patient diagnosis: clinicians said that they need not concern themselves with diagnosis at this stage of their course, and the aims of Year Three did not include patient diagnosis; yet bedside teaching and seminar discussion related to diagnosed patients and their conditions. Also they asked themselves "If I don't learn diagnosis now, when will I? I can't leave it till Year Five."

If they got part of the patient's history wrong, or could not elicit signs when physically examining, they judged themselves adversely and saw the solution in more reading or different teaching: "I'm not good at history taking and physical examining: I need more help. I don't think we get enough teaching, we're left to ourselves too much" "Taking a history sometimes defeats me, I wish we talked about it more." These students were especially annoyed when they spent time "waiting around for teaching": "I know patients must come first, but its such a time-waster waiting around when no-one turns up" "We seem to spend so much time hanging around looking for or waiting for someone to teach us." These students recognised clinicians' paramount commitment to patient-care (section 8.3.2.1), but nonetheless felt deprived and at a loose end whenever scheduled teaching did not take place.

More often than not, clerking was seen as a chore: students commonly made remarks such as "Well, I suppose I can't put off taking Mrs Moynihan's history any longer; I'll just have to go and bore her for an hour." If the patient said they did not want to talk just now the student was very discouraged. This also applied if the ward sister said the patient was too ill or too tired, or even if the patient had gone for tests: "It's pretty awful going and finding the patient has gone for a test, especially if you have checked beforehand, or been thrown off a patient because they're being clerked by someone else" "It's just not good enough. Patients are either eating, sleeping or not expecting us. When can we find the time to clerk?" It was not that these students were particularly unfeeling; they were very compassionate, but they found themselves in a persistent dilemma to which they had no solution.

Interestingly, these students generally approached history taking in one single complete session (they even tried to include physical examination as well). Thus students occupied long stretches of patient time. They felt they were imposing on patients and annoying

them: "We clerk just for ourselves, for our own benefit, we put on the patients" "Patients must get sick to death when it's our turn to clerk. We're always last, even after the investigations have been done. It's no wonder patients refuse us." One student was very concerned about the plight of patients when clerking: "I don't like feeling I'm being conned into annoying patients, always third, lucky if second, never first to clerk."

All of this led to these particular students feeling embarrassed and even stressed when thinking about clerking patients; the embarrassment did not arise from the intimate nature of the student's task but rather from its purposelessness from the patient's point of view.

Interestingly, when these students were clerking, they often either did not hear patients' questions -- for they did not remember them when asked -- or they ignored them: "It's really very embarrassing when patients ask you simple questions and you haven't a clue how to answer."

All the students wanted the formal assessments that Firm A organised mid-way through and at the end of the attachments. They were very grateful for the feedback and for the practice: "It's really necessary to know how you are getting on, and I think we should have all the experience we can have of tests that we will have in Year Five for graduation, and beyond for our career." And a pass grade was all they desired: "I don't care so long as I pass."

On the whole the students felt overloaded, with too much to do: there were too many demands made upon them. (It must be remembered that all students had course lectures on Monday and Friday afternoons, and GP attachments on Tuesday mornings.) "If you happen to be absent or under the weather, there's so much going on that you think you will never catch up, you'll never recover!" "There really are too many patients with too many different conditions to learn anything properly. In fact there's too much to do -- fullstop!" Understandably, the students did not really enjoy their attachment. They felt in the way and certainly not part of the Firm: "We are not encouraged to join in; we are just generally uninvolved and we need to be involved" "It's just that we are never in the centre of things; we are always on the margins and held at bay" "We never really felt at home: people are OK, I can't put my finger on it, but we are rarely really wanted and so always on the edge" "There's very little real support and encouragement, and it's not all that easy to function in a kind of vacuum." These comments, already mentioned in Sec-

tion 8.3.2.1 above, were, as I said then, very passionately expressed by the students, and increasingly so as the attachment progressed. Having the role of student, they found themselves trapped in a kind of vacuum. They very often thought clinicians were playing games with them when they failed to give clear, unambiguous answers to straight questions. They never found themselves working with the clinicians, so that by the end of the ten weeks the general feeling was: "I'm glad to leave. I think it's time to give another attachment a try."

'Literal' students on Firm B

The aim of clerking for these students was to take a good history and to elicit relevant physical signs, but also to attempt differential and definitive diagnoses, and join the clinicians and other ward staff in giving care to their particular patients. They tended to 'disregard' the written aims of the attachment; they did not talk about them or puzzle over them, for they felt very positively involved working with staff, and they knew they were achieving the aims at the same time: "It's great to be part of the Firm and to feel useful, rather than a hindrance and hanging around rather aimlessly" "I really feel accepted and wanted. We all do" "Our Firm is very accessible and friendly. It makes all the difference."

This working together included opportunities to learn clinical techniques: "Some doctors say Third Years should only take histories and do physical examinations, and leave the other skills till Year Five, but it's so much better to be learning now and to have something to offer and to take some responsibility." There was also a general feeling among all the students on this Firm that "We need to spend more time on the wards. Our other commitments are very distracting."

If these students got part of the patient history wrong or could not elicit signs when physically examining patients, they put it down to their own inexperience: "I just need more practice. If I could stay on the wards instead of dashing off to lectures, that would help a lot." If teaching sessions began late or were cancelled, students would occupy themselves productively, and they felt none the worse for this: "The timetable tells you when there will definitely be teaching, but you are taught whenever you're working on the wards." They never saw clerking as a chore: they realised they needed this practice and experience, not only in preparation for future use as Fifth Year medical students and

as doctors, but also to enable them to function now as part of the team: "When it's your own patient, it's easy to talk about them. My clerking is useful now."

If the patient said they did not want to talk just now, the students saw this as quite understandable: "I know I don't always feel up to it; I just ask when they suggest I come back." Interestingly, patients hardly ever refused to talk to students on Firm B. Also, students knew when patients were going for tests and when the ward sister judged the patient to be too ill or too tired to be clerked, so they were not disappointed or discouraged by these events.

No student on Firm B ever thought they were annoying patients or that they were clerking solely for their own benefit: they were part of the Firm and they joined in the discussion of patients with ward staff, and felt that they were involved with their care, even contributing to it. They were, however, very grateful to patients for their co-operation: "I'm getting better at history taking now; I certainly don't take so long. And I split up the history into manageable segments. It's much better for the patient that way, and I can keep track" "It's very slow improvement but I'm getting there; even the patients help." When the students were clerking patients, they liked to answer the patients' questions; however, they found that more often than not they were dissatisfied with the answer they could give: "I wish I knew more, so that I could tell the patients more when they ask." The students were somewhat unconcerned about the assessment, both the feedback and the practice. They had abundant feedback from working on the ward with clinicians, and since the assessments were not organised along the lines of the typical 'long case' (as Firm A's assessments were) and since they were much more informal, their value as practice was limited. Students expected to pass the assessment and they were not competitive about grades: "I'll pass: we all will. I know I'm getting along OK; the actual grade doesn't really matter much."

On the whole these students enjoyed their attachment and working with Firm B. "It's very enjoyable and satisfying, not all parts equally of course, but on the whole it's great. I'll be sad when it's over." They wanted to stay longer and get even better. They were beginning to see that definite answers were not always possible or even desirable; this was especially so in the context of their individual patients and their care.

8.4.5.3 'Non-literal' students

As explained in Section 8.4.5.1, a minority of students on Firms A and B interpreted their own attachment experiences and those of their peers 'non-literally', or relatively. As with the students who interpreted literally, differences between such students on Firm A and such students on Firm B can be illustrated by constructing student profiles around the students' general views of their clerking activities at the end of their ten-week attachment.

'Non-literal' students on Firm A

These students' aim when taking a history can be summed up by "I want to get the time down to twenty minutes for a history and physical examination together -- that's what I'm working towards." They always attempted a diagnosis and quietly checked their own ideas against the patient's ward notes: "I always use the patient's notes to see what I've got right and where I'm wrong, but I don't let others see me do this. We're not supposed to use the ward notes as a crib."

Interestingly, these students often 'blamed' the patient when they got part of the history wrong. They believed patients tried to mislead them intentionally: "Patients don't always tell you the truth. You ask the question alright, and then get hauled over the coals for giving the wrong information. I asked Mr Gray if he had ever been into hospital before and he said no. Later when I was talking to Dr John, he told me I had my facts wrong, and that Mr Gray had been in hospital four years ago for a hernia operation. You can't win." This is especially interesting, since Firm A (as pointed out in Sections 8.3.4 and 8.4.4.1) often reminded students about the ambiguity of terms and patients' understanding.

These students realised only too well how important good staff/student relationships and opportunities were for a successful attachment: "You have to get on with people, especially the clinicians, as a basis for the attachment" "You must feel relaxed on the wards or else it's very difficult. Some students in our group are always psyching themselves up. Staff can help enormously by making you feel relaxed" and "We need to be more pushy; we have to ask if we can do things. Hang around and spot your chance." These students, cited earlier in Section 8.4.4.1 (under 'Practical skills'), took responsibility on the Firm

without waiting to be asked; they talked increasingly to the clinicians as if they were colleagues.

They saw history taking as an activity which depended on good rapport with patients: "When it's all boiled down, it depends on the student's personality really. We've never have any difficulty in talking to patients. We can just go up to them and begin -- but a lot of the students can't do this. They make such difficulties for themselves. It's no wonder they find history taking and being on the Firm difficult." The self-differentiation in this quotation should be noted.

These students also revisited their patients on the wards to check the accuracy of their patient histories and to gain further practice with their physical examination skills. They saw the value of this activity -- so much so that they could become quite annoyed when patients were discharged: "I went to check up on Mr White this morning and it was a great bore -- he'd been discharged" "Mrs Seagrave was very interesting; as I clerked her, I resolved to go back; but when I did, she'd gone home. I was so disappointed."

They admitted that patients may become bored and inconvenienced by students trying to acquire clinical skills. They were, however, willing to accept this as inevitable, a fact of life, since clinical skills could only be acquired through the use of patients, and if patients were inconvenienced perhaps this was unavoidable: "You have to clerk patients; it's the only way: if you're learning to take a history and how to examine, you have to get on with it."

Patients' questions were largely ignored for two reasons: "They often get in the way. You must be careful and learn not to be distracted by them when taking a history" and "I can't really tell the patient anything myself when I don't know what the doctor's policy is." They did not think to involve the patients in their own care, unlike the students on Firm B (see below).

These students were very pleased to have their formal assessment both midway through and at the end of the attachment. They were not intimidated in any way; quite the opposite, for they wanted to show the clinicians how they could perform. During the whole of the attachment they had tried to develop a polished case presentation with the correct format and technical terms. They saw this as important. They took the initiative during the assessment, just as they did on the attachment, trying to be relaxed, to joke and to

answer the questions clinicians posed, in a very positive way. They even asked questions themselves. This student approach was fully accepted by the doctors who were assessing them. Afterwards one of the students said of the assessment: "It's really an opportunity for us to hide our ignorance rather than show what we can do and what we know!"

All these students enjoyed their attachment. They developed a high profile and took every opportunity they could to succeed; they were well liked by the clinicians. They made the most progress of all the students on Firm A: they gained substantial confidence throughout by deciding what they needed to do to acquire the skills and knowledge of these hospital doctors. They then did what they judged they needed to do and evaluated their own success by reflecting on what they had done and what they had achieved, as well as by the clinicians' comments. Their learning might be characterised as 'doctor-centred'.

'Non-literal' students on Firm B

These students saw history taking as a never-ending activity, so that in a sense they never took a history: they were always taking one. In order to do this, they returned to visit their patients on the ward as often as they could whilst they were in hospital. These students saw history taking also as a wide-ranging activity: they talked to other ward staff and social workers, as well as to relatives, in order to develop as full a picture of the patient and their circumstances as they could. This was particularly important since they saw the patient's history and management as very closely related: "I take a patient's history and then I add to it by talking to relatives, nurses and social workers -- it's good to go to the patient's home with the social worker if you can. I suppose I keep taking a history until the patient goes home" "It's not really a matter of taking a history, and that's that; I feel the need to go to see my patients each day and to find out how things are. You can always learn something by talking to patients, and our Firm encourages this." The students also read the patients' ward notes to extend their knowledge and understanding of the patients and their care: they did this openly. It will be remembered that the patient notes which they wrote themselves were put into the patient's ward file (see section 8.3.5 above): they were also encouraged to use the patient ward files as a source of information and as a learning opportunity.

When they made a mistake with a patient history they were never surprised. They simply returned to the patient and put their queries to them. Two examples: "I said this was the

first time Mr Jones had been admitted to hospital. That's what I thought he had said, but I found I was wrong, so I went back to him. He said he thought I had meant 'Had he been in hospital with his heart before?'" "I remember asking Mrs Lees if she had been sick and she said No. Later I looked in her notes: they said she had. So I asked her again: she explained it was so slight that she didn't think it was worth mentioning."

These students saw patients as people who were ill and who had been admitted to hospital for observation and treatment: they therefore approached their patients firstly with compassion and secondly as a medical student: "I need to feel relaxed with a patient before I can begin to ask questions about their particular history. I find I have to start by talking to them as I would with any other person." I never heard of any patient refusing to talk to any of these students. The student might, however, decide not to trouble the patient: "I went to see Mr Redd, but he's only just back from his tests and he looked so weary I didn't trouble him. I'll go back later." Often these students went with their patients to tests and investigations: "Going for tests with Mrs Black was so helpful. I learnt what the test was like -- that was an eye-opener I can tell you -- and we were able to talk: she said I made things easier for her. I'll miss her when she goes."

The student and the patient got to know each other since they spent time "chatting together". The students were ready to help whenever they could, for example by posting letters and buying stamps, and by taking an interest in their patient: "Mrs. Black said that she looked forward to my visits and that she would be bored without me." They also told ward staff if they noticed changes in their patient, such as increased pain, confusion, depression, sleeplessness.

Patients' questions were very important for these students; they focused their learning around them: "Patients need to understand as much as they can about themselves and I find if I try to answer their questions, this helps them and it helps me too -- I can see if I really understand. When I was talking to Mrs Winton I thought I knew all about heart failure but I realised I didn't, so I learnt it, and now I do" "Sometimes patients ask the simplest questions and I haven't a clue how to answer; but I always make sure I can answer them next time" "When I'm not with patients, I'm either reading up what I need to know about my patients or talking to the staff about them."

The students were not particularly interested in assessments: they were getting all the feedback they needed by working with staff on the ward. The whole atmosphere was

very positive and the students gained in confidence. Learning clinical techniques was an essential part of this growing confidence since students were able to participate much more fully: "It's so helpful to know how to take blood, for instance; you feel useful and it makes you feel confident in your abilities generally" "Being able to do things on the ward seems to help you feel in control, and so the whole experience is much more relevant." They also attached little importance to grades, other than wanting a 'pass mark': "Grades seem rather irrelevant, but you do need a basic pass to avoid hassle." These students were very ready to say that they did not know something and to ask for explanations: "I know some students who are always pretending that they know; they never admit that they don't know, but it seems rather pointless. I find if you say you don't know, people are only too ready to explain."

All these students greatly enjoyed their attachment. They worked enthusiastically with the ward staff: "This is what I came to medical school for." They organised their learning around their patient, only focusing on what was taught in timetabled sessions when this was relevant to their own patient. They had the confidence to decide how best to spend their time and to judge their own progress. This they did by continually reflecting on what they thought they needed to do and on what they had actually done. Their learning may be characterised as 'patient-centred'.

8.4.5.4 Summary and Discussion

Summary

The previous sections (8.4.5.1-8.4.5.3) have described how out of twenty-three students, allocated to two Medical Firms for ten-week attachments, the majority began their attachment with a 'literal' mode of interpretation.

Over the ten-week period these 'literal' students who were attached to Firm A, which had what may be called a 'training' approach, preserved their 'literal' stance: they depended on the timetabled teaching and became discouraged when this teaching was cancelled or delayed. They were especially troubled when clinicians, their teachers, gave conflicting or ambiguous advice. Increasingly they felt overloaded and unable to cope, since they had so many different demands made upon them; they were unsure of the quality of their progress and their confidence reached a very low level. They did not enjoy their attachment and this was worrying for them, since they had chosen medicine as a career and

had already been working towards this for two years at university. Their solution was to look forward to their next attachment (e.g. five weeks either Obstetrics & Gynaecology or Child Health, or the next clinical rotation) and a new start. They spent a lot of time puzzling over the aims of the attachment and their attachment experiences, which they felt did not match the aims.

However, the students who interpreted 'literally' on Firm B, which had what may be called a 'working' approach, gradually began to lose their 'literal' stance. They used the timetabled teaching as one of many resources for a successful attachment; if teaching was cancelled they spent their time profitably in some other way. They very rarely referred to the aims of the attachment; they simply got on and worked with the Firm. Conflicting and ambiguous situations were commonplace because they were part of the ward life in which the student was working: at first the students were surprised and unsettled by this uncertainty and found coping difficult, but gradually they were able to tolerate and even expect uncertainty. They felt very busy, sometimes behindhand and under pressure, but increasingly they were able to sort out their priorities because of the constant feedback that was available to them; this feedback also enabled them to chart their progress and to begin to know their strengths and weaknesses. Their confidence fluctuated and was rarely very high, but they felt that they were progressing and that they would eventually succeed, given more practice and help. They enjoyed their attachment and were sorry to leave; they would have liked to stay longer to improve more; they thought that ten weeks was quite a small amount of time, and they were hesitant, even apprehensive about their next attachment.

A few students, on both Firms, began their attachment with a 'non-literal' mode of interpretation. Over the ten-week attachment these students developed either a 'doctor-centred' (Firm A), or a 'patient-centred' (Firm B) approach to learning.

Students with a 'doctor-centred' approach consciously modelled their learning on the task of the qualified doctor as they saw it. This is not to say that the student necessarily imitated the doctors or used them as a positive role-model exclusively, though some of them did, and all of them did to some extent, for example by quickly learning how to present a patient case in a standard way and with a polished performance. These students tried to spend as much time as they possibly could on the wards, preferably with the doctors, talking to them whenever they could, and they volunteered to help the doctors whenever the opportunity arose. They wanted to be noticed at teaching sessions, as they wanted a good

attachment grade. Though from a learning point of view, cancelled sessions did not trouble them, these students always made sure that they learned the material covered by the teaching session, as this was what the doctors saw as important. Thus they learned a lot of clinical medicine from clinical medicine text-books. They were very aware of their progress and their confidence was high from the start of the attachment. They enjoyed their attachment and said that they had got out of it what they wanted (this might include plans for projects, electives and even house jobs). Though they looked forward to their next attachment, they intended to keep in touch with the senior doctors on the Firm.

Students with a 'patient-centred' approach to learning, on the other hand, consciously decided to focus their learning on the patients they were clerking: patients' questions provided useful guidelines, as did talking to ward staff and relatives. Interestingly, these students used basic science textbooks as well as clinical medicine textbooks to extend and consolidate their knowledge, though they seldom went back to their notes from Years One and Two because these notes were often unclear and sometimes plain wrong, and commonly failed to include the information the student wanted. These students were also aware of their progress, and their confidence grew steadily throughout their attachment. They were not especially confident at the start. They enjoyed the attachment, especially the opportunities to talk to patients and relatives, and to all the staff who were providing care. They tried to build up good relationships with patients and to understand their problems in as complete a way as they were able: no patient information was considered irrelevant; its value was judged over time. They responded fully to the opportunities they were given to work with the doctors and ward staff and to contribute to the life of the Firm.

Discussion

A fully developed 'doctor-centred' approach to learning was observed only in students attached to Firm A; whilst a fully developed 'patient-centred' approach was observed only in students attached to Firm B. It seems therefore that the different environments offered to students by Firm A and Firm B promoted these basically different approaches to learning in students. One student on Firm B clearly had enormous potential to develop a 'doctor-centred' approach; had he been attached to Firm A, this potential might have been fully developed. This relationship between the Firm's approach to Year Three students and the students' approach to learning, can be represented diagrammatically, as in Table 8.3.

Student confidence is a subjective term. Students used it of themselves: "I'm now confident I can take a simple straightforward history" "I'm confident about the physical examination of the nervous system and the anatomy too, but I'm not confident with the rest!" "I want to feel confident by the end of the attachment." Students also used the term unconfident of themselves: "Just mentioning the examination of the liver and the spleen makes me feel unconfident; I simply haven't got the hang of it" "I now feel unconfident just going to talk to patients. I have continually to psych myself up."

From a consideration of students who displayed confidence and who talked about their own confidence, certain characteristics emerged. On attachments, students who were confident felt in control. They took decisions and stuck by them until they saw the need to take other decisions. They were also able to sort out their priorities, realising that these would change with time and context. They used reflection to determine the appropriateness of their decisions: self-evaluation was natural for them. Although they were alert and took account of what others had to say -- for example, the clinicians, who were their teachers -- they did not necessarily let this affect their immediate behaviour. They set their own goals from the context and from their perception of their task, and took the necessary steps to achieve them. They enjoyed the work they were doing; they felt they were making good progress, so that the effort involved, no matter how great, was immaterial. All that they did was relevant for them, they did nothing that was irrelevant from choice; and, importantly, they could talk about what they were learning in their own words, including being able to give clear explanations. They were committed to their own learning approach, which was either 'doctor-centred' or 'patient-centred'.

These students were committed to a particular learning approach; students who were, by contrast, literal in their interpretation were non-committed.

8.4.5.5 Coda: Playing the system -- one student's conversion

One student, Dan, on Firm B, began his first Third Year attachment with a non-literal outlook. He had been a successful medical student so far by 'playing the system', and this was his conscious approach to the attachment: "I'll spend the first couple of weeks finding out what the doctors want and then the rest of the time doing it." He said he had no expectations of the attachment: he had learnt in the first two years of the course to suppress any expectations of courses. He was amused when we talked of expectations: "I've learnt not to have expectations here; they just make things more difficult. Your ex-

pectations are always dashed, so you have to let go of them and pick yourself up before getting on with what's wanted. I now keep a blank mind and have no expectations so that I can take off from the start without having to jettison anything first. It works much better."

At the end of the first week, when Firm B's students were drinking coffee, Dan said of bedside teaching sessions: "I've decided to look alert round the bed -- to concentrate on that. I think I might take in much less than I would otherwise, but I'm sure looking alert is what counts." The group laughed at this; some of them readily agreed but others were doubtful.

When talking of the Monday and Friday lectures, Dan was very dismissive of the need to attend: "So long as you pass the MCQ [Multiple Choice Questions], that's all they're interested in. You can mug it up without lectures." He knew he would use the lectures as he wished. "I'll go to meet friends and for light relief. It's an excellent excuse for not being here 'on the wards'."

At the end of the second week, again when Firm B's students were drinking coffee, another student, Adrian, talked of his experiences in outpatients the day before and how he saw it as "basically a waste of time" after the first hour (section 8.4.4.2 above). Dan suggested: "Well don't stay longer than an hour. Dr Soul said if we had better things or more pressing things to do, to go and do them." The students all agreed that this was what they had been told and they decided to put it into practice. They did, and the clinicians on the Firm were in complete agreement with this. The students were very impressed.

In the fifth week of the attachment, while I was walking to a seminar with Dan, he said "A lot of Third Year students are now seeing attachments as a normal dull routine; the novelty of the white coat and the stethoscope has worn off." He was especially interested to see what the informal students' voice would be after this week: "The 'minor' attachments are changing over next week, and so they have their assessment this [week]. The ten-week attachment should have a midway assessment too. The Monday and Friday lectures are poor, and poorly attended. This is the time when students' opinions will begin to fix." Dan himself was enjoying his attachment: he felt in control of his learning and he liked working with the doctors, especially on 'take'. He was now focusing his learning

on patients, that is, he was patient-centred. He was no longer 'playing the system' on this attachment. He was far less cynical.

8.5 Reaction of Firm A and Firm B to the Faculty's evaluator

Both Firms were welcoming and helpful. They were interested in the evaluation, though Firm A had reservations as to its usefulness because of the complexity of medical education and because of reports from the USA on an evaluation there (see section 8.2.2 above).

Firm B invited me to attend the two meetings where students' end-of-attachment grades were finalised, and they welcomed my contribution to the discussion on assessment in general and end-of-attachment assessment in particular. (After this involvement, however, I decided, as already recorded (see section 6.3.5), to decline any future possible involvement with student assessment, since I thought it would prejudice my relationship with students and hence the quality of my evaluation.) Firm A did not invite me to attend their assessment meetings, though the Head of Firm did ask if I had access to, or experience of, everything I needed.

In the bedside teaching sessions I was always fully involved by all clinicians on Firm B. My views in discussion were sought as a biologist and as an educationalist, and as an interested lay person. Firm B also sought the views of their students. Firm A did not seek my views during the sessions, nor did they seek the views of their students (though they sought the knowledge of their students); but outside the timetabled sessions they were ready to discuss educational aspects of their teaching with me. Firm B clinicians regularly and frequently involved me in their teaching of physical examination. They would ask me to examine after demonstrating the technique, and they wanted me to say what I could feel or hear, and what my difficulties were. They also encouraged their students to do this, but students were less prepared and/or less able to. My candid comments pleased (and sometimes amused) both clinicians and students, serving as they did to cast a little neutral light on the joint problems of teaching and learning. One of the regular clinicians and two visiting clinicians on Firm A also, though to a lesser extent, approached their physical examination teaching in this way, involving me and valuing my comments and help. Other clinicians on this Firm also sometimes asked me to practise physical examination techniques along with the students; but this was more out of a feeling of friendliness than out of a feeling for the problematic.

Table 8.1

Attachments Researched in the Academic Year

Start of Academic Year	Medicine Attachment Firm A	Medicine Attachment Firm B	Medicine Attachment Firm C	Obstetrics & Gynaecology Attachment	
10 weeks	1st	1st	1st	1st	5 weeks
				2nd	5 weeks
10 weeks	2nd	2nd	Omitted	3rd	5 weeks
				4th	5 weeks

Table 8.2

Timetable for 3rd Year Clinical Teaching on two Medicine Attachments

FIRM A

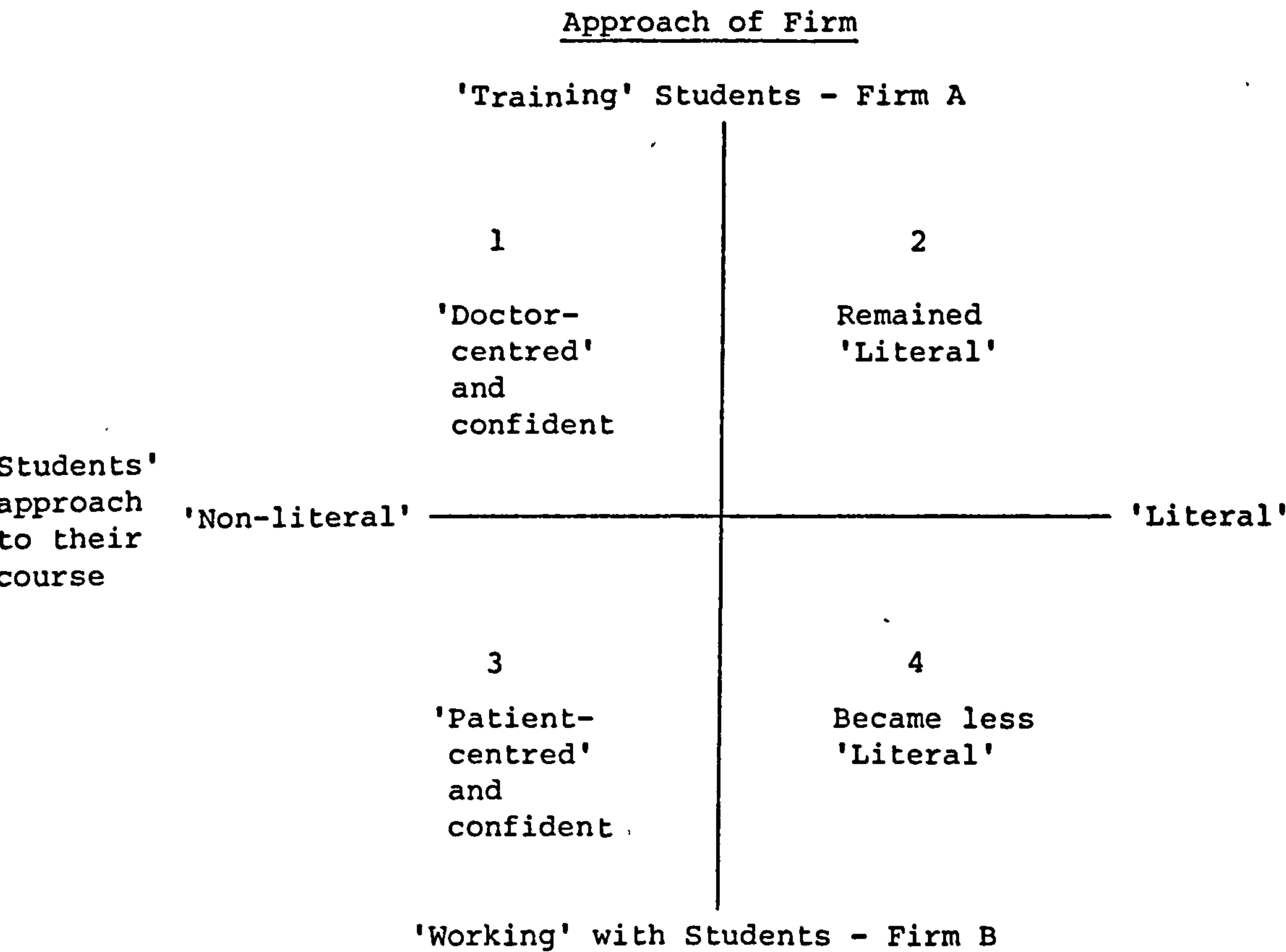
Monday	Tuesday	Wednesday	Thursday	Friday
8.45 X Ray	G.P. Work	9.30 Ward Round	8.45 X-Ray 9.30 Tutorial	9.30 Tutorial
2.00-5.00 Continuing formal course namely, Lecture programme S.G.H.	2.30 Case Demonstration			2.00-5.00 Continuing formal course namely, Lecture programme S.G.H.

FIRM B

8.45 X-Ray	G.P. Work	8.30 Ward round	9.00 Ward Round 10.30 Tutorial	9.00 Tutorial
2.00-5.00 Continuing formal courses namely, Lecture programme S.G.H.	1.15 X-Ray 2.00 Tutorials		1.30 Out- patients (follow-up) OR Small local hospital or 'twinning' firm 5.00 Clinical Pharmacology	2.00-5.00 Continuing formal courses namely, Lecture programme S.G.H.

Table 8.3

Matching the Firms' Approach to Students and the Students' Approach to their course



Note:

- 1 & 3: 'Doctor-centred' and 'patient-centred' students develop confidence throughout their attachment.
- 2: These students were uncommitted to any approach to learning, they became increasingly confused not knowing how best to spend their time. They wanted more teaching so began to look forward to their next attachment.
- 3: These students enjoyed their attachment and began to develop some confidence, especially in the last 5 weeks of the attachment, but it fluctuated.

CHAPTER NINE

CLERKING OBSERVED

9.0 Introduction

"No student should ever be expected to undertake any procedure involving a patient (including taking a history) or his relatives, without having seen the procedure carried out by a senior. Students must therefore observe fully-trained doctors at work." (Report of the Royal Commission on Medical Education (1968 page 290)

9.1 Teaching on an 'unseen' patient

9.1.1 Recapitulation on teachers and learners

Chapter Eight described two different teaching approaches to students by the medical Firms A and B during the students' ten-week attachment. A 'training' approach was adopted by Firm A, whilst Firm B adopted a 'working' approach. At the end of the Chapter the learners' differential responses to these teaching approaches were described and these are now recapitulated in the following paragraphs.

The students showed characteristics which demonstrated either a 'literal' or a 'non-literal' interpretation of controversial aspects associated with their course. The 'literal' students on Firm A had a non-committed approach to their learning: generally they needed others to make decisions for them and to order their priorities. They also relied on others to assess their progress. On the other hand, 'literal' students on Firm B, over the period of the ten-week attachment, became more tolerant of ambiguity and doubt; they began to take decisions for themselves, to order their priorities, and to reflect on their activities and opportunities.

In contrast to the 'literal' students, all 'non-literal' students took decisions, ordered their priorities and reflected on their experiences from the early stages of their attachment. They were also committed to a particular approach to learning. Firm A students focused on trying to become a doctor: they concentrated on learning to perform like the doctors on their Firm; that is, their learning was 'doctor-centred'. Firm B students, on the other hand, focused their learning on the patients they were clerking; they were 'patient-

centred'. They tried to understand the condition and management of their patients from a medical point of view, but they also tried to understand the patient as an individual. Both 'doctor-centred' and 'patient-centred' students grew in confidence throughout the attachment. 'Literal' students on Firm B also grew in confidence but to a lesser extent, while 'literal' students on Firm A gradually lost confidence, becoming worried and demotivated. They looked forward to a fresh start on their next attachment.

9.1.2 Teaching sessions with an unscheduled clinician

9.1.2.0 Clearly, the 'training' approach of the clinicians on Firm A was less successful than the 'working' approach of Firm B. Why was this? An unusual timetabled session on Firm A may help to answer this question.

9.1.2.1 The setting

The usual 9.30am bedside teaching session was due to take place with Dr Emmerson. Two of the six students had already gone home for Christmas. At 9.40am a doctor who had not taught the students before came in. Rather hesitatingly, he asked if they were Firm A's students. He introduced himself as Dr Walsh and apologised for not being prepared for the teaching session. (At this point I took the opportunity to introduce myself; though he had not taught the students, I had seen him around the hospital.) He explained that Dr Emmerson had been called away at a moment's notice and that he had been asked to take the session. Dr Emmerson had handed him a slip of paper on which was written "Mrs Price, Ward 1", he had instructed Dr Walsh to use the session "to polish up physical signs", and he had added that Mrs Price was a new admission with good physical signs, who would be excellent for teaching. His final point before dashing away was that the students would be waiting in the seminar room at 9.30am.

Dr Walsh began by saying that he did not know the patient medically -- he had never seen her. He automatically expected the teaching session to be poor -- "It will all be off the cuff" -- so he invited any student to go if they had better things to do. He almost implied that they would learn nothing from the session; he certainly implied that he thought they could spend their time more profitably. One of the students took advantage of this, on the grounds of a number of pressing things to do before the Christmas break. This left three students, and myself, attending the session.

9.1.2.2 The session

So much happened at this session that the outline and comment which follows will not do it justice.

We went to the ward and asked the nursing staff which bed Mrs Price was in. We went over to her and introduced ourselves: Dr Walsh asked if he could teach 'on' her; she readily agreed. Mrs Price was in her mid- to late-seventies; she looked comfortable and relaxed.

Dr Walsh began by asking the students "What do we look for first?". After several false starts, such as "listen to her heart" or "percuss her chest", the group's consensus was to look at her general condition and appearance. Next Dr Walsh said "Look at the patient's hands." It was noticeable that Dr Walsh asked, in a very relaxed manner, general questions such as: "How do we look for it?" "Where do we look for it?" "What do we gather from that?" "What's the significance, if any?" "When would that be significant?" etc. Examples of the topics in question were cyanosis, red hands, clubbing, sweaty hands and swollen lymph nodes in the neck. The students responded enthusiastically. Similarly, Dr Walsh was very enthusiastic and exceptionally alert to what the students were doing and saying, and to what they were failing to do and to say. He orchestrated the discussion involving everyone.

Dr Walsh also involved all three students in the physical examination of Mrs Price; for example, he asked them all to examine her trachea in turn. As the last student, Howard, examined, he asked "What is Howard doing, when he examines the trachea, that you two didn't do?" The students could not answer 'correctly', so Dr Walsh asked Howard to examine the trachea again, saying "Howard is examining the trachea correctly. What is he doing? He's doing something that you didn't do." Seeing Howard examining again allowed the students to observe that he was feeling the trachea from both sides at once: the other two students had felt first one side and then the other in sequence, so displacing the trachea during their examinations. Dr Walsh adopted this technique throughout the session, namely, to ask other students in the group either to correct their peers or to comment on their peers' performance.

During the discussion and the examination of the patient, Dr Walsh was very mindful of the patient's needs and feelings. He was very reassuring. For example, he said "We will

be talking about many things, some of which are quite awful, but these do not apply to you. We are just talking about all the possible things that go wrong with people's chests." He also said "Tell us if you get too tired. You'll remember to do that, won't you? We may get carried away talking, but we don't want to over-tire you" and "Does that hurt at all? You'll tell us if we do anything that hurts you, won't you?" He spoke to Mrs Price at frequent intervals throughout the whole of the session, not just at the beginning; he called her "my dear" and was constantly 'aware' of her.

Later in the session, when students were observing Mrs Price's chest, they noticed that the left side was raised on breathing whilst the right remained quite flat. Dr Walsh then surprised the students by saying "Now that you have noticed this, you need immediately to begin to think of conditions which give unequal chest signs and that can be long-standing." It is significant -- but not unexpected -- that the students were surprised. Their major surprise lay in being asked to focus so positively on clinical possibilities when physical signs had been observed and elicited but when the patient's history had not been taken. Students were formally taught to take the history first and, when taking a history, to keep an open mind, to collect all the necessary information and then subsequently to analyse it, in order to determine what diagnosis it suggested. Here, quite clearly, Dr Walsh was telling the students to use their clinical knowledge of chest conditions and the observed physical signs to control their thinking and reasoning during the process of history taking. This was a clear instance of a mixed message for students, and a very significant one, for it concerned the doctor's central clinical skills of history taking and physical examination.

History taking is fundamental to clinical practice, for the diagnosis and management of patients is derived from the history. Opinion varies, but doctors claim that between 80 and 95% of the diagnosis is derived from the patient history alone: if the history has not led to the diagnosis, then the physical examination, no matter how good, never will. And here lies the students' second reason for surprise. The students and the doctor had not begun by taking a history from Mrs Price; they were concentrating on the physical signs; and yet this doctor was suggesting that they could approach a diagnosis by immediately beginning "to think of conditions which give unequal chest signs and that can be long-standing". Again, this is a clear instance of a mixed message for students, and again a very significant one. Can a diagnosis be derived from a physical examination alone without first taking a patient's history?

Because the students were surprised by the doctor's advice, they immediately asked what he meant; they assumed they had misunderstood. As he explained, the students realised that he was saying not only that it was quite legitimate to focus on certain aspects of the physical signs to the exclusion of others, before all the data had been collected from the complete history and physical examination, but that it was in fact necessary to do this. Also, it was clearly legitimate, as far as this particular doctor was concerned, to work back from the physical signs to a possible diagnosis, and not, as the students had been formally taught, always to work from the patient's history to the physical signs for confirmation of the diagnosis.

Once the students were reassured that they had understood correctly, they were very keen to do what Dr Walsh had suggested. Two possible chronic conditions, TB and lung-tumour, were suggested by them to account for the unequal expansion of Mrs Price's chest. The next step was to examine her chest more fully, to palpate, percuss, and auscultate. This resulted in the students detecting severe lung congestion. All three students had asked the patient to say "ninety-nine" repeatedly when auscultating. Dr Walsh gave them a useful tip: "If you ask the patient to whisper 'one, two, three', non-voiced, it is better for detecting some less obvious forms of lung consolidation than asking them to say 'ninety-nine'." The students readily tried this out for themselves and approved of their new-found technique.

Taking the evidence available, Dr Walsh at this point asked the students to summarise the significant physical signs of the patient. He also asked, for each suggested sign that the group accepted, "What might the cause be?" or "What might be the significance of that?" He made sure that the students worked together as a group, and that they made the inferences behind their observations clear by saying what these inferences were and by discussing them. He also asked students to use and to share their clinical knowledge -- knowledge that was appropriate for the particular patient and for the students' particular observations. By this method, the students eventually suggested that it was possible that Mrs Price had long-standing TB which, together with a severe chest infection, resulted in chest consolidation. Dr Walsh accepted this and agreed that he would have suggested the same diagnosis from the evidence to hand.

9.1.2.3 Comment

During the whole of this session students were helped to move from the known to the unknown. They began by observing the patient in order to collect physical examination data which they then interpreted in the light of their knowledge of clinical medicine. They moved, with the clinician's guidance, from specific patient observations to generalisations (inductive reasoning) and from generalisations which included students' clinical knowledge to the specific patient problems, symptoms and signs (deductive reasoning). They did this repeatedly and apparently effortlessly. The students were seven weeks into their ten-week Medical attachment; collectively they knew an impressive amount of clinical medicine. This clinician's strategy led the students to narrow their ideas as they went along according to their observations and their knowledge. Since Dr Walsh had not seen or discussed the patient prior to the teaching session, nor had he seen her notes, he demonstrated some of his "off-the-cuff" thinking and clinical reasoning. He was, at the same time, very mindful of the patient and acutely observant of what the students were or were not doing. He guided the students very positively and gave them feedback throughout; he also asked the students to talk about what they were observing and thinking, and to share their ideas and knowledge. This they did readily, with great effect, even though they had had no practice of this technique in the previous seven weeks.

9.1.2.4 The sequel

When I talked to the three students after the session, they all agreed that it had been excellent and exciting -- quite unlike any other teaching session that they had ever had. They had not heard of any other students on any other attachment having a session like this one. The points they identified as being key to its success were:-

(a) The doctor was very enthusiastic when teaching; he obviously wanted to teach. The students were very impressed by this, especially as the doctor had been asked to teach "to fill a gap", and so he could have refused very easily.

(b) The doctor had shown a genuine concern for the patient throughout the session, reassuring her frequently. Also one student observed that "Dr Walsh asked the patient if she was prepared to be taught on, in a way that gave her the opportunity to say No. Often it seems only a ritual asking -- the patient couldn't really say no."

(c) The session had been very instructive; the students felt they had learnt a lot. As one student said: "We just seemed to talk things out. No one was put on the spot or anything like that. We all worked it out together as we went along, with Dr Walsh's help."

(d) The students valued seeing that the physical examination could lead to a diagnosis and not just to the confirmation of a diagnosis. Students were always told that the patient history provides 80% or more of the diagnosis, and that a physical examination can only confirm a diagnosis. They were also told that if the history did not yield a diagnosis, the physical examination would not.

(e) The students valued the demonstration that selective focusing and the use of clinical knowledge were quite legitimate in physical examination and history taking. Students had been told that, when taking a history, they must collect all the information from the patient, keeping an open mind. A diagnosis was then determined by looking at the patterns/generalisations that emerged from all the data collected. They had also been told that they must not focus on a diagnosis during the activity of history taking itself, but only afterwards, since history taking should focus on gathering information in an unbiased way. In this particular session, clinical knowledge had been used during the physical examination and during history taking, and not just afterwards as a secondary activity.

At the end of the session, as we walked away from the patient, one of the students asked Dr Walsh "Why has the patient been brought into hospital?" Dr. Walsh's reply was: "I don't know. This is the first time I've seen her, and I haven't seen her notes." As a result of this, Dr Walsh came to teach from scratch, so to speak -- he did not know the patient medically. The overwhelming success of the session may simply have been due to this: (a) to (e) above may have just been 'symptoms' of this more significant point.

Ward teaching was routinely based on patients who were medically well-known to doctors. Anything about a patient which was problematic was, as it were, in hand: tests were being done and treatment started. A second opinion, if one was needed, had been obtained.

This teaching session, with an 'unseen' patient, was a milestone both for myself and for the students; it was quite different from other ward-teaching sessions. It was ironical that Dr Walsh apologised for not being prepared for teaching; it was just his lack of preparation which made the session so very special. It had resulted directly in the doctor

thinking things out on the spot with the students and so demonstrating some of his clinical reasoning techniques. In other ward sessions the doctor's clinical thinking and reasoning had always been successfully completed in advance, for a patient diagnosis and management schedule had already been reached, even implemented.

The timing of this remarkable teaching session was very unfortunate. Two students had already gone home for Christmas and the others were about to go home: hence the full impact and benefit, even, as it turned out, for the three students who attended, was lost. After the Christmas break, the students returned to Firm A. Dr Walsh was not scheduled to teach them: the chance circumstances did not occur again. Also, because of the Christmas break, recollections of the session itself seemed almost unreal: as one of the three students who attended said "I begin to wonder if I imagined it all!" Consequently, they did not talk to the clinicians about the session and its significance for them. Nor did they talk about it to the other three students on Firm A; by the time they saw them in January, the impact of the session had waned; conventional busy student life on the Firm had sprung into action once more; there was no slack time in which to follow-up anything, even such an important event as this one.

9.1.3 Ward teaching in general: the basic pattern

During my two ten-week attachments in Medicine with Firms A and B, I was surprised and puzzled that I had not seen any doctor clerk a patient from beginning to end in any of the timetabled teaching sessions that I had attended. This session with Dr Walsh confirmed my surprise. I realised that I had expected students routinely to observe doctors-at-work during teaching sessions: especially, I had expected students to see doctors take a history, carry out a physical examination, present a case and write up patient notes (see the epigraph from the Todd Report at the beginning of this chapter). I had also expected doctors to observe students carry out these clinical activities, and to give constructive feedback. (I had watched students take patient histories and conduct physical examinations as part of my research for the Faculty and also because I had been asked by students to be their chaperone: chaperoning was introduced after a female patient had complained that she did not wish to be examined by a male student (Firm A).) But neither of my expectations had been met. The students were given no example of doctors authentically performing these clinical tasks during their timetabled sessions.

Another point of interest was that doctors judged the quality of a student's history-taking skills by the quality of their case-presentation skills and sometimes by the quality of their written patient case notes.

Timetabled bedside teaching was always organised around patients who had been admitted to hospital, clerked and 'tested' and whose treatment had begun (chapter 8, section 8.3). The particular details of these sessions varied greatly (for example: the patient's clinical condition and treatment; their social history; the student presenting; the involvement/non-involvement of other students), but underlying this variation was the highly significant invariable, that doctors taught on patients they knew medically: they taught on their 'own' patients, patients they were caring for.

There are obvious advantages to this arrangement, but there are also serious disadvantages. Once a doctor has taken a patient's history, written the notes, and begun to treat the patient, he cannot undo this experience, as it were, for the purposes of teaching. Thus doctors could not authentically take a history again with the student, purely for the student's benefit. But students do not see doctors taking even such a 'second-time' history, however artificial and contrived that second-time history might be. This is because clinicians do not see the need for students to observe them taking patient histories -- quite the opposite in fact (see section 9.2.6 below).

I had attended with the students all the different kinds of timetabled teaching sessions on attachment and I had talked both formally and informally with staff and students. I had also observed students take histories and conduct physical examinations (see above) and I had read and re-read the recommended textbook An Introduction to Clinical Medicine (MacLeod, French and Munro 1977 -- I had been given a copy by one of the students). Even so, with all of this immersion in the students' timetabled sessions and discussions with staff and students about clinical skills and their perception of clinical skills, I still felt very unsure about how practising doctors took a full patient history, largely because I had never seen a qualified doctor take a full history. (It should perhaps be borne in mind that I had not attended the Year Two Introductory Course to Clinical Medicine, unlike all Third Year students.)

9.2 Observing doctors clerking in New Outpatients clinics

9.2.1 Introduction

I talked to Dr Ingram on Firm B about my observations, the experience of Dr Walsh's session and the difficulties I had visualising the authentic process of clerking; he raised the topic of New Outpatient clinics. New Outpatient clinics are clinics where hospital doctors see patients (referred by general practitioners); thus it is here that they clerk patients. ('Return' Outpatient clinics (section 9.3.2), in contrast, check patients' progress.) I asked why students did not attend New Outpatient clinics. Dr Ingram explained that there were two basic reasons: (a) lack of physical space and general facilities (he added "perhaps when the hospital is rebuilt this problem will be solved"), and (b), more importantly, students would "learn short cuts when taking a history". Dr Ingram explained that "short cuts" were taken by qualified doctors because of their long experience, and their skill and knowledge as clinicians. If students copied "short cuts", this would be harmful in both the short and the long term. He suggested that if students took "short cuts" they would not understand why they were taking them; they may never understand the principles of their clinical actions. "Short cuts" were equated with "bad habits", and he was afraid students would "learn bad habits" which they would find very difficult to unlearn. However, these "short cuts" did not lead to misdiagnosis. We agreed that I should attend some of his Firm's New Outpatient clinics as an observer. I attended five of these clinics, in the Spring Term.

In this Section, I describe aspects of my experiences in the New Outpatients clinics (9.2.2-9.2.5). This is followed by evidence from discussions with three clinicians on Firm B, which focused on the possible use of these clinics by Third Year medical students (9.2.6). Finally, I comment on patient history taking as taught, and patient history taking as practised, by doctors (9.2.7).

9.2.2 New Outpatients clinics as observed

The five clinics that I attended were taken by three different clinicians from Firm B. Each clinic followed the same general pattern. It began at 9.30am approximately and lasted between two and three hours. Three, four or five patients were seen in this time.

Nurses had weighed and height-measured each patient, and tested their urine before the consultation with the doctor.

At each consultation the doctor took a history, did a quick general physical examination and a much more detailed specific physical examination according to the patient's presenting complaint. The patient's blood-pressure was also taken and their eyes were examined. Two of the doctors also paid special attention to the urine test results. Finally, a letter was dictated into a dictaphone to the patient's GP, giving details of findings, further investigations (if any) and initial treatment.

When taking the history each doctor referred unobtrusively to the patient's file and especially to the letter from the GP. The history focused on the patient's present complaint, though wider questions were also asked about specific past complaints and family details. The three doctors each had the technique of asking the same question more than once but in different ways, for example "Did you vomit?" and "Were you sick at all?" They also asked the same question in the same way, but at different stages of the interview, that is the doctor returned to the same question later, for example "When does the breathlessness come on?"

Talking to the doctors 'between patients' and at the end of the clinic, they told me that they adopted this method to try to make sure that the patient was understanding the question they had asked and so was answering the question the doctor intended. As Dr Soul put it: "I'm making sure I get the right answer."

9.2.3 Difficulties of history taking in New Outpatients clinics

Introduction More problems of communication and interaction were evident in the New Outpatient clinics than on the ward. This was revealing to me, and, as it turned out, to a student who happened to share part of my experience.

Misunderstandings There were many good examples of patients misunderstanding the questions asked, even though the three doctors used the above techniques to help patients interpret questions. Sometimes the misunderstanding was only revealed when the patient was examined, that is after the doctor had completed the history to his own satisfaction.

Dr Downs asked a patient if he had had any illnesses in the past; the patient said very emphatically "No. No, I've never had any trouble." However, when Dr Downs examined him he found two scars: it turned out that one was from an operation for a duodenal ulcer and the other for an appendicectomy. Dr Downs gently reminded the patient that he had said he had had no illnesses in the past: to which the patient replied "Well I didn't think I had had any illnesses; I didn't suffer any trouble afterwards." During the history taking, Dr Soul asked a patient if he had any rashes on his skin. The patient replied quite definitely that he had no rashes: "I don't suffer from rashes." However, later, when the patient undressed, bright red rashes were clearly visible. Dr Soul asked "What are these rashes on your chest and back?" The patient replied "They're not rashes; they're just irritations."

Another example occurred when an anxious middle-aged man with persistent abdominal pain (for about twenty years) was asked if he had palpitations; he said quite simply "No". Later in the interview, however, it emerged that his understanding of palpitations was "being out of breath". He had therefore answered the question "Do you get out of breath?" which was not the question the doctor asked.

Patients can easily misunderstand what they are asked. This applies not only to technical terms, for example 'palpitations', but also to non-technical terms, for example 'illness' and 'rashes'.

Concealing information The patient with abdominal pains was asked "Do you drink?" He replied "Very occasionally", and then quite spontaneously modified this to "Once a week". A little later Dr Ingram asked "You drink once a week?"; the patient's response was "Well, eight pints or so at least". All three doctors said that quite often patients conceal their regular habits and that closer questioning is often needed to reveal the truth.

Patient behaviour One patient was very lively and extroverted. She spoke loudly and laughed and joked all the time during the interview and the physical examination. This made it difficult for Dr Downs to clerk her. After she had left, he said: "You notice, I had to be very careful not to get annoyed with her. It would have done no good if I had got annoyed, quite the opposite; it would have been worse, and it would have been wrong of me; but it was quite a struggle to keep control." We went on to consider that perhaps this lady was nervous and that her lively extrovert behaviour was part of concealing this.

Forgetting to ask One patient was a heavy goods vehicle driver; he claimed that the trouble with his health had all started when he had been forced to park his lorry on the side of the road because he was feeling unwell. He had either gone into a deep sleep or been unconscious, he didn't know which, but he had been found about three hours later by another driver who pulled off the road to park by him. After the interview was over and the patient had left, I said to Dr Soul that I was intrigued to know what the patient had done after being found by his fellow truck-driver: did he drive to his destination, or drive to his depot or could he not drive at all? Dr Soul replied "I've no idea. I suppose I should have asked that, shouldn't I?"

Misunderstandings with the general practitioner A patient had been referred by her general practitioner because of hypertension or high blood-pressure. The general practitioner had tried to reduce her high blood-pressure but unsuccessfully. The interview with the patient showed that she was very puzzled by all the attention that had been paid to her blood pressure; as far as she was concerned this was not a problem. What did concern her was "feeling breathless", and she was very concerned about this: "I feel breathless whenever I do anything and it seems to be getting worse, not better. I'm breathless even when I don't exert myself."

As the interview progressed she became more relaxed and outspoken: not only was she puzzled at the treatment from her GP, she was actually annoyed, and was convinced that he wasn't listening to her or taking her breathlessness seriously. Dr Ingram reassured her and tried to help her to see that her high blood-pressure and her breathlessness were related; that treatment for her blood-pressure would improve her breathlessness: "We will make you feel less breathless; this treatment for your blood-pressure will certainly do that." The patient seemed fully satisfied, and said she could now understand why her GP had been so concerned about blood-pressure and apparently not concerned about breathlessness.

After the patient had left Dr Ingram said: "You have to be careful and to look at the relevant problem. With this lady, though you obviously need to deal with her high blood-pressure, you must pay equal attention to her shortness of breath. As you saw, it's the shortness of breath that's important from the patient's point of view."

Explaining or confusing? Another patient with hypertension wanted to know why he had developed it. Dr Soul said that it could be inherited and asked if either of his

parents, or anyone else in his family, had high blood-pressure. The patient thought for a while and then said that his wife's mother had high blood-pressure. Dr Soul explained that his wife's mother's high blood-pressure was irrelevant as far as his inheritance pattern was concerned. He then drew a parallel between inheriting high blood-pressure and inheriting blue eye-colour (the man had blue eyes) and he explained that high blood-pressure was inherited in the way that blue eye-colour was. Dr Soul added that if the patient had inherited high blood-pressure, he would have it for the rest of his life, like blue eyes: consequently he would need treatment for the rest of his life. The patient listened very attentively and responded by saying "But the optician didn't say anything like that was the matter with my eyes when I went to see him a fortnight ago." Dr Soul simply said, "I can see I'm confusing you. I just used your eye-colour as an example. High blood-pressure is inherited from your parents like your eye-colour is inherited." Nothing more was said on this matter by either the patient or the doctor. After the patient had left, Dr Soul exclaimed "I didn't manage the explanation of inheritance very well, did I? I'll ask him about it next time."

What to tell After a consultation with a middle-aged woman Dr Downs was very thoughtful. "I'm not sure how much of the truth I should give to a patient. What should I have told that woman? It's difficult. I would never give false information, no doctor should do that; but you can withhold the complete story, and it's quite often best to do that; at least at the beginning, until you know the patient better and you're more sure of their condition and their likely response. Also, sometimes you find you've been wrong; if you've not given the complete story, then it's a godsend."

Influences of the health care team The last patient Dr Downs saw at one of the clinics, was 'passed on' to him from another doctor on the Firm. The nurse working in Out-patients was clearly very annoyed about this, because it extended the clinic and so she was on duty for longer. When the patient had been seen, we talked about the attitude of this nurse and also about the attitude of nurses in general. Dr Downs felt that they were on the whole "anti medical students", because in many ways the presence of medical students both on the wards and in the clinics did inconvenience nurses, indirectly if not directly. He added that many nurses knew what it was like before there were medical students on the scene in Southampton and that matters could only get better as these nurses were replaced by nursing staff who only knew the times when medical students were around.

Social problems One patient was a girl aged fourteen. She could not read; she came to the clinic with her mother. As a result of the consultation Dr Ingram could find nothing organically wrong, so he arranged for her to be transferred to a neurological specialist.

Dr. Ingram had invited to this particular clinic a Third Year medical student, Katy, who attended by way of an experiment. I had not previously met her. Talking the case over after the girl and her mother had left, Dr Ingram asked Katy what she felt, since she was quite near in age to the girl and perhaps could understand her because of this. He also asked me for my opinion.

Another patient, on the same occasion, was an apparently healthy man who had been found to have protein in his urine. He was very puzzled by this. The tests had been done routinely when he went for a medical check-up in connection with an insurance policy that he wished to take out on his own life. Dr Ingram asked if he had had any previous illnesses. He replied "No", but then added almost as an afterthought "I had two operations for hernia, one in 1962, the other 1968." After the patient had left Dr Ingram asked "Do you think it's a good thing that the protein in his urine has been found?" Katy was very emphatic that it was good. She said afterwards that she wondered why Dr Ingram should ask such a question "It must be good: he can find out what's wrong and have it put right."

9.2.4 Summary of New Outpatient clinic experiences

Each consultation provided excellent experiences for discussion. Some issue of a problematic nature arose with each patient. This perspective on history taking was different from the view of history taking that students were taught.

I found the whole experience very informative. I had seen what I was looking for. At the New Outpatients clinics the three doctors had taken patient histories, done physical examinations, arrived at a diagnosis, initiated the management programme, and then in effect presented the case by dictating a letter into the dictaphone. (This 'presentation' was a letter to the patient's GP.) The whole process was a dynamic one -- no linear sequence of history taking, physical examination, diagnosis; and a problematic one -- fraught with all the complexities of interactions between strangers negotiating for a common conclusion under several constraints, including that of time.

9.2.5 Data from one student

Dr Ingram took the last patient for tests, and Katy and I began talking. She said that she was delighted with the supervised practice of taking blood-pressures (she had taken the blood-pressure of each patient attending the clinic, supervised by Dr Ingram): "I now feel much more confident about taking any patient's blood-pressure." Katy also said that it had been especially helpful to see how Dr Ingram examined patients: she felt that she had learnt a great deal and that she would be able to examine patients herself more competently as a result.

Another very useful aspect according to Katy was seeing the other side, so to speak, of GPs' referrals. On her general practice attachment she had seen GPs writing letters to hospital consultants, to arrange an appointment for a particular patient. By attending the New Outpatients clinics she had been able to see the next stage in the continuity of care of patients, that is, she had seen a consultant actually responding to the request of the GP. She had also seen the consultant reporting back to the GP by 'writing' a letter: "I'm beginning to see how it works."

Katy was very keen to talk about Third Year attachments generally. She said she was very puzzled: "You are told on the Introductory Course and in the Third Year attachments that all you need to learn is how to take a history from a patient, examine them and elicit physical signs. They say that you don't need to learn clinical medicine. The 'Aims' of the Third Year also say this. And yet you're expected to know what a large liver means, and not just to elicit the sign -- this patient's got a large liver." This mixed message troubled her. She felt she wanted to be told what she needed to do and what she needed to know; that, in fact, she should be told. As things were, she felt disadvantaged: "What am I to believe?" It did not seem to occur to Katy that she could decide for herself whether "to learn clinical medicine" as she put it, or not. Her sights were set on fulfilling what the course wanted her to do and for this she needed a clear, unambiguous message.

Katy explained that she had derived many benefits from the New Outpatient clinic; it had been a most useful learning experience. It was also clear from her comments that, in the terms introduced in Section 9.1.1 above, she was one of the students I have described as 'literal' and 'uncommitted' to a style of learning.

9.2.6 Talking to clinicians on Firm B about the possible use of New Outpatient clinics for Year Three medical students

After each clinic was over (apart from the last) I spent some time talking to the clinicians. I told all three, Drs Downs, Ingram and Soul, that I had found the New Outpatient clinic an invaluable experience; that it had given me a framework of clerking to work from, which had been missing from all my previous experiences of timetabled teaching sessions on attachment. I now had a much clearer view of the activity of clerking as a dynamic process which, like all other processes of human communication, was fundamentally unpredictable and problematic.

However, though all three clinicians appreciated what I was saying, they also believed, as Dr Downs put it, that "New Outpatients may be OK for you to learn from because you are skilled at observing in an unbiased way; you can look at things very differently. But it wouldn't be useful for medical students. They would get confused; they wouldn't be able to sort out what was important." We talked further, discussing the point that perhaps this might be so initially, but that students could learn a great deal, especially the realities of history taking. But the clinicians maintained their view: "Students would not learn as you have learned. Instead they would get into bad habits and take short cuts."

One of the clinicians firmly believed that teaching students by telling was very effective. And all the clinicians seemed to view efficient teaching and learning in terms of structure: a structure planned and controlled by the teacher: "I believe that teaching is only effective if it is structured, and you can't structure clinics for teaching: they are for patient care. They're not good teaching places nor are they good places to learn." This rather inflexible model of teaching is very prevalent, and not only in medical education. On this model (fostered by learning objectives, and also by evaluation via objectives -- see Chapter 4), the knowledgeable teacher decides what the student needs to know; he then structures the teaching from his own point of view. All three clinicians clearly saw the difficulties when deciding what students need to know. One doctor made a joke of it by saying "Students need to know what they don't know!"

We discussed the problem of the individual learning needs of students. These clinicians saw attachments as a way of catering for all students individually, since each student could decide what to do and when, according to their own priorities. This was one of the reasons for the way they organised the attachment - the 'working' approach, as it was

termed at the beginning of this chapter (section 9.1.1). The other reason was their belief that students learned best when they were involved and when their contribution was recognised and valued.

We discussed the importance of the social interaction of consultations and the wider face of medicine: patients who misinterpreted clinicians' questions, or who tried to conceal information, or whose history was in some way particularly difficult to take; doctors forgetting to ask certain questions and being unable to give adequate explanations to patients; social problems where medicine had no answer and the dilemmas doctors faced when deciding what to tell patients.

I asked if clinicians and medical students needed to talk openly about the dynamics of the process of history taking and to share the authentic activity together, since some Third Year students thought of history taking as a prescriptive check-list and something of an academic exercise. All three clinicians agreed that students must never see history taking as an academic exercise: they hoped that by valuing students' contribution to the Firm and by encouraging them to work with the Firm over the ten-week period of attachment, they would avoid any students seeing history taking in this way.

All the clinicians wished to explore the idea of Third Year students attending New Out-patient clinics, but they had reservations about what clinicians would teach and what students would learn.

9.2.7 History taking as taught and history taking as practised by doctors

All three clinicians saw history taking as a very dynamic process which was unpredictable apart from its general outcome, the diagnosis and management of patients. Different doctors took different histories from the same patient, and yet arrived at the same diagnosis and management. A single doctor could take different histories from the same patient on two different occasions (only hours apart) and arrive at the same diagnosis and management. Communication was identified as one reason for this; another and more important reason was that social encounters could not be relived in a 'facsimile' way. Each encounter had its own spontaneity and flexibility; it developed along its own path. And so it was with history taking viewed as a social encounter.

Many practising doctors believe that "taking short cuts" is a "bad habit" (cf. section 9.2.1 above): these three doctors were no exception. This belief seems to arise from the model of history taking used by doctors to teach medical students how to take a history. This model describes the history as a list of questions which the doctor needs to ask the patient in a logical and systematic way, to ensure that all the relevant data are collected. The doctor keeps an open mind and strives to be objective and thorough. When all the data have been collected the doctor arrives at a diagnosis. This was the formal view of history taking given to students by the Introductory Course to Clinical Medicine.

This view of the process of history taking parallels the traditional model of the scientific method, where observation is said to lead to the collection of data which in turn are interpreted by inference to discover objective concepts or general theory. But this traditional model of scientific method is increasingly challenged, since the role of the observer is omitted; or, more precisely, the theories with which the observer observes and interprets his observation are neglected. Observation is 'theory driven'; yet medical students are introduced to history taking and physical examination as if it were not. This is where the students' dilemma arises. As Katy said (9.2.5): "You are told on the Introductory Course and in the Third Year attachment that all you need to learn is how to take a history from a patient, examine them and elicit physical signs. They say that you don't need to learn clinical medicine. The 'Aims' of the Third Year also say this. And yet you're expected to know what a large liver means, and not just to elicit the sign -- that this patient's got a large liver." Knowing clinical medicine -- knowing what a large liver means -- is part of the theory that drives the process of history taking and physical examination.

The reason why Third Year students were not timetabled or encouraged to attend the New Outpatient clinics seems to be because there is a mismatch between the model of history taking as taught and history taking as practised. It seems a pity that medical students are deprived of the learning opportunities that the New Outpatient clinic gave to me. Here were opportunities to see clerking as the dynamic, continuous and problematic process that it is. This experience would help students to develop consciously an appropriate framework, not only for clerking, but also for thinking about and talking about clerking.

9.3 Varieties of medical experience

9.3.1 Introduction

This section (9.3) is concerned with four different kinds of teaching sessions for students outside the standard bedside teaching sessions dealt with in the last chapter. The first, 'take' sessions, was experienced by students on both Firms. The other three were only experienced by students on Firm. B. Each week on Thursday afternoon one third of these students attended either the Return Outpatient clinic, or the local hospital mentioned in Chapter 8, or the 'twinned' Firm. This last was a specialist Firm with which an arrangement for such visits had been made. The students made their own rota.

Section 9.3.2 describes the 'take' sessions, 9.3.3 the Outpatients sessions, and 9.3.4 the local hospital together with the 'twinned' Firm sessions, since these two had much in common as far as teaching and learning were concerned.

9.3.2 'Take' sessions

Hospital Firms operate a 'take' rota. Any patient who is acutely ill and who is admitted to hospital as an emergency is automatically cared for, at least initially, by the Firm of doctors on duty or simply 'on take'.

Firm B clinicians expected their Third Year students to attend 'take' sessions and to participate in them. They provided them with a bleep (internal telephone contact) and arranged overnight accommodation in the hospital to help them to make full use of the unpredictable opportunities which 'take' sessions provide. All students found 'take' experiences very worthwhile: "'Takes' are brilliant, you are right in the action!" But it was not just the action that wooed the students, there were unique learning opportunities as well: "We can clerk first if the patient isn't acutely ill, then we write up the notes and perhaps examine too. Afterwards, or as soon as the doctor's free, we go over it together. It's quick feedback and very good. Being first to clerk is quite a different clerking experience." There are also excellent opportunities for students to learn clinical skills: "I learnt to put in a catheter on 'take' and also an IV drip."

Sometimes the 'take' Firm is told to expect a patient who subsequently fails to arrive. But even these events can be very valuable for students: "We were told to expect a patient

who was vomiting blood, so we began to discuss what it might be and whether he would need a blood transfusion. Whilst we were waiting I was talked through the procedure for giving a blood transfusion. But he never came."

One student described 'take' sessions very vividly as follows: "I would sacrifice everything else for the 'takes'. You see doctors at work. You talk about patients and they are not at all sure; they even get out books and look things up. It's doctors thinking aloud." For this student the problematic face of the reality of medicine was very instructive, and the instruction was qualitatively different. All else could be sacrificed for this.

Firm A's students in general found 'take' sessions very tiring and a "waste of time". The doctors encouraged them to attend but not to help. Students became disillusioned with 'takes', so they decided to check with Faculty if they needed to attend. (It was Faculty's policy that Third Year students should be encouraged to attend 'takes', but they are only compulsory for Fifth Year students.) Since 'takes' were optional, many of the students decided not to attend: "Well, we just seem to spend our time hanging around. It is very tiring and you don't seem to learn much" "It's no good: we have no accommodation and a no bleep" "If we could be first to clerk patients like B's Firm then it would be great, but as it is, I question the value of 'takes' for students on our Firm" "We need to be involved on 'takes' and to clerk first sometimes, like B's Firm."

These students clearly recognised the value of participating in patient care and being the first to clerk, but they were unable to influence the established organisation of 'take' sessions for students on their Firm.

9.3.3 'Return' Outpatient clinics

These clinics are for patients who are already under the care of the hospital consultant. They provide the opportunity for the doctor to check on the patient's progress and to keep the patient informed. They also allow treatment to be continued or changed, depending on progress.

Students on Firm B viewed their experiences of Outpatients variously, partly because different doctors gave students different degrees of responsibility. On the whole, the more students were involved and the greater their responsibility, the more they claimed that they learnt from these clinics. Initially students were inclined to see Outpatients as "a

waste of time", since they were not able to take a full history of the patient's presenting complaint (at most only an update history since their last Outpatient visit) and they did not have ready access to patients' notes. However, they decided to excuse themselves in the course of a session when they thought they could take in very little extra information; this was after about one hour (chapter 8, section 8.4.4.2). This arrangement worked very well: increasingly students valued outpatients and they showed this by staying longer.

Gradually, students began to see these clinics as an opportunity to focus on patient management and to experience at firsthand the development of disease as shown by sign and symptom changes. Patient prognosis became much more meaningful. The advice given by the doctor to patients was useful to students in at least two ways: it allowed them to see (i) how patients were kept informed by the doctor, and (ii) which aspects he chose for particular emphasis.

Outpatients provided continuity with general practice attachments for some students. GPs referred patients to hospital consultants via Outpatient clinics, and Third Year students, by and large, had little firsthand experience of this process. Working in Outpatients provided a richer perspective (cf. section 9.2.5).

Attending the Outpatient clinics was particularly relevant whenever a patient was admitted to the wards, for the students could then follow the patient's progress in even more detail.

Students on Firm A were not scheduled to visit Outpatient clinics: the reasons given by clinicians were "You will pick up bad habits and take short cuts" (cf. section 9.2 above), or "You must be able to take a thorough history and have a much wider experience before you can benefit from Outpatients." Yet students were keen to go to Outpatient clinics. The first group on attachment asked if they could attend. However, as it was already week seven, only four students were able to take up the opportunity: those who did were very enthusiastic. Students on the second ten-week attachment were not timetabled for Outpatients either, and they did not ask if they could attend.

9.3.4 Visits to the small local non-teaching hospital and the 'twinned' firm

These experiences were for Firm B students.

Doctors at the non-teaching hospital and the 'twinned' Firm generally only taught Third Year medical students on Thursday afternoons. Students said the doctors "were extra helpful" "They don't do as much teaching -- they are so enthusiastic. They enjoy teaching us and actually thank us for going!" Also: "The patients seem to welcome us; I think it's because there are so few students around and there's not much for them to do on the ward. We help to relieve the boredom for them." The patients were also helpful indirectly: "The patients have very good physical signs, all of them on the 'twinned' Firm and most at the local hospital. Though it may be simply that the doctors can pick patients with good physical signs." Both experiences were well liked and appreciated by students.

Clerking was different too. Students were introduced to a patient by the doctor and asked to take a history and examine, in half-an-hour; this was followed by case presentation and discussion. Thus in the space of about two-and-a-half-hours students had clerked, presented and discussed the particular patients chosen. They also had highly selective feedback on their strengths and weaknesses, including demonstration of examination techniques.

This quick clerking, presenting and feedback was very helpful; students said it enabled them to assess their own progress more accurately. They also saw formal assessment as "nothing special" and unnecessary: this was due in part to Thursday afternoon sessions.

Students on Firm A had no learning experiences equivalent to these.

9.3.5 Summary

Firm A's students, unlike Firm B's, lacked the opportunity to clerk patients first, even on 'take'. They also had no opportunity to clerk, present and discuss patients with a clinician, all in the space of about two hours, including feedback on their clinical skills and knowledge. Firm B's students, because of the local non-teaching hospital and the 'twinned' Firm, were given these opportunities two weeks out of three. Also Firm B's students (but not Firm A's) attended Return Outpatient clinics: here they saw patient management and progress at firsthand and how disease signs and symptoms developed

over time. They were able to see the continuity of their GP and hospital attachments. Firm B summed up this learning potential: "There is nothing like following patients through if you really want to learn medicine. Medicine is much clearer in patients you see over time."

9.4 Conclusion

The Year Three clinical attachment in Medicine was regarded as central to the students' learning experience: this was why I had been asked to evaluate it (chapter 4). Central to the attachment was the experience of clerking. Yet the expressed aims of the attachment blocked the educational potential of this experience. These aims had been framed by the course-designers; they were upheld and respected by many of the clinicians concerned in the teaching, but not by all, as this Chapter and the last (chapter 8) have made clear. The students likewise, as has been described, were divided in their observance of the aims.

Clerking includes history taking, physical examination; diagnosis and patient management: the expressed aims of the attachment included history taking and physical examination only, diagnosis and patient management were formally discouraged for Third Year students. This, together with the concept or model of history taking as taught, encouraged some staff and students to see history taking and physical examination as ends in themselves, believing that they could be learned in their own right. However, other staff and students saw history taking and physical examination as seriously distorted without attention to the central activity of diagnosis: students could not acquire these skills as ends in themselves; diagnosis was critical. These perceived differences are substantial and significant. Achieving the central aims of the Third Year attachments, namely the clinical skills of history taking and physical examination, without attention to diagnosis and management does not help students to acquire the skills, nor teachers to teach them.

CHAPTER TEN

INTERVIEWS WITH OTHER CLINICIANS: TEACHING CLINICAL MEDICINE

"Clinical medicine's the same, whether you are pre-Todd or post-Todd: it makes no difference with the teaching." (A clinician)

10.1 Introduction

Chapter 8 described research conducted on the first two attachments of two Medical Firms, A and B. Each attachment was for ten weeks. Participant observation of these attachments and many discussions with both staff and students, showed that there were key differences between the two Firms concerning their perception of their role as teacher and how they interpreted the aims of the Third Year, that is, how they managed teaching and learning. The differences were reflected in the different approaches to learning adopted by the students.

In October of the following academic year, I was able to approach again the clinicians of Firm C, working in a different hospital from Firms A and B. I knew the Firm already, having observed a Medical attachment with them (not included in this study) in the previous Autumn Term, but many of its personnel had changed in the intervening period. I had, however, renewed contact with some of them during the Introductory Course to Clinical Medicine in the Summer Term. It will be remembered that I had interviewed clinicians from Firm C as well as clinicians from Firms A and B prior to the first Medical attachments (chapter 8 sections 8.2.5 and 8.2.6). I now approached the Firm again in order to widen my coverage of clinicians' views on the teaching and learning of the early stages of clinical medicine. I was seeking their views specifically on the Introductory Course to Clinical Medicine, with which I was now familiar, and on Year Three Medical attachments. They were, however, very ready to talk generally about students and clinical medicine, and in this chapter, I report the interviews accordingly.

The nine clinicians interviewed worked on Firm C at another Southampton hospital. Seven were interviewed individually and two were interviewed together at their request. (I also talked informally on the ward to these two clinicians individually. There were no differences between what they said together and what they said separately.) Each interview lasted between one and one and a half hours, and was self-evolving. One of the two

was a Southampton graduate; the other had worked on the firm since January, but professed to know nothing about the Introductory Course to Clinical Medicine: he asked "Is it the same as Early Medical Contact?" (see section 2.2.3(c)(i)).

Three of the nine clinicians interviewed had taught on the last Introductory Course to Clinical Medicine, in the previous Summer Term, and of the remaining six, two were ex-Southampton medical students. Thus five doctors had first-hand experience, in some capacity, of the course. The remaining four only knew about the course from fellow doctors and/or medical students. One of the four (just mentioned) said he knew nothing; two were very uncertain about the course in Southampton, though they had a clear view of what they themselves demanded of an Introductory Course to Clinical Medicine; the fourth doctor had been teaching on the Firm for only a week but he already knew a great deal: he said the students that were currently attached to the Firm had been especially helpful and informative.

The evidence from the interviews is presented at length in the following three sections:-

- (1) Section 10.2 'Clinicians' general comments'.
- (2) Section 10.3 'Clinicians' views of the Introductory Course to Clinical Medicine', focusing on answers to the specific question: "What do you hope students will achieve as a result of attending the Introductory Course to Clinical Medicine?"
- (3) Section 10.4 'Clinicians' views on the Third Year Medical attachment', focusing on answers to two specific questions: (i) "What do you hope Third Year students will achieve as a result of the ten-week Medical attachment?" and (ii) "How can they best achieve this?"

Sections 10.3 and 10.4 are summarised together in section 10.5.

10.2 Clinicians' general comments

10.2.0 At interview the nine clinicians made a number of general comments: these concerned the Introductory Course itself (10.2.1), the system of rotation for Year Three attachments (10.2.2) and teaching on attachments (10.2.3).

10.2.1 On the Introductory Course

Two general comments were made by six of the nine clinicians about the Introductory Course. The comments related to the timing of the course, though the implications go well beyond the issue of timing. Not all six clinicians mentioned both points, though some did.

(a) Timing

Clinicians said "It takes place at the wrong time of year." They thought this for two basic reasons. (i) A staff perspective: "There are lots of other extra commitments for staff in the summer term, and there are staff holidays" "You can't find enough patients for teaching; patients can be over-examined. Everybody wants patients at that time of year, whereas at the beginning of the academic year there would only be Fifth Year students and Third Years." (ii) A student perspective: "What do students actually remember? This is a problem with the long intervening Summer vacation: students remember so little when they start their attachment, we always have to begin by going over the systems examination again."

(b) Length of course

Staff, on the whole, thought that the course was too long especially the two afternoons per week for the final eight weeks of the Summer Term: "It is very difficult for staff and students to maintain a sufficient level of motivation and enthusiasm for the duration of the present course. It all goes stale before the end" "It is definitely too spread out; it would be much better if we had a more concentrated course, though the organisation may be very difficult" "The length of the course is rather prohibitive; I feel that if it were shorter, more clinicians would be willing to take part: the course would have a better impact."

No clinicians saw the extended period of time as an asset -- for example, so that staff could demonstrate specific physical examination skills that could then be practised and consolidated by students, under supervision and with feedback. This is perhaps surprising since neither history taking nor physical examination are simple skills; but since staff believed that students remembered little by the time they began their attachments in Year Three, then it is understandable that they felt as they did about the course.

One clinician linked the length of the course with the quality of teaching: some clinicians were unable to sustain the level of enthusiasm needed. As a result, students varied tremendously when they began their Third Year attachments, and in a way this made things more difficult for the students and for the clinicians once the attachments began: "Some students, for instance, can examine the chest adequately, but not the nerves or the abdominal system; others might be able to do the nervous system but not the chest. And I don't think this can be due to the students themselves; it is more due to their experiences on the Introductory Course. Specialists teaching doesn't help either: why should we have surgeons to teach the examination of the abdomen? I feel if the skills could be taught by generalists, with continuity, it would be very much better for everyone."

10.2.2 On the system of rotation for Year Three attachments

Six of the nine clinicians disagreed with the present system of rotation in principle (cf. chapter 8, section 8.1.2), though they acknowledged that such a system might be a practical necessity. All six argued that it was necessary for Third Year students to begin their attachment with Medicine: "To start with general medicine is definitely the best, if only because it reinforces the Introductory Course" "Since Medicine is basic to everything, you must start with Medicine first." Two of these six clinicians felt very strongly that any specialist attachment such as Paediatrics, Obstetrics & Gynaecology, or Psychiatry would be a waste of time if they came before the students' Medicine attachment: "If you start with a specialty such as Psychiatry, in a way it is almost a nonsense. You can't orient to the specialty without having first consolidated your general information. And certainly if you are looking at the Introductory Course and you are giving the Introductory Course a General Medicine orientation, then beginning Year Three attachments with any other specialty is certainly a nonsense."

One of the Southampton graduates felt the order of rotation was important because of the attitudes that Year Three students developed during rotations: "Psychiatry and Geriatrics were regarded as a holiday, and you can get the wrong idea if you happen to do them first, for the first attachment."

The three other clinicians felt that the sequence of Third Year attachments was immaterial, for it would not affect students' clinical development: "I don't think it is particularly important in the Third Year, since only the basics of each specialty is given and

therefore it does not matter in which order you do your rotations." They claimed that no particular order was preferable, though one clinician, a Southampton graduate, claimed that the order of attachments was very important for the Intermediate Part Two exam at the end of Year Three: "It is important to end up with Psychiatry and Geriatrics because then you get a lot of time for revision."

10.2.3 On teaching on attachments

(a) Tutors

Firm C (unlike Firms A and B) operated a tutorial system: each student was allocated a tutor to help with any aspects of the course or matters arising from the course. Two clinicians thought they could profitably have two tutees: "I spend about an hour of my time a week as a tutor. If I had two students, I would feel that I would have to spend an hour-and-a-half, but I could cope with this, and the students could help each other."

Most clinicians had confidence in the tutorial system: "It's working satisfactorily on the whole, though there are flaws." Flaws identified were: "Some of us don't teach the group as a whole and so we are generally less good as tutors" "I suppose you can find tutors and tutees who may be incompatible for some reason" "I have heard students say some tutors are difficult to find or impossible to pin down." And as one clinician said: "Students cannot bully tutors to help them." One tutor had a particularly difficult problem in that his student had been allocated several patients who "belong to another doctor". The patients were in fact being cared for by a different Firm of clinicians. As a result, the clinician said, "I don't know in detail how good my tutee's patient notes are, since the patients are not my patients but another doctor's. I have not been able to check the validity of what the student has said."

All the clinicians saw that tutors could give students individual attention and so meet their individual needs: "We have only one student each, so there is no problem going through what the student asks for." However, because of this tutorial system, some clinicians said that they were reluctant to give help to any other students attached to the Firm: "It takes time and each student is catered for" "If their tutors are not helping, then students must ask them to." One clinician went so far as to say quite emphatically: "Students should not approach anyone other than their own designated tutor for help." For one clinician there was an irony about the tutorial system: "It is surprising when you are a tutor: it is only

those students who don't need to come who do come, generally. And the ones you know need help and encouragement, attention and guidance -- they don't come. I have no idea why this is. Is it because they are afraid to come? or is it because they have so many weaknesses they think it is too great an ordeal for them to expose themselves at all?"

(b) Teaching emphasis

All nine clinicians were concerned to teach well; they thought about their teaching. It seemed that the clinicians generally taught as they themselves were taught: "I know we shouldn't, but we assume that students are rather like ourselves when we were at that stage. We shouldn't do it, because these students have had a different course to us for the first two years, and they are also going to have a different course for the next three." Another of the clinicians realised the limitations of this approach very clearly: "I teach on the assumption that the students are like I was as a student. I teach as I was taught. But they are not like me. No doubt their personalities are different, and certainly they are a different generation. Also their course is very different." The main criteria that these clinicians had used when they were students, to judge teaching success, were largely affective (rather than cognitive), for example "not boring", "interesting", "enthusiastic teacher" and "good teacher relationship", together with "clarity".

Many clinicians commented that, since most of the clinicians on the Firm were London-trained, they had no first-hand experience as students of the Southampton curriculum. Four clinicians felt generally uninformed. For example, one clinician claimed "I don't think Third Year students spend much time on the wards." But he was unaware that the integrated curriculum at Southampton gave students other commitments in the Third Year as well as ward attachments. When he knew this, he immediately revised his judgement: "I didn't realise that; I was doing them an injustice. They are on the wards as much as they can be." A number of clinicians added comfortingly: "It can only get better as more of the Southampton graduates teach Southampton students."

Each of the nine doctors in this group assumed that the other eight doctors taught students in the same way as he did. One extreme example of this was: "Clinical medicine's the same, whether you are pre-Todd or post-Todd: it makes no difference with the teaching." (The Medical School at Southampton was established on the recommendation of the Royal Commission chaired by Lord Todd -- see chapter 2.) The clinicians assumed that some would be better teachers than others: "Some staff are not as fully committed as

they should be" "Some personal tutors are not as good as others." One doctor wondered what the surgeons' aims were for their 10-week attachment. And another doctor, whilst he was talking, realised that he did not know how or what other doctors taught: "The emphasis is definitely not to demonstrate the physical signs but to enable students to perform the examination. The physical signs are relative, but how many clinicians concentrate on signs? I'm not sure what others are doing. I just don't know."

One interesting point is that, though these nine clinicians all thought about their teaching, and though all were concerned to teach well, they did not talk to each other about their teaching (except at a very superficial level: for example, a quick comparison of the students in their current student group: "They're an average group of students for their first attachment," or a comparison of this group of students with the last group or whether the students had turned up or not etc.). All nine clinicians were pleased to have the opportunity to talk to me about their teaching, so that certainly the interest and probably the opportunity was there to talk to other doctors about their teaching, even in a busy ward life, but the habit, perhaps even the idea, was not there.

All nine clinicians said they would welcome clear guidelines from Faculty concerning the Southampton courses: "It would be useful to have the objectives and what it was hoped would be achieved" "It is difficult to know exactly what is wanted by Faculty."

However, they were very certain that such guidelines should only state the aims and the emphasis of particular courses; there should be no attempt to suggest methods of teaching: "Clinicians' approach to medicine varies, and a clinician is going to teach how he thinks he ought to teach, regardless of the Medical Faculty." One clinician was quite adamant that they would always teach in their own way and that they would even resent interference.

10.3 Clinicians' views on the Introductory Course to Clinical Medicine

10.3.0 The presentation of clinicians' views is preceded by a brief overview of of the Introductory Course to Clinical Medicine together with two remarks thereon.

This section (10.3) and the next (10.4), in which clinicians' views are presented at length, are summarised in section 10.5.

10.3.1 The Introductory Course to Clinical Medicine

This course, as the name implies, was an introduction to clinical medicine. It was a Second Year course in Term Three. The term began with Part One exams; the next nine days were devoted full-time to the Introductory Course and this was followed by two afternoons per week for the remaining eight weeks of the Summer Term. The rest of the timetabled time (three-and-a-half days) was occupied by systems courses teaching.

During the initial concentrated two weeks, students were introduced to the aims of the Third Year and to some of the attachment specialities, though the Medicine attachment was the main focus. History taking and physical examination were described, and 'tips' were given by doctors who represented the various speciality attachments, for example gastro-intestinal medicine, ophthalmology, respiratory medicine. Students had a brief opportunity to practise, under supervision and in small groups, history taking and physical examination. In the remaining eight weeks, the emphasis was placed on clinicians demonstrating to students the physical examination skills of one body system each week and on the students practising these specific skills on selected hospital patients. During these eight weeks, very little, if any, time was devoted to history taking.

It is perhaps worth noting that the Introductory Course to Clinical Medicine had a unique characteristic. Generally courses have more students than teachers or tutors. The Introductory Course, however, demanded more staff than students. This was because so many clinicians were called upon to supervise students at some time during the last eight weeks of the Summer Term (two afternoons per week), when students were introduced to the physical examination of patients in hospital.

It should be noted that the course was an introductory course to clinical medicine as a whole: that is to say, it was introductory both to what might be called the two "major" specialties, Medicine and Surgery, which were allocated ten-week attachments, and to the "minor" specialties, such as Obstetrics & Gynaecology or Psychiatry, which were allocated five-week attachments (see section 8.1.2). 'Medical' staff and the needs of 'Medical' attachments predominated, and even Surgical staff played a relatively small role -- though an indispensable one, as the numbers of Medical clinicians would not have sufficed.

10.3.2 What clinicians hoped students would achieve as a result of the Introductory Course to Clinical Medicine.

When I asked staff "What do you hope students will achieve as a result of attending the Introductory Course to Clinical Medicine?", their answers were varied, but clear patterns emerged. The patterns are best shown with the help of Table 10.1.

All clinicians expected the students to have basic skills of physical examination (column 1). Three clinicians also expected students to be able to elicit clinical signs (column 2) and to have clinical knowledge of disease (column 5), whilst the remaining six clinicians expected a suitable approach to patients (column 3), coupled, except for clinician 9, with basic history-taking skills: one of these six, clinician 4 in the table, also expected clinical knowledge.

The nine clinicians can be regarded as falling into two groups in respect of the items in columns 2-5. Group One consists of three clinicians, nos. 1-3, and Group Two of six clinicians, nos. 4-9. The two groups are clear-cut, except for clinician 4.

Group One clinicians expected students to have a basic outline of common diseases: "Students should know the signs and symptoms of common diseases as a result of the Introductory Course to Clinical Medicine." They should also have an ability to physically examine the body systems: "They should have a basic examination technique not missing out anything and knowing what to look for; by making reference to common conditions and a knowledge of clinical medicine some clinical signs will be elicited" "It is useful for students to learn to pick up physical signs." In this way these clinicians claimed that students should be able to elicit clinical signs. Clinician 4 also claimed that the Introductory Course should teach the students "a little factual clinical knowledge", but he, unlike the three clinicians, made no mention of whether or not students should be expected to elicit clinical signs.

All six of Group Two clinicians regarded "basic examination techniques as essential." One clinician made his views clearer by specifying that "Students at this stage cannot be expected to put the physical examination together. If the Introductory Course enables them to physically examine patients' systems, that is all it can be expected to do." But another said: "Piecing the systems examination together, making it a whole rather than leaving it in bits, could be included in the Introductory Course." Two of these six clinicians also

stressed that students should not be expected to elicit clinical signs: "Students must not be expected to elicit even gross physical signs as a result of this course" "They should not be able to detect abnormal signs."

All Group Two clinicians also stressed that "Students need to develop a suitable approach to patients" as the result of the Introductory Course, whilst one also included the development of "an appropriate flexible attitude to patients". Two of the clinicians felt that the approach to patients was so important that "If they don't feel at ease with patients, if they can't just go up to them and start talking to them, students may just as well forget about trying to take a history." Five of these six clinicians included basic history-taking skills: "Students should be able to show basic history-taking skills" "Students should be able to show an appreciation of history taking" "Students should be able to go up to patients and talk freely and easily to them; they should be able to take a fairly straightforward history, but not necessarily the finer points of history taking" -- as a result of the Introductory Course.

It is interesting that the three clinicians in Group One did not include students developing either a suitable approach to patients or basic history-taking skills as a result of the Introductory Course to Clinical Medicine. These three clinicians expected that, because of the Course, students would have a basic clinical knowledge of diseases and would also be able to elicit clinical signs, whereas the six clinicians in Group Two expected students to approach patients in a suitable manner and to develop basic history-taking skills. The views of Group Two clinicians are more in line with the aims of the Introductory Course to Clinical Medicine: neither the acquisition of clinical knowledge nor the ability to elicit clinical signs, included by Group One, are part of the stated aims of the Introductory Course to Clinical Medicine.

10.4 Clinicians' views on the ten-week Medical attachment in Year Three

10.4.0 The last section (10.3) and the present section (10.4) are summarised together in section 10.5.

10.4.1 What clinicians hoped students would achieve as a result of the Medical attachment

When clinicians were asked "What do you hope Third Year students will achieve as a result of their ten-week Medical attachment?", their answers were varied, as they were in

section 10.3.2, but again clear patterns emerged. These differences can be shown with the help of Table 10.2.

Broadly speaking, the clinicians' answers fall, as before, into two groups; Clinician 4 is now part of Group One.

All four clinicians in Group One expected students "to be fully competent to examine a patient". Two clinicians stressed that this examination should not be an integrated examination: "It is better if they examine in systems rather than trying to integrate" "It is useful just to examine the systems affected in problem cases: for example, if you have a respiratory case sent in, just examine the respiratory system -- though you know you need to be able to do the other separate systems too." Such competent examination will enable "students to become much more thorough and much more proficient at eliciting physical signs." One clinician linked a competent examination technique to clinical knowledge: "Students should examine competently, not making any gross errors with their examination. They should know what they are doing when they're examining and have a good knowledge of what can be found commonly on the wards. Also, they should be getting some knowledge of patient management, so that they know the general range of antibiotics used, for instance, but they need not know dosage."

History taking was seen by these four clinicians as a skill which should be acquired competently during the ten-week attachment: "By the end of the attachment student history taking should be competent." One clinician knew, however, that there were problems for students in acquiring competence in history taking during Year Three: "Students are introduced to history taking in the Year Two Introductory Course, but then it goes off again in Year Three, because Year Three tends to concentrate on the physical side of things and clinically you don't get at the history taking." His point was that the emphasis in Year Three teaching was on the physical examination rather than on history taking; this he thought made it difficult for students to develop their history-taking skills. Also this clinician saw that the situation was further complicated because, though an aim of Year Three was for students to develop history-taking skills Third Year students were "last to clerk patients" with the present organisation of attachments. As a result of being last to clerk, Third Year students do not experience the reality of clerking, since this reality is only experienced fully by the person who is first to clerk. The upshot for this clinician was that Third Year students were unable to "get at the history taking". This more in

direct point made it difficult, perhaps impossible, for students to develop their history-taking skills effectively.

Four of the five clinicians in Group Two expected students to be aiming to physically examine patients in an integrated way rather than in separate systems: "Students need to be piecing it together in the way that a clinician does. When you are looking at the cardiovascular system, you automatically do the respiratory system at the same time. These two are a must; they must go together. And then you can have three systems together, so you are looking at integration from the word go in the physical examination" "If you divide things into systems you can miss out important examination procedures, such as examining the breast and the thyroid. At the beginning of the attachment I ask students to look at MacLeod (the students' textbook: Introduction to Clinical Examination) and to think on what they have done about physical examination in the Introductory Course. I then asked them to make a list of all they need to do to achieve an integrated examination, and the best order in which to do it, and to go and attempt the examination in the way that they planned, and to check immediately if anything's missed out. If they do this right from the beginning they will acquire the necessary skills."

One of these clinicians also claimed: "Students should be able to elicit physical signs and to reason about them with the help of the differential diagnosis." He also stressed: "Students should integrate the history taking and the physical examination so that they guide each other and supplement each other. I often feel that students see the two processes, history taking and physical examination, as completely separate exercises. For example, students commonly do an examination and say "I have elicited A, B, C," and yet they fail to look at the history they have taken for crucial clues as to what A, B, C, mean for a differential diagnosis." However, another of these five clinicians said they did not expect students to elicit physical signs, largely because "physical signs are relative and it's the ability to examine that counts." Two clinicians in this group linked students ability to physically examine with their clinical knowledge (one of these was the clinician who linked students' physical examination skills with their history-taking skills): "The activity of physical examination automatically gives students a level of clinical knowledge" "Students should have a full knowledge of the common medical conditions that arise and that they have seen and physically examined on the wards. They should be able to distinguish these, for example heart failure and pneumonia."

All five clinicians expected students "to be able to take an adequate history where the patient history is relatively simple". Three of these clinicians also said that students should attempt a differential diagnosis whilst history taking "since this gets the students thinking" "Differential diagnosis is a skill which should be encouraged from the start; even the Introductory Course should do this."

One clinician in Group Two clearly saw the attachment as enlarging the students' perception of medicine generally: "Students should see how medicine is actually practised. They should get to know what their job will involve when they are qualified. They must know how the wards are run, and obtain as much practical experience as they can, for example writing up blood-cards and asking for tests, and taking blood. The teaching must have a clinical emphasis and not an academic one. Students should be introduced to realities such as death, chronic incurable disease, and doctors who at times are unable to make a diagnosis." These aspects of Third Year Medical attachments were very important to this particular clinician.

Summary

There were two broad groups of clinicians. Four clinicians (Group One) saw students developing competent physical examination skills and an ability to elicit physical signs, together with competent history-taking skills and a range of clinical knowledge, as a result of their ten-week medical attachment. Five clinicians (Group Two) stressed that an integrated physical examination should be aimed for by students, but that they should not necessarily be able to elicit physical signs. They also saw student history-taking skills in terms of an adequate history for straightforward patients; students should always attempt a differential diagnosis whilst taking a history. Some clinical knowledge would be acquired whilst these clinical skills were developed and practised on the ten-week Medicine attachment.

10.4.2 How clinicians thought students could best achieve the hoped-for outcome of the Medical attachment.

10.4.2.0 After each clinician had discussed what they hoped students would achieve as a result of the ten-week Medical attachment, I asked how they thought students could best achieve this. Their answers again varied, but again clear patterns emerged. These differences can be shown by the help of Tables 10.3 (a) and 10.3 (b).

The clinicians' answers related to four broad areas:-

10.4.2.1 The students' general approach

10.4.2.2 The process of history taking

10.4.2.3 Timetabled sessions

10.4.2.4 Non-timetabled time.

10.4.2.1 The students' general approach

All nine clinicians felt that the students' way to success in the ten-week Medicine attachment was firmly in the hands of the students themselves: "Students must be the controlling force; it's up to them" "It's definitely up to the students; I make a point of saying this to each set of Third Years" "They get out of it what they put into it; their teachers can help but they're not babies any more. They need to organise themselves and make the most of the attachments."

10.4.2.2 The process of history taking

The four clinicians in Group One saw the task of history taking as "cutting out all the extra stuff and seeing the main threads; sorting out the relevant from the irrelevant" "There's a lot to learn, and students find it difficult to separate the relevant information from the irrelevant; but they must learn to do this when taking a history." These clinicians claimed: "If students keep in mind the fact that they are needing to present their cases at a later time whilst they are taking a history and writing up patient notes, it helps them sort out what is relevant" "Students should remember to keep their case presentation in mind; it will help them to see what is important and what is not, and they may therefore get more out of what they are doing when they take a history." These four clinicians saw history taking as a process of sorting out, which could be assisted by thinking about case presentation and writing patient case notes.

One of these clinicians also saw that: "Students need to begin to practise to associate symptoms, to group them with known clinical conditions, and perhaps lean towards the prime symptoms rather than being just thorough." Associating symptoms and leaning towards the prime symptoms will encourage students to decide what the patient's presenting complaint or primary problem is. This clinician was suggesting that students need to begin to address differential diagnosis earlier in history taking.

In Group Two only one of the five clinicians saw the history-taking process as sorting out the relevant data with the help of case presentation and writing patients notes in mind, but this clinician incorporated the skills into a more complex model: "Students ought to be able to derive illness patterns and be able to offer a differential diagnosis. They should be able to present cases, and this will help them in their differential diagnosis because they will sort out what is relevant from what is irrelevant. The differential diagnosis always requires one to reason about the signs that have been elicited, so students ought to be doing this." He came back to this point at a later stage in the interview: "In history taking, you have to organise yourself and orient yourself according to the presenting complaint, and it is very useful if you think of your case presentation whilst you are taking a history. Presentations are very important because they allow you to sort out what is important in particular patient cases and to get to the nitty-gritty of the problem."

All five clinicians said that history taking should be purposeful, and students should therefore think of differential diagnosis when taking the history: "When taking a history you should never forget the diagnostic aspects; you need to be able to ask questions aimed at getting a differential diagnosis. This aspect is sadly neglected in teaching generally" "As students become confident they will begin to take a history and to elicit physical signs. I hope they will fit these into a pattern and, even if they have no medical knowledge to help them, will associate the signs and symptoms -- that they will begin to make up a story and to get an approach which gives them a feel for differential diagnosis" "Taking the history must lead the student to the patient's problems and a differential diagnosis."

Two clinicians thought that the development of students' history-taking skills was blocked by students' perceptions of history-taking. In their experience, most students regarded history-taking as a list of questions that must be asked of patients, preferably in set systematic order, and no more than that. The notion that the history would evolve as data were collected and a picture of the possible diagnosis be built up, was quite foreign to many students in the eyes of these clinicians. It is illuminating to quote these two clinicians' comments at length. (1) "With regard to history taking there are two kinds of students. One kind only concentrates on the list of questions to ask patients. This is what the history is, for these students -- just a list of questions. But there is also, and more importantly, the point behind the questions which allows you to get at the diagnosis, and this aspect of the history should be included right from the start. There must be a purpose for each question, and this purpose is diagnosis. Any clerk could take a history, if

all it was was running through a number of questions in a set order; but it is not like that. It might take you ten years or more to be efficient at taking a history. Quite senior clinicians may not be good at taking histories and writing patients notes even now -- they're still learning. It's a very slow process, but all the time you are building up this ability to be able to direct the question according to the expected predicted diagnosis from what data you have got, and that's the crux of history taking, not the list of questions." (2) "A series of questions or crib-sheet is not history taking: you need to be thinking. If you were to concentrate on taking a history by means of a check-list, this is definitely misleading, since many important things would be left out and others would be included which are not important to the specific patient case. All a check-list can do is give a list of commonly asked questions. History taking loses its point if it is merely a tick-sheet. Students ought to be building a picture of a professional diagnosis whilst they are actually taking a history, and they ought to examine in the light of it. This must be brought to the notice of students early on, though they may not make very much of it initially. The examination then becomes coloured by the history. If at the end of the Third Year students saw history taking as an empirical set of questions to ask, this would be a nonsense and the Third Year would be a failure."

To summarise these two groups:-

Group One clinicians see history taking as the process of sorting out relevant from irrelevant information; this sorting out is facilitated by thinking about the patient presentation and/or writing-up patient notes, both of them important 'professional activities' which usually follow history-taking.

Group Two clinicians, on the other hand, see history-taking rather differently: they focus firmly on its purpose, seeing the need to identify the patient's problem and/or to suggest a differential diagnosis as a necessary outcome. Acquiring the skills of history-taking is, for these clinicians, a complex and lengthy process. Two clinicians condemned the view which saw history-taking as a list of questions; for them it was an evolving activity of looking for meaning and explanations, which was unique for each individual doctor/patient encounter.

10.4.2.3 Timetabled sessions

Three clinicians in Group One thought: "Students should attend all the teaching sessions" if they were to succeed on the Medical attachment. For these clinicians it was the natural thing to do.

Two clinicians in Group Two, however, thought quite differently: "The teaching side of things is not very important; it's much over-rated except for showing students techniques of physical examination and keeping up their motivation, but they could be achieved in other ways. If students were part of the team you wouldn't need this amount of teaching. I feel, for some students, teaching gets in the way of their learning; if this is so, they must stop coming to the teaching sessions. If only the students would decide what was necessary and go out of their way to achieve it, that would be so much better. Some students just want to take what's given to them, but that is not good. They need to be able to decide themselves what's needed" "I've personally cut down on teaching time; I think there is too much teaching. It's difficult enough for students to clerk with the interference of visitors, or patients going to tests and investigations, or students attending lectures." Another clinician in this group said "Teaching sessions help students to pass exams".

To summarise: most of Group One clinicians saw the scheduled timetabled teaching sessions as important stepping-stones to a successful attachment, whereas two of the Group Two clinicians saw the non-timetabled student activities as more important to their success. If success is measured by exam results then, in the eyes of another clinician, the teaching sessions will contribute to success.

10.4.2.4 Non-timetabled time

The four clinicians in Group One said: "Students should see as many patients as possible" "If students are to get the best out of the attachment they should clerk as many patients as they can. At the moment I think there are too few patients on the ward for the students to clerk enough patients." One clinician expressed this full use of patients very graphically: "Students should 'pick the cherries off the trees', as I was once told. And it worked! Go and look at all the things that are interesting; go and examine all the signs that you can. Make use of what's available, don't miss a thing!"

Two of these clinicians thought: "Students should help each other by saying what signs their patients have; all the other students could then go and examine it. However, students don't share in this way, though they seem keen enough."

All of these four clinicians claimed that Third Year students should not learn clinical skills, and three said that they should not go on 'take': "Clinical skills such as blood-taking and ECG's are the work of the houseman; these are not part of the training for Third Year students" "You could give these students the opportunity to take blood and to put up a drip; but they should not be doing it, not as Third Year students" "If these students come on 'take', they are in the way, they just hang around" "Third Years are not really supposed to come on 'take', and Fifth Year students have priority over admissions. If there's a Fifth Year student on the Firm, Third Year students can't see patients in preference to them."

Interestingly, three of these clinicians said that the Third Year students were too keen: "The main problem is that they are trying to be like housemen, and they aren't housemen. They should still be examining individual systems. They should be able to do this efficiently. And getting 'genned up' on the knowledge of the systems. In the Fifth Year, you do work that's equivalent to the houseman, and this is fine; but not in Year Three" "One of the students is especially keen: he has clerked almost everyone on the ward. I'm sure the other students are intimidated by him; I know I am!" "These students are very keen, in fact they are over keen: they're still around at 6.00pm, and there is no need for this. This is on nights when the Firm's not on 'take'."

Though one clinician in Group Two said "Students should see as many patients as they can," the other four clinicians said students should "see their own patients daily: and follow them up: go to all the procedures, investigations, treatments with their patients" "Students must never neglect seeing their own patients, patients that they are allocated; it's much better to look at a few patients and to look at them well, than to look at all the patients available and do it superficially."

This group of clinicians also thought that students needed to feel part of the Firm, learn clinical skills and go on 'take'. They were very certain of this: "All students should feel that they belong to the Firm" "Students must become involved in the Firm if they are going to do much. They must feel part of the Firm, with a certain amount of responsibility. It is useful for students to have, built into the system, some responsibility. If

students get clear-cut evidence that they are improving in their skills of, say, taking blood, then it can be a very good motivating factor, a reassuring factor that they are improving in their history-taking and physical examination skills, which is not so obvious. Also they feel that they are contributing to the Firm -- not just superimposed but actually taking part. If I could guarantee that by 9.30 each morning the blood that needs to be taken has been taken by students, I would be delighted to give them that responsibility" "Students should practise skills, blood-taking for instance; acquire whatever skills they can" "Students should go on 'take', be around and see things happening" "'Take' is very important, because new patients are coming in and you have an opportunity to formulate your ideas. You are not being coloured by others. You see the doctors not being able to diagnose, and this in itself is good experience. It would be very useful if we knew what students thought when they came across a clinician who had a patient and was unable to diagnose a complaint. But there's not much scope for this; there is no overnight accommodation at the hospital, and students need it to make use of 'takes'. It is quite serious, this lack of overnight accommodation!"

To summarise clinicians' views on non-timetabled time: Group One clinicians would advise students to clerk as many patients as they could and to help each other by passing the word around the group when any patient they knew had good physical signs. Thus they had a coverage approach to the attachment. They thought it was too soon for students, in their Third Year, to learn clinical skills, for example, taking blood, or to attend 'take'; it was also wrong for Third Year students to behave as if they were house officers. Group Two clinicians would advise students to follow their own patients throughout their stay in hospital by seeing them daily. They stressed the need for students to feel part of the Firm and to contribute to the life of the Firm by acquiring clinical skills, for example taking blood, and by attending 'take'. These clinicians had a patient-focus approach to the attachment.

10.4.2.5 Summary

Summarising this section (10.4.2): all clinicians said that students got out of the attachment what they put in -- it was up to the student. Group One clinicians talked of history taking in terms of sorting out the relevant from the irrelevant information, using subsequent case presentation and or patient note writing as a guide. These clinicians also saw the need for students to attend all timetabled sessions and to clerk as many patients as possible. They regarded the students currently attached to the Firm as over-keen because

they wanted to be involved in ward work, learning clinical skills and attending take. Group Two clinicians, on the other hand, spoke of the need to begin to think of a possible differential diagnosis when taking a history. Two clinicians stressed the conceptual confusion of those students who regarded history taking as nothing more than a list of questions. The teaching sessions were seen by these clinicians as less important for students than how they spent their non-timetabled time. The key to student success was to spend their time clerking their own patients and to keep up-to-date by re-clerking each day; also students should feel part of the firm by contributing, learning clinical skills and attending 'take' sessions.

The clinicians' views summarised

The clinicians' views are summarised in tabular form in Tables 10.4(a), 10.4(b) and 10.4(c). A prose summary follows, in which some commentry is included.

10.5 Summary of clinicians' views on the Introductory Course and the Medical attachment

I interviewed nine clinicians, seven individually and two together, who worked on Firm C, at the beginning of the academic year. Though these nine clinicians may not be 'typical', valuable information was obtained regarding their expectations and perceptions of both the Introductory Course to Clinical Medicine and the ten-week Medical attachment.

On the basis of the nine clinicians' expectations and perceptions, two groups of clinicians were identifiable. Apart from one clinician (clinician 4 in Tables 10.1, 10.2 and 10.3), the grouping of the clinicians remained constant. Clinician 4 was part of Group Two when the Introductory Course to Clinical Medicine was discussed, but part of Group One for the ten-week Medical attachment.

Introductory Course to Clinical Medicine

All nine clinicians expected the students to acquire basic physical examination skills. Group One (three clinicians) also saw the need for students to acquire the ability to elicit the physical signs and to gain some common clinical knowledge. One clinician had been a student on the course three years earlier; the other two clinicians had little or no knowledge of the course. Group Two (six clinicians) stressed the importance of students

developing an easy approach to, and relaxed manner with, patients, and an appreciation of the basic history-taking skills. Two clinicians said that students should not be expected to elicit physical signs, and one of these clinicians also maintained that students should not be expected to have any clinical knowledge as a result of the course. Three clinicians had taught on the Introductory Course during the previous Summer Term and one clinician had been a student on the course three years earlier. The remaining two clinicians had no first-hand experience of the course; in spite of this, one of them had a detailed knowledge of the course.

Group Two's expectations and perceptions of the Introductory Course to Clinical Medicine matched the aims of the course. Group One's expectations and perceptions, on the other hand, only matched the aims with regard to the students' acquisition of basic physical examination skills: they erroneously excluded history-taking skills and included eliciting physical signs and acquiring clinical knowledge.

The ten-week medical attachment

All nine clinicians had contact with students on their ten-week Medical attachment, though not all clinicians were tutors. There was no aspect of student achievement on which all nine clinicians agreed. Group One (four clinicians) stressed that students should acquire competent physical examination and history-taking skills and should be able to elicit physical signs, and that they should have a good range of clinical knowledge. Group Two (five clinicians) saw the need for students to begin to approach physical examination in an integrated way, but only one clinician saw the need for students to elicit physical signs. For these clinicians, basic history-taking skills included the thinking skills of trying to formulate a differential diagnosis. Only two clinicians expressed a need for students to acquire clinical knowledge.

Clinicians differed as to how students should achieve their suggested outcomes for the attachment. Group One clinicians unhesitatingly claimed that students should attend all timetabled sessions, whilst Group Two clinicians were either non-committal or unenthusiastic about students attending timetabled sessions; two thought that the sessions might actually interfere with students' learning. Group One clinicians saw the need for students to clerk as many patients as possible, in contrast to Group Two, who stressed that students should clerk their own patients fully and follow them throughout their stay in hospital; they should also learn clinical skills and attend 'take' sessions, for in this way

students would feel part of the Firm, and this was essential for their progress. Group One clinicians said that Year Three students should not acquire clinical skills nor attend 'take' sessions, as this was not Faculty policy. They made no mention of the need for students to feel part of the Firm; they clearly separated the life of the Firm from students' learning activities.

Group One clinicians were younger and less experienced than Group Two clinicians; two were Southampton graduates. It seemed that these clinicians might in some way find themselves in competition with the Year Three student. They also talked about skills and knowledge acquisition as if it were an all-or-nothing activity, though one of them did make a point of saying that he himself was still learning. All four described the clinical skills of physical examination and history taking as difficult to acquire and to practise properly. On the other hand, Group Two clinicians discussed clinical skills in a way which highlighted their developmental nature, and one clinician stressed their relativity. They were aware of the differences that could be found among qualified clinicians with regard to their clinical skills of history taking and physical examination; but though they recognised that there were many ramifying implications of this, they did not outline these and we did not explore them.

One of the aims of the ten-week attachment was to continue to acquire the skills of physical examination and history taking. As far as these clinicians were concerned, no details were given by Faculty as to whether the students' approach to physical examination should be in separate systems or integrated. With regard to history taking, students were formally told on the Introductory Course to Clinical Medicine to learn to take a patient history in a thorough and objective way, systematically collecting all the necessary information. They were also told that the process of differential diagnosis should be left until a later stage of their course. The acquisition of clinical knowledge was not an aim of the Third Year, though it was recognised by clinicians that if students did acquire clinical knowledge, it was to their advantage. In a sense, clinical knowledge was seen as a bonus.

Two further aims of the Third Year were: (a) to understand the impact of disease on the patient and his family, and (b) to consolidate the Biomedical Science knowledge of Years One and Two. These two aims were not addressed directly by either group of clinicians. However, Group Two clinicians, by suggesting the importance for students of (1) following through their own patients in a detailed way, (2) becoming part of the Firm and its

activities, and (3) making their own decisions as to how to spend their time most profitably (not simply attending and focusing on the timetabled teaching sessions), gave students the opportunity and the means to achieve these two aims, (a) and (b) above, whilst at the same time increasing their responsibility and their all-round involvement. In this way, they believed, students' clinical development would be enhanced.

Table 10.1

What clinicians hoped students would achieve as a result of the Introductory Course to Clinical Medicine

Clinician	1 Basic Physical Examination	2 Elicit Physical Signs	3 Approach to Patients	4 Basic History Taking	5 Clinical knowledge of the course	6 Knowledge of the course
1 *	/	/	-	-	/	None
2 (So'ton)	/	/	-	-	/	Student
3	/	/	-	-	/	Little
4 (So'ton)	/	-	/	/	/	Student
5	/	-	/	/	-	Taught
6 (New)	/	x	/	/	x	A lot
7	/	-	/	/	-	Taught
8	/	x	/	/	-	Little
9	/	-	/	-	-	Taught
<hr/>						
(So'ton) - Ex-Southampton student						
<hr/>						
(New) - The clinician has taught on the firm for 1 week						

Key:

- The clinician expects the student to acquire the particular item
- The clinician said they did not expect the student to acquire the particular item
- The clinician did not mention the particular item
- The clinician has taught on the firm since January
- (So'ton) - Ex-Southampton student
- (New) - The clinician has taught on the firm for 1 week

Table 10.2 What the clinicians hoped the students would achieve as a result of the ten-week Medicine Attachment

Clinician	Competent Physical Examination	Integrated Physical Examination	Elicit Physical Signs	Basic History Taking	Competent History Taking	Clinical Knowledge	Key: /	
1 *	/	x	/	-	/	/	/	- The clinician expects the student to acquire the particular item
2 (So'ton)	/	x	/	-	/	/	x	- The clinician said they did not expect the student to acquire the particular item
3	/	-	/	-	/	/		
4 (So'ton)	/	-	/	-	/	/		
5	-	/	-	/	-	-	-	- The clinician did not mention the particular item
6 (New)	-	/	/	D.D.	-	/		
7	-	/	x	D.D.	-	/	*	- The clinician has taught on the firm since January
8	-	/	-	D.D.	-	-		
9	/	-	-	/	-	-	(So'ton)	- Ex-Southampton student
							(New)	- The clinician has taught on the firm for one week
							D.D.	- Differential diagnosis

Table 10.3a

How clinicians thought students could best achieve the hoped-for outcomes of the ten-week Medical Attachment

(a) When taking a history

Clinician	Sort out relevant from non-relevant	Think of case presentation and/or notes	Think of differential diagnosis	It's not a list but evolving	Go to all time-tabled sessions	Key:
						/
1 *	/	/	-	-	/	- The clinician expects the student to acquire the particular item
2 (So'ton)	/	/	-	-	/	- The clinician said they did not expect the student to acquire the item
3	/	/	/	-	/	- The clinician did not mention the particular item
4 (So'ton)	/	/	-	-	-	- The clinician has taught on the firm since January
5	-	-	/	/	-	(So'ton) - Ex-Southampton student
6 (New)	/	/	/	/	-	(New) - The clinician has taught on the firm for 1 week
7	-	-	/	-	-	
8	-	-	/	-	x	
9	-	-	/	-	x	

Table 10.3b

(b) Non-timetabled Time

Clinician	Clerk as many patients as possible	Clerk "own" patients	Feel part of Firm	Learn Clinical Skills	Go on Take	Key:
1 *	/	-	-	x	x	/ - The clinician expects the student to acquire the particular item
2 (So'ton)	/	-	-	x	x	x - The clinician said they did not expect the student to acquire the item
3	/	-	-	x	-	- - The clinician did not mention the particular item
4 (So' on)	/	-	-	x	x	* - The clinician has taught on the firm since January (So'ton) - Ex-Southampton student
5	-	/	/	-	/	(New) - The clinician has taught on the firm for 1 week
6 (New)	-	/	-	-	-	
7	-	/	/	/	/	
8	/	-	/	/	/	
9	x	/	/	/	/	

Table 10.4 (a) and (b)

The evidence from the interviews with the nine clinicians can be summarised in three tables;

Table 10.4

(a) The clinicians' expectations of the Introductory Course to Clinical Medicine, Year Two: What they hoped students would achieve

Note: All nine clinicians expected students to be able to carry out a basic physical examination of the separate body systems

Group 1 Clinicians

(3 clinicians)

1. The student will be able to elicit physical signs.
2. The student will have a basic clinical knowledge of common diseases.

3.

4.

Group 2 Clinicians

(6 clinicians)

1.

2.

3. The student will approach the patient in a suitable manner.

4. The student will have acquired the basic history-taking skills.

Table 10.4

(b) The clinicians' expectations of the ten-week Medical Attachment, Year Three: What they hoped students would achieve

Group 1 Clinicians

(4 clinicians)

1. The student will be able to carry out a competent systems-based physical examination.
2. The student will be able to elicit and demonstrate physical signs
3. The student will be able to take a competent history with most patients
4. The student will have a good knowledge of clinical medicine based on patients clerked and taught topics.

Group 2 Clinicians

(5 clinicians)

1. The student will be developing the skills to carry out an integrated physical examination

2.

3. The student will be able to take an adequate, simple history and will attend to formulating a differential diagnosis throughout

4. The student will have some basic clinical knowledge

Table 10.4 (c)

(c) The clinicians' views on how students can best succeed in their
ten-week Medical Attachment

Note: All nine clinicians said that students get out of the attachment what they put in; "It's up to the students themselves".

Group 1 Clinicians

(4 clinicians)

1. The student should attend all timetabled sessions
- 2.
3. When taking a history the student needs to sort out the relevant from the non-relevant via thinking of the future case presentation or writing patient notes
4. The student should clerk as many patients as possible
5. The student should have no ward responsibility: they should only be responsible for their own learning
6. Students should not go on 'Take' or learn practical clinical skills, since this is not Faculty policy for Year Three students.
7. One clinician mentioned reading by students as an aid to success.

Group 2 Clinicians

(5 clinicians)

1. The student should attend the timetabled sessions if it is the most profitable way for them to spend their time.
2. The student should be able to approach the patient in a relaxed manner.
3. When taking a history the student should see it as an evolving framework leading to a differential diagnosis
4. The student should clerk their own patients fully
5. Students should have ward responsibility with suitable support since they are part of of the Firm
6. Students should go on 'Take' and learn practical clinical skills, since they are part of the Firm.

CHAPTER ELEVEN

INTERVIEWS WITH STUDENTS: GENERAL PRACTICE ATTACHMENTS

11.1 Introduction

11.1.1 Opportunity to investigate a later intake of students in their Third Year

In the fifth and final year of my work as evaluator of the medical curriculum, an opportunity arose to collect further data from Third Year students on attachment (students of a later intake than those discussed in Chapter 8). A selection of data is presented in the present chapter, focusing on the General Practice attachment and the relationships between the General Practice attachment and the specialist hospital attachments, principally in Medicine and Surgery. No data was collected, on this occasion, from the teachers concerned, that is to say from the general practitioners. Teaching on diagnosed and undiagnosed patients is a significant part of the data presented.

11.1.2 Year Three General Practice attachments

Each week, students spent the equivalent of three days on specialist hospital attachments and one half-day in the community on General Practice (GP) attachments. Monday and Friday afternoons (the equivalent of one day) were timetabled for continuing formal teaching.

Students attended General Practice attachments according to the rota shown in Table 11.1. Thus during the year students attended four different General Practice attachments, with different general practitioners (GPs) in different centres. The particular timing each week depended on which hospital attachment students were assigned to:-

- (a) Tuesday morning when attached to Medicine (ten weeks)
- (b) Wednesday morning when attached to Obstetrics & Gynaecology (five weeks) and Child Health (five weeks).

(c) Thursday morning when attached to Surgery (ten weeks)

(d) Friday morning when attached to Geriatrics (five weeks) and Psychiatry (five weeks).

This is unlike any of the students' hospital attachments where students experience only one firm of doctors for the whole of each attachment. This had an interesting consequence: students were in a position to compare one GP experience with another.

11.1.3 Method used and students selected

I interviewed individually, on two separate occasions, twenty-three Third Year students on Third Year attachments. The first interview was in December towards the beginning of the students' second attachment (if their first attachment was for ten weeks) or third attachment (if their first two attachments were for five weeks each), whilst the second interview, in March/April, was during their fifth or sixth attachment. Each interview lasted between one-and-a-half to over three hours, the average being approximately two hours. The interviews were open and unstructured, but I began each with a broad open invitation: "Tell me about your experiences of the Third Year so far." Since seven of the twenty-three students made no reference to their General Practice attachment in response to this invitation at the first interview, I specifically asked all students about their Third Year General Practice attachment at the second interview, if they did not mention it themselves. The question I asked was: "What about your General Practice experiences this year? How's General Practice?"

I knew all twenty-three students well, having worked with them as First- and Second Year students, and they knew me well. The students were chosen so as to represent the eight ways through the six attachments, that is all eight rotations. Ten were male and thirteen female, five mature and eighteen straight from 'A' level courses. All students chosen had filled in and returned two copies (one pre-course and one post-course) of a questionnaire that I had compiled and sent to all Second Year students during the previous summer term. The questionnaire was based on the Introductory Course to Clinical Medicine: one copy was sent to students for them to complete before the course began, another copy was sent to them immediately after the course ended: they were not a random sample.

I asked each student selected, by letter, if they would participate in a longitudinal study to extend over Years Three, Four and Five, explaining that it would involve periodic interviews and questionnaires/inventories to complete. All the students agreed to participate very willingly, and did so over the next two years -- and, indeed, as will be seen in the next chapter (chapter 12), beyond. The present chapter is confined to Year Three data, focusing on General Practice attachments.

11.1.4 Making comparisons among GP attachments, and between GP attachments and other attachments

Third Year students naturally compared their Third Year attachments in at least two ways: (a) their own attachment experiences as they reflected on them throughout the year, and (b) their own attachment experiences and those of other students, both in their own year and years senior to them.

However, if students were comparing, for example, the Child Health and the Medicine attachments they often concluded that any comparison was rather sterile, as "the attachments have to be as they are because of the specialty" "Child Health and Medicine are different, so you can't really compare the two" "It's like comparing apples and oranges -- they're different." General Practice attachments on the other hand could be compared one with another, since students had four different General Practice experiences in their Year Three attachments; they legitimately compared them and drew conclusions from their comparison. Thus students were able to identify advantages and disadvantages which would otherwise have gone unrecognised. For example, it was not uncommon to hear students say: "I thought my first GP experience was fine, but now I can see it could have been much better."

Students did not have this 'luxury' of making direct comparisons on any hospital specialty attachment, for they only had one experience of each specialty during the year, whether that attachment was for five weeks or for ten. The same principle applied in Year Five attachments. Students could not make a direct comparison of their own firsthand experiences of, for example, Medicine attachments organised in two different ways by two different firms of doctors. If they made comparisons between their own experiences on Medicine and those of their peers on different Medical firms they realised the complexity of the situation, and their conclusion can be summed up by this student comment "I don't

know. It might have been different for me. Not all the students I'm with now think like me."

11.2 Modes of organisation found on General Practice attachments

11.2.1 Nine modes of organisation

The General Practice attachments were organised according to the particular general practitioner's perception (or perhaps that of the practice collectively) of what a successful attachment for Third Year students required. Students attended General Practice surgeries in groups of three. The following variations in organisation were current when these data were collected in the early 1980s.

Mode (a) The GP held a surgery as usual but with three students sitting in.

Mode (b) The GP held his usual surgery but with two students sitting in, whilst the third student attended home visits with either the health visitor or the midwife attached to the practice.

Mode (c) The GP held his normal surgery but with three students sitting in; a home visit was made at the end of the morning to a selected patient, by the doctor and the three students.

Mode (d) The GP selected two or, at most, three patients to attend the surgery with the three students. This was not a normal surgery. The doctor taught the students using the invited patients (they were seen individually) as a focus.

(N.B. when Third Year General Practice attachments were originally planned in the late 1960s and early 1970s, they were designed to link closely with the hospital specialty attachments that they were 'paired' with (Table 11.1), so that, for example, General Practice attachments on Wednesday morning were thought to be most successful when either children, or women who were pregnant or had gynaecological problems, were seen by students. This may explain Mode (d), where particular patients were invited to attend surgery.

Mode (e) Initially the GP held a normal surgery, with the three students sitting in, but after the first few sessions of the attachment each student was given the opportunity to see patients on his own, with follow-up by the doctor.

Mode (f) The GP held a surgery but remained in the background; the three students asked questions in turn so that each student asked every third question.

Mode (g) The GP held a surgery but remained in the background, with two of the students; the third student sat at the doctor's desk and interviewed the patient. Towards the end of the consultation the doctor and the other students would join in.

Mode (h) Each student interviewed a patient for about half-an-hour. They then presented the case to the doctor and suggested management.

Mode (i) Each student interviewed a patient for about ten minutes. They then presented the case to the doctor and suggested management.

11.2.2 Students' comments on the organisation of General Practice attachments

During the year students experienced a variety of organisations since they had four General Practice attachments. A selection of their comments follows.

Organisation (a) (The GP holding a surgery as usual but with three students sitting in).

Comments: "With the first GP I just sat in the surgery; it wasn't much good" "We just sat and watched. It was quite friendly and relaxed, but I think it was a waste of time really" "It's easy to go to sleep when someone else is doing all the thinking and making all the decisions" or alternatively "It's good to see the GP at work and how he handles patients, for instance." Many students appreciated the reality of General Practice. One student in particular expressed it as follows. He had worked with a GP who had no appointment system, so that which patients turned up at the surgery and with what complaint was pure chance: "I was frightened at first wondering what would come in through the door. Now I can cope OK; it's a good feeling. Looking back I can see not knowing was a help. It was all so real and it made you think."

Organisations (b) and (c) (the two variations involving home visits). Comments: "We seemed to hang around a lot of the time -- home visits, for example. They were hopeless

with this GP, a waste of time" "Home visits were rather like Early Medical Contact in Year One. They were enjoyable, but we really didn't seem to have progressed all that much" "Home visits do seem to take a lot of time but I think they're good. Nothing is like seeing a patient in their own home."

Organisation (d) (the GP selecting patients specially). Students did not find this arrangement helpful, especially as the year progressed. Comments: "It is all so artificial" "He keeps asking psychiatric patients to come to surgery for us to see. He seems to want to keep us occupied, almost that he wants to entertain us" "The GP was so positive about what he said; and he knew the patients well, so that we couldn't discuss anything" "It all became very boring. I suppose you could say that he taught us OK on these selected patients, but I found it difficult to relate to him, or to the patient, or to the situation, and then I found myself making excuses not to go" "Some GP attachments just don't feel like GP work at all. You see a couple of patients for a very much longer time than usual; you discuss the case afterwards sometimes at length; there may even be a seminar to fill in the time! It's quite contrived. It's often a waste of time and dreary."

Organisation (e) (initially the GP holding a normal surgery with the three students sitting in. After the first few sessions of the attachment, each student was given the opportunity to see patients on their own with follow-up by the doctor.) Comments: "The third GP was so good. He was on top of his subject: it was all in his head. He stretched you - the pace was fast with him. Or you were on your own with a patient: he gave you a job to do by asking you to interview a patient on your own first. It was enjoyable, and taxing. We also followed some patients through from week to week. It was great. I saw a wide range of patients with him. from a chronic schizophrenic to pregnant mums" "It was good. He let you in lightly because you sat in with him at first. But after about the third week you saw some patients on your own. It was all rather daunting to start with, but it did give you something to do and something to think about."

Organisation (f) (the GP holding a surgery but remaining in the background. The three students asked questions in turn, so that each student asked every third question.) Students found this arrangement unsatisfactory as they could not follow through a line of thought. Comments: "It was frustrating, because one question or even a couple wasn't sufficient, and then it was someone else's go" "It seemed rather like a party game and at times I had to try not to laugh. Sometimes I'd feel guilty if I tried to pop in a third question."

Organisation (g) (the GP holding a surgery but remaining in the background with two of the students while the third student sat at the doctor's desk and interviewed the patient, the doctor and other students joining in towards the end of the consultation). This organisation was not commonly practised, but the students welcomed it. Comments: "The best GP attachment was when we took over the surgery, so to speak: we sat at his desk. There were three of us; we took turns in one of us asking the patient questions whilst the others kept quiet. The GP commented after each patient. He said things like how we had handled the interview, what information we had got and what we had made of it, whether we could have made anything else of it, what other information we should have got. It was excellent."

Organisations (h) and (i) (variations involving students interviewing the patient on their own for either thirty minutes or ten to fifteen minutes). A number who found thirty minutes a bore found ten to fifteen minutes excellent. Comments: "Patients come generally with simple, minor things really, therefore you can talk about their problem and diagnose quickly in about ten to fifteen minutes. That's fine. But half an hour, that's far too long and I find myself just filling in by talking. The patients, too, look as if they'd rather go" "And if we see patients on our own we always seem to have far too much time. You can't ask the doctor when you've finished or when you need them, so you feel you're wasting time. At least half the time is wasted -- and it's doubly wasted because you can't see the doctor's approach or what he's asking patients, if you're on your own with patients and not sitting in" "The shorter time's much better; too much time is rather embarrassing for you and for the patient. In ten minutes you can have had a stab at sorting out what the problem is, and then going over it with the doctor and the patient quickly is much better." Sometime students gave specific examples of where they were contributing by having extra time to talk to patients: "I think to sit and talk to patients is useful. If a patient comes to talk, it isn't a waste of time if they feel they need it. Some GPs value this and they value you as a student listening to patients. I spent an hour talking to or rather listening to a chap who wanted to talk about his marriage problems." Other students see the whole experience of interviewing patients on their own in General Practice quite differently: "We have to pretend we are GPs. It's so artificial; and I don't think it's fair on the patient either."

11.2.3 Outcome of modes using diagnosed and undiagnosed patients

Third Year students have many and varied experiences of GP attachments. The organisation modes, (a) to (d) inclusive, may be thought of as 'doctor-active/student-passive' whereas (e) to (i) inclusive may be thought of as 'doctor-passive/student-active'. Where students are passive they begin to question the usefulness of their experiences:

"Undoubtedly there are some excellent GPs, but what do we learn. We don't see patients on our own. We are not quizzed at all. We don't make any decisions. We watch a lot, and see a stream of patients come through the surgery. The only thing we do is just answer a simple question now and then." On the other hand, students find active participation "miles better -- it makes you think."

Patient: diagnosed or undiagnosed

Mode (d) always involved diagnosed patients, as did some home visits (modes (b) and (c)). Most of the other modes involved undiagnosed patients. Thus the GP is in quite a different situation when he organises the attachment as in (d) above and on some home visits. Students found teaching on diagnosed patients very much less fruitful than teaching on undiagnosed patients: Another GP had two or three selected patients to attend each surgery and he used these to teach us. He examined each one. He was far too thorough. And he asked us questions, but then didn't seem to listen to what we had to say. Also, he gave everyone antibiotics. We disagreed with this and said so. But it had no effect, so we just kept quiet in the end. It was the only thing we could do really." One student described the experience of being passive, and then went on to describe the experience of being active: "My three GPs were all very different. One selected 'special' patients to teach us from. There were three of us plus the GP and the patient. We did nothing really; at times it might have appeared that we did, but we never made decisions and we never even discussed anything. It's better to see the doctor at work, working naturally. We needed to see more patients. It should be more like the second GP: we saw about sixteen patients each morning. One of us would sit at his desk in turns and take the patient's history. The doctor and the other students would chip in. He (the GP) drives us a certain way, he gets us to ask the questions he would ask, but it's OK since we recognise what he's doing and so does he. But you've always got the chance to ask the questions you want to ask yourself. It's particularly good that we can disagree with him and he will listen carefully to what we have to say."

The two dimensions of (i) patient diagnosed/undiagnosed and (ii) student activity can be considered together.

In consultations where the patient was diagnosed (mode (d) and possibly (b) and (c) above) the students were never able to be active. Students claimed that they found these sessions artificial and unproductive (unless they occurred at the very beginning of Year Three).

In consultations where the patient is undiagnosed (all other modes above) students might be active or passive. Students claimed that they learned most from sessions where they were active, though even in sessions where they were passive they could derive benefit, if they perceived the opportunity, from observing the general practitioner working in an authentic setting. Where students were active, they were taking patient histories and perhaps 'spot examining' patients, discussing patient problems or diagnoses, and also patient management.

11.3 History taking on General Practice attachments

11.3.1 History taking experiences on General Practice and in hospital compared

11.3.1.1 Introduction

The student comments recorded above in Section 11.2.2 revealed wide divergences in the value students set upon their GP attachment experiences in general. It was pointed out (section 11.1) that each student could make comparisons between different GP attachments, since each student experienced, over the year, an assortment of four such attachments. It was also pointed out (section 11.1.3) that, of the twenty-three students interviewed in December, seven spoke of their Third Year attachments without mentioning their GP attachments at all. Perhaps the discontinuous nature of these attachments -- discontinuous in time, in place, and in personnel -- contributed to this lack of salience in their minds, reinforcing, as it did, the conventional primacy of hospital medicine.

Of the sixteen students who did mention their GP attachments, opinions were also divergent on another dimension of attachment comparison, that between general practice experience and hospital experience. Both dimensions of comparison -- 'among the GP

attachments' dealt with in the last section, and 'between GP and hospital attachments' about to be discussed -- are of interest in the present study.

11.3.1.2 Students' perceptions of history taking in General Practice in December

Nine of these sixteen students saw their General Practice experiences as very different from those in hospital, especially their history-taking experiences: five students (Group A) claimed that their experiences of history taking were better in General Practice, and four students (Group B) claimed that they were worse. (The other seven students made no comparison between their General Practice and hospital experiences.)

Group A: History-taking experiences in General Practice 'better'

Three of these five students said that, in General Practice, taking a patient history was not a list of questions but a matter of focusing on what was important relatively quickly: "You can't just ask a whole lot of questions and then begin to think what do they mean; you have to be economical and ask questions with a purpose in mind and you have to learn to do this quickly, as there's no time to waste" "History taking from a patient in General Practice is not a list of questions: it's focusing in fast" "It's difficult to believe that history taking is just a five-minute job where you listen and interpret fast. You don't take a full history nor a full physical examination; in fact you only examine some patients and not all. Focusing is important in the history; you have to be aware of what you're looking for to be a good GP. Now that I know this, I really enjoy the GP work." The two other students in this group expressed their views of history taking in General Practice as a matter of simplifying; they also felt the process was less artificial than in hospital: "In General Practice, history taking is very basic - just the presenting complaint. It's very reduced compared to in hospital, but it's much less contrived" "You simplify, you leave out parts; for example, if it has been a problem for years, it probably doesn't matter and so you can ignore it. You also only give the positive signs."

These five students had moved away from seeing history taking as a formal standard practice where the doctor is thorough and systematic, collecting all the information first before attending to a diagnosis (the view given to them by the Introductory Course to Clinical Medicine and reinforced by the hospital specialty). They had come to see history taking, at least in General Practice, as being much more dynamic, evolving and purposeful. In essence, the General Practice history was seen as a process of listening to the

patient and interpreting fast, in order to focus on something of significance which could then be checked out.

Group B: History-taking experiences in General Practice 'worse'

Four students fell into this group. One student, like the students in Group A above, realised that history taking in General Practice demanded quick focusing and an ability to simplify, but he was intimidated by this, perhaps because of his perceived lack of knowledge: "For General Practice work I simply don't know enough; the range of patients we see is so varied. And you can't go through a list to take a history; it is very different to hospital. You have to simplify and summarise, and be able to zoom in hard and fast. I think it will come with experience, but I feel completely at sea at the moment, except with sore throats and tonsillitis! The first GP I worked with said to me 'You ask the patient some questions.' But I kept thinking 'What should I ask next?' I had no set questions and I was quite worried. I was concentrating on asking the questions rather than listening to the answers. Looking back, I now think he was just inviting me to have a go and to have a stab at what was wrong. But I thought he wanted me to know what was wrong and that I mustn't make a mistake." The three other students felt that the lack of coverage in General Practice history taking, together with the accompanying lack of a standard framework, was less satisfactory and perhaps inferior: "You simply leave out parts, but I can't decide what to leave out. I can't decide what is relevant and what is not relevant in the history and the physical examination. In hospital it's quite different; it's easy by comparison: you check everything" "You ask a few general questions, sort of chit-chat, then 'What have you come with?'; it's rather like a conversation, not a history; there's no framework. We're not taught how to take a GP history" "You don't include everything, and I don't think it's as good. You can easily make mistakes and overlook things. In hospital you're much more thorough; you go through everything."

11.3.1.3 Students' perceptions of history-taking in General Practice in March/April

At the second interview in March-April (when all twenty-three students were specifically asked about their GP attachments), they had all come to realise that there were differences between the process of history taking in the hospital specialties and in General Practice. Eleven students had doubts about the quality or the validity of the history in General Practice, expressed, for example, as follows: "I think of it like this. I get the symptoms and immediately think of possible diagnoses and pathology in general terms.

You can hit top marks with a correct diagnosis but I sometimes think more about the general problem areas: it's safer that way. But I do go for the diagnosis from the start. I don't know if I should; it narrows the thoughts you have and therefore it's bad. I home in, rather than collecting the data and then standing back and deciding. It would be better if I could do this. I usually manage to do it on the wards."

11.3.1.4 History taking in General Practice as a help to history taking in hospital practice

Eight students used their experience and the opportunities of history taking in General Practice to help their history taking in the hospital specialties: "I experiment with history taking and with case presentation in General Practice, and I home in on problems fast. Then I try out the same strategy later in hospital, if I think it will work -- like moving away from asking a list of questions" "The GP helps me to sort things out, though in the end I have to say what the patient's problem is. At the moment it all seems like trial and error, but I know it's getting easier. Seeing things sorted out in this way helps me when I'm back on the ward. I can think about what I did in General Practice. And working with the GP like this makes me feel useful, and it does make such a difference."

For these eight students General Practice work and ward work were facilitating each other. Safe and informative 'experiments' in General Practice with the method of history taking and case presentation (which brought with them immediate relevant feedback and suggestions) were obviously useful in helping students develop history taking and case presentation more generally -- that is, if the student perceived history taking and case presentation in this way. Similarly, general practitioners thinking patients' problems through with students helped students to think patients' problems through themselves when they were working on the wards -- again if the student saw the tasks as similar.

However, the other fifteen students did not discuss clinical skills in this way at interview. They may have seen their General Practice experiences contributing to those on the ward and vice versa, and they may have seen that clinical skills were basically the same whether they were learnt on the ward or in General Practice -- but they did not say so.

11.3.2 Differences between General Practice and hospital practice in respect of history taking

There are important differences between the organisation of students practising and acquiring clinical skills in General Practice attachments and in their hospital medical attachments. Some of these differences are as follows.

(a) First to clerk

In hospital medical attachments students say they are "lucky if third, rarely second and never first" in the sequence of patient clerking. By this they mean that they are seldom if ever the first person to clerk a patient, more often they are third or fourth. There are consequences arising from this. Once a patient has been clerked, treatment usually begins, so that the patient's physical and mental condition may improve quite quickly; they will certainly change somewhat. Also, and importantly, once someone has clerked a patient, the patient has learned from the experience, so that when the next person clerks, whoever they are, the patient's account of his history is never quite the same. The further away from the first clerking, the more stereotyped the patient history becomes. Students claim that being first to clerk is a very different activity from clerking second, third or fourth, for it provides the student with the authentic experience of clerking.

Students say of their General Practice attachment: "We see patients often on our own and we are the first to see patients, which is excellent. We don't have to always come fourth or even fifth in line" "We are often first to clerk patients which is quite a different ball-game. It's so different and so much better!" Being first provided an excellent learning opportunity.

(b) Presenting patient cases

In hospital Medical attachments; student case presentation is formal, following the conventional set pattern, some firms demand very formal case presentations from their students. Students clerk more patients on the ward than they present: generally speaking, approximately one half to one third of patients clerked are later presented by students. Also students present cases in no fixed rotation, so that it may come about that a particular student is nearly half-way through his ten-week Medical attachment before he actually presents his first patient case. In General Practice, on the other hand, students

present cases much more informally, often on a one-to-one basis -- the student and the general practitioner. They also present each patient they clerk and present them immediately after clerking. There are obvious benefits from these circumstances. Students say of General Practice: "In General Practice not only do you see lots of patients, which is good, but you take a history, sort out your findings, and present quickly, which is so useful."

(c) Quick feedback

The features outlined above for student case presentation also apply to students' other clinical skills, such as history taking, physical examination, differential diagnosis, treatment. This prompts students to say of General Practice "You get such perceptive feedback in General Practice, not only on your findings but on the way you did it as well. The GP also points out what you haven't found that you should have found, and why you should have found it" "It's excellent to have immediate feedback like this, so relevant and so straightforward" "The criticism we get is very helpful. I was told 'Be more forthcoming.' This helped me a lot. I was told this early on, and I feel I've improved in my General Practice work throughout the year because of it." This student mentioned this particular item of feedback at the December interview and again at the March/April interview; it had obviously been very helpful and influential.

(d) Involved and useful

In hospital Medical attachments these students, like those reported in Chapter 8, spent a lot of their time clerking patients but often their clerking did not contribute to the life of the firm: they were not made part of the team involved in patient care. As a result, students had no role other than to learn for themselves -- and largely by themselves (apart from the timetabled sessions) -- the required clinical skills of history taking and physical examination. In General Practice, however, the situation was quite different. Students were given the opportunity to contribute, and their contribution was valued by doctors and often by patients. This situation obtained, it will be remembered, in the Medical attachment on Firm B (chapter 8). Feeling wanted, involved and accepted were very important to students, as can be seen from their comments: "We can be helpful because both the patients and the GPs want and accept us" "A good GP will get you involved and let you be useful" "It was great having a job to do, whether you were on your own seeing patients, or with the doctor. He wanted you to contribute even if you got it wrong. At

least, that's what it felt like" "Writing up patients notes is useful, and I find if I understand the case I can write it up after the interview. However, if I'm confused I write it up during the interview. The GP usually says those that I write after are the best" "We are allowed to prescribe too! Even dosages! We need to know these; but personally I think this is right -- the sooner the better! No emphasis is placed on dosage on the wards; nor even which, say, antibiotic to use. Yet in General Practice we discuss and think about these." Clearly, having a role and being useful is very important to students. It is highly motivating. In such an environment students learn the necessary skills whilst actively practising them in the reality of care: learning in use rather than for use. Medical students spend a great deal of their time learning for use: it is not surprising therefore, that they value the experience of learning in use.

(e) Seeing patients once only

In hospital Medical attachments a student could return -- and many did -- to visit the patient throughout their stay on the ward until they were discharged. Indeed, firms encouraged this, though not all firms provided the necessary time nor, more importantly, the necessary incentive to students. In General Practice this opportunity was usually not available to students. Some students were concerned about the lack of continuity: "We need more continuity. We need to be able to see the same patient more than once. Only seeing snapshots of patients is quite annoying" "Since you only see patients once in the GP's surgery, there's no chance to check up on things like there is in hospital."

Yet limitation to one encounter was not an inevitable feature of General Practice attachments. Some GPs organised the attachment so that at least some patients returned when the student was also attending surgery: "Over the weeks we saw one patient four times; that certainly was excellent" "I saw three pregnant mums over the course of the ten weeks quite regularly. I found that particularly helpful."

11.4 Further comparisons between General Practice and hospital experiences

11.4.0 This section (11.4) assembles some additional student comments, similar to those already used in this chapter, to illustrate further the divergences of reactions to the General Practice attachments, and to reinforce a particular educational point made at the close (11.4.3).

11.4.1 Adverse reactions

Adverse reactions could spring from chance allocation to an uncongenial GP, and/or from unfavourable comparison with hospital attachment experiences. This latter attitude might be confined to a consideration of the learning potential of the two opportunities (General Practice and hospital), or it might be accompanied by a lower esteem for General Practice medicine than for hospital medicine. A selection of sixteen student comments follows.

(1) "It's a pity it's all so dependent on the particular GP you go to" (This student was able to add: "I've been lucky with my GPs.")

(2) "It so much depends on the GP. I've had excellent GPs, but I've also had one who was a waste of time."

(3) "The first two GPs I thought were OK, but now I realise they were poor. The third and fourth were streets better."

(4) "You can't get a straight answer to the questions you ask. You get no real explanation. Last week I asked my GP why he'd prescribed a particular drug and his reply was simply 'I think it's better', but that answer's no good; what's more, it's off-putting. I would have been satisfied once, but not now. But the problem remains: you can't get a straight answer." (Some students claimed that this problem applied to clinical medicine generally.)

(5) "The first GP that I worked with was only interested in disease. That wasn't a fruitful experience for me." (Of a later experience, this student said: "You can learn such a lot in General Practice. Each week I come away feeling I've really achieved.")

(6) "My second GP was a trainee and very hospital-oriented, unbelievably so. He asked academic questions all the time: 'Why might I treat one patient for hypertension and not another?' It was unsatisfactory. We sometimes saw patients on our own, but again it was contrived. The range of patients was very limited. I feel GPs should emphasise the primary care aspects of their work and not try to teach hospital medicine on selected patients."

- (7) "And some GP experiences are so artificial. If we are going to have it, then let's have it natural. Let's see the real thing." (This comment, like part of No. 6, is critical of a particular mode of organisation -- in this case, Mode (d) in Section 11.2.1.)
- (8) "I'm not sure you learn anything in General Practice."
- (9) "We seem to waste so much time in General Practice and it gets in the way of our ward work."
- (10) "There's really no academic teaching or learning in General Practice. You begin to wonder what it is you are learning. It's because of this that some students think it's a waste of time. It's a good break, but it gets in the way of your attachments really."
- (11) "In hospital medicine there's a lot to learn but you're learning all the time. You don't really seem to learn much in General Practice."
- (12) "But are we learning anything of value with the GPs? What in fact are we learning? At times it seems so contrary to the rest of the course."
- (13) "General Practice attachments take us away from hospital work. It's so different: you don't need to accurately diagnose on the spot. You can treat or not treat and see how the patient fares and look again next week. You couldn't do that in hospital: you have to be on the ball, you can't leave anything to chance."
- (14) "There's too much General Practice work for me. It's painting a 'back-cloth' and you're not learning medicine. It's a poor show."
- (15) "Many GPs' problems are not medical problems; they are sociological and psychological. They are not organic. You can't learn clinical medicine from this, and the partners always seem to take the best patients, the ones with the best physical signs. We get the sore throats."
- (16) "General Practice seems to be a soft option. They don't involve themselves in any science and yet they could do. They think they cure patients, but this is only because the patients' problems are minor problems and they'd get better anyway. They don't really cure anyone. But hip replacement -- well, I think that's a cure. I know what hospital

medicine is about; but General Practice, it's very confusing. It's difficult to know exactly what we should be getting out of these attachments."

11.4.2 Favourable reactions

Some favourable reactions have been glimpsed in the last section (11.4.1) in comments 1 - 3, and also in No. 5 from a student whose earlier unsatisfactory General Practice attachment was followed by learning experiences that were far more satisfying. He was not alone in this, as some of the following comments show. This tendency was one-way among the students interviewed: a number of them who were hostile to the attachments to begin with were converted to a positive view before the end; whilst no-one reported a good start followed by disillusionment.

States of learning represented below show a considerable range: hospital experience can help GP experience/GP experience can help hospital experience/the two can help each other; the two can be combined to form a more complete picture of medicine as a whole (e.g. No. 6: writing a referral letter to a consultant about a patient with a 'problem appendix' was a landmark in this student's experience); but some students in this section will be found reversing the 'reality commitment' of students in the last section, who believed that only hospital was real medicine, and claiming instead that only General Practice is real medicine.

(1) "I enjoy General Practice far more than anything else."

(2) "No hospital experience is as good as a good General Practice experience. My GP attachment's great!"

(3) A few students said that General Practice helped them to develop a suitable approach to patients: "The GP attachment has given me confidence; I feel I know how to deal with people."

(4) "I can now cope with 'hearts and lungs' in General Practice because of my ward experience. Doing Medicine was so helpful for these attachments."

(5) "General Practice and ward work help each other: though the patients' problems are different to those in hospital and the complaints are different -- only a few of the GPs'

patients get to hospital -- the clinical activity is the same: history taking, physical examination, explaining things to patients, writing notes, presenting to the doctors."

(6) "I wrote a referral letter with the GP's help and I suddenly saw all the appendicectomy patients, all the ops they had had, the treatment given and the risk factors. They all came flooding back to me; I began the Third Year with Surgery, yet it all seemed so vivid. I looked at the patient and I felt knowledgeable. I could really help."

(7) "General Practice I enjoy. It helps me pull things together; it's less discrete than hospital tends to be. And we do extra 'spot' physical examinations, which is good. It all reinforces what I do in hospital."

(8) "I think I'm just beginning to see what General Practice is all about. It's less severe cases and those that don't need hospital treatment, for example rashes. But I haven't a clue about these."

(9) "I feel that I am improving, but you begin to know that there is such a lot that you don't know -- and such a little that you do. The size of the task is daunting. It's frightening. I keep telling myself I can't know it all at once; but you need to if you're to do a good job. And your ignorance makes you feel so vulnerable, and because of it your patient is vulnerable too."

(10) "In General Practice they expect us to know facts, lots of them, to a much greater extent than in hospital. I thought Year Three was not about clinical medicine. But they want you to have more than an idea of what is going on in the patient. They want you to know how to manage cases. They want you to have an answer."

(11) "General Practice work is very varied and interesting -- no two patients are the same and so many new situations are encountered."

(12) "General Practice is very different to hospital medicine. You talk, examine, have a guess, all from scratch and very quickly."

(13) "It makes me think very carefully about what I'm doing. The patient will go home; they may listen or they may not, and they may come again or they may not."

(14) "General Practice is so much more real compared to hospital. We are seeing patients as people, people who think; people are much more natural when not stuck in bed. GPs seem to care about people, they don't have a mechanical approach; in hospital there's a lot of 'This is wrong, therefore I will put it right.' GPs try to understand the patient."

(15) "I'm glad to be out of hospital and its very narrow vision of patients. When a GP is diagnosing, he's taking into account the patient's worries too."

(16) "Hospital medicine is rather unreal; it's artificial. It gives a false idea of the natural history of disease. General Practice gives a better idea, and you need this perspective of disease in the community, not just in hospital."

11.4.3 Harnessing diversity to learning

Clearly the small selection of student comments in the last two subsections could generate a considerable commentary on some of the themes indicated in the paragraphs introducing them. One point only will be made here, an educational one which will be expanded a little in the next and concluding section of this Chapter (11.5), namely: diversity of experience and opinion is the seed-bed of discussion, and discussion is a means of learning.

11.5 Educational comment

Such examples of students' comments, insights, questions, call for discussion between teacher and student. Their educational potential is rich, but that potential cannot be realised without discussion. Instead, without discussion, not only is the potential lost, but students' development can actually be impeded because of doubt and uncertainty left unresolved in their minds.

The role of perceptions

Students' perceptions of, for example, experiences, situations, skills, knowledge, were very influential, more influential than the experiences, situations, skills, knowledge in any 'objective' sense. It was their perceptions that led students to regard their General Practice attachment as "excellent" or "a waste of time". Those students who saw it as excellent might do so because "it's a good break" or "I feel useful" or "it contributes to my ward work". It seemed that students' views were based not so much on students' actual ex-

periences themselves as on students' perceptions of the experiences, and of their role within them. If students could identify a role which they valued and which they saw as valued by others, they welcomed any opportunities given to them, whatever those opportunities might be.

The role of models and of discussion

Models control our perception and our thinking: they are often unarticulated and unseen. We are not initially aware of them: discussion enables us to become aware of them, and to control them rather than to be controlled by them. Discussion also serves another central purpose: it is needed in order to incorporate our observations into our frameworks for thinking; otherwise our observations remain just observations.

It seems that students need to discuss openly General Practice and hospital medicine and to explore similarities and differences in order to help to identify and to articulate assumptions, observations and influences. In this way they will be able to focus their thinking on the perception of medicine or the model of medicine at work in the various contexts of doctor and patient.

Medical models

There is little if any discussion of medical models currently, either between doctors themselves or between doctors and medical students. The 'medical model' is a term used pejoratively by other health care workers and/or by psychologists and sociologists to represent the scientific, biomedical, disease-centred approach to patient care, in contrast to their own espoused approach, which is holistic, psychosocial, patient-centred. Thus medical models or models of medicine are offered, explicitly, to medical students by non-medical people; rarely are they offered by doctors themselves. And when they are offered, these two existing models are offered as mutually exclusive alternatives, not as possibly complementary.

11.6 Chapter summary

This chapter has had a limited purpose. From comparisons made by students between GP attachments themselves, the importance of the diagnosed/undiagnosed patient variable in learning to clerk was confirmed. From comparisons made by students between GP at-

tachments and hospital attachments, the conflict between the linear teaching model of history taking and the dynamic model of actual practice was further evidenced. The value of discussion as a means of learning was touched upon.

Table 11.1 General Practice attachment rota

9.00 am - 1.00 pm		2.00 pm - 5.00 pm	
Monday			
Hospital Attachments		Continuing Formal Courses	Monday
Tuesday			
Hospital Attachments <u>OR</u> G.P. Attachments for students on Medical Firms		Hospital Attachments	Tuesday
Wednesday			
Hospital Attachments <u>OR</u> G.P. Attachments for students on O & G and C.H. firms			Wednesday
Thursday			
Hospital Attachments <u>OR</u> G.P. Attachments for students on Surgical Firms		Hospital Attachments	Thursday
Friday			
Hospital Attachments <u>OR</u> G.P. Attachments for students on Geriatric and Psychiatric Firms		Continuing Formal Courses	Friday

Key: O & G - Obstetrics & Gynaecology Firms
 CH - Child Health Firms

CHAPTER TWELVE

QUESTIONNAIRE DATA FROM POSTGRADUATES: ON LEARNING AND CONFIDENCE

12.1 Introduction

12.1.1 The inquiry

Chapter 8, in particular Section 8.5, described how some Third Year medical students developed confidence during their ten-week Medical attachments, whilst others on the same firms did not. Medical students frequently had difficulty deciding which particular aspects of their course to use as a focus for learning. Students who developed confidence had no difficulty either making the necessary decisions or carrying them out. This was quite unlike the students who did not develop confidence.

However, not knowing what to learn is not restricted to medical students. My work with undergraduate nurses showed that they also faced this problem, which seemed to be further complicated by their views of knowledge.

The present Chapter picks up this educational theme and explores both aspects of it -- 'selection' of learning and views of knowledge in Section 12.2, and 'satisfaction' of learning as indicated by confidence in Section 12.3, in the context of the first four postgraduate years.

The Chapter is based on data collected largely by postal questionnaires from eighteen Southampton graduates over a period of four years since their graduation.

12.1.2 Method

This intake of medical students graduated in the mid-1980s. At graduation I had worked with twenty-three of these students since they came to medical school: it was they who gave the data presented in Chapter 11. A number of them suggested that we should keep in touch and that they would continue to provide information about their experiences as doctors in the house officer year and beyond. This seemed a very good opportunity: we agreed to keep in touch.

At the time of writing, I am still in touch with nineteen of the twenty-three graduates. Every six months (January and July) I write to them individually asking them for their contact address for the next six months for mailing purposes. Junior doctors usually have a six-month contract; with the frequent change of job it is easy to lose touch. I also send a questionnaire (Appendix 2), or an A4 sheet for their comments, together with a FREEPOST envelope for return. When the graduates return the filled-in sheets, many of them write a letter in which they give additional information about their postgraduate work experiences. If any of them visit Southampton, they try to see me. If they are working in Southampton, we sometimes meet in the hospital by chance and talk together.

The evidence presented here is based on the questionnaires, the first of which was sent to the twenty-three graduates in the January following their July graduation.

12.2 Graduates' views to do with learning and with knowledge

12.2.1 Introduction

The fourth questionnaire (Appendix 2), sent to the group of graduates three years after graduation, explored (in addition to matters to be dealt with in Section 12.3.5) two broad points: 'What to learn?' (12.2.2) and views of knowledge (12.2.3).

Questions 1 and 2 of the questionnaire jointly related to learning. They asked the graduates what helped them to decide what to learn as medical students, and what had helped them to decide what to learn as qualified doctors.

Questions 5 and 6 jointly related to knowledge. They asked the graduates what their own views of knowledge were, and what they believed the views of knowledge of the teachers who had taught them as undergraduates had been.

Eighteen graduates replied, and the evidence presented here is based on their replies (see over).

12.2.2 'What to learn?'

12.2.2.0 The two questions were expressed as follows:-

Question 1 BM students learn a lot of material on their course. When you learnt material on your course, what helped you to know what to learn?

Question 2 As doctors you are learning all the time. What helps you now to know what to learn?

12.2.2.1 Data from answers to question 1 (learning as students)

Six graduates said that it was not easy to know what to learn as a student: "There was no good guidance, but the following influenced me..." "There was little guidance in Years One and Two" "Often I didn't know what to learn. I always felt like I had to learn everything, especially early on in the course...it took me years to feel confident about feelings I had that some things were unnecessary to learn" "Native wit mostly".

Others' judgement

There was a high dependency on the judgement of others to decide what should be learnt. The three most influential factors were:

(a) lectures, (b) other students, (c) past examinations. Two other factors are included under (d).

(a) Lectures The emphasis in lectures, including hand-outs, especially if the lecture was well taught, helped 14 graduates to know what to learn: "Mainly the content of lecture courses" "I simply learnt the lectures that were taught well" "I learnt by the course summaries or hand-outs provided at the beginning of courses which give you a base for learning" "Lectures suggested suitable topics."

One graduate used "repetition" in lectures: that is the number of times a particular topic came up was an indication of how important it was to learn that particular material.

(b) Other students Talking to other medical students, mainly in the same year group but also in other years, helped 7 graduates to know what to learn: "By discussion with friends

in the year" "Advice from other peers" "Also by mixing with fellow students you realise at what level the knowledge is required" "Comparison with peers helped to know if you were covering the same things" "Talking to colleagues and people in the years above".

(c) Past examinations Past examination papers were used by 7 graduates to determine what topics were examinable, and also what the favourite ones were amongst those topics: "Likelihood of coming up in exams" "Trying to glean information on likely exam questions" "Looking at past papers" "As a student I was helped to learn certain facts by foreknowledge of what areas/topics my exams would most likely cover!"

(d) Other factors Two other outside sources helped three graduates to decide what to learn as students. Two graduates used the textbook emphasis: "I was also aided by the amount of weight given to particular subjects in the popular textbooks". One graduate used the questions asked (verbally): "Someone asking you about something that you didn't have a clue. Someone asking you again!"

Own judgement

Eight graduates used clinical aspects that they judged to be important, in order to determine what they should learn as students: the following factors (a) - (e) were influential.

(a) Clinical experience Actual clinical experience helped 5 graduates to decide what to learn: "Questions generated by clinical experience" "When I realised how rare some illnesses were, I didn't bother to learn about them" "Demonstration of clinical relevance was the greatest incentive" "During clinical years I tried to learn and understand what was relevant to ward work and what we were advised to learn" "Whether an understanding of the principle (for example Biochemistry) would enable me to diagnose, manage and treat the patient clerked."

(b) Diseases Particular diseases helped 2 graduates to decide what to learn: "Common or serious life-threatening conditions" "Obvious major diseases -- killers, interesting, odd diseases or strange and weird ones (but not tedious!)".

(c) Future clinical relevance What was judged to be clinically relevant for the future helped one graduate to decide what to learn: "What I felt would be practically relevant in future years."

(d) Clinical exams Clinical exams topics helped one graduate to decide what to learn: "When in the clinical years judging what conditions were most suitable short and long cases!"

(e) Other factors Two graduates also mentioned "interest" as determining what they learnt as students, whilst one graduate said "learning to understand basic principles".

12.2.2.2 Data from answers to Question 2 (learning as doctors)

The judgement of others

Examinations were the only clear-cut 'judgement of others' that the graduates used to control their own learning, since 'Medical literature' and 'Working with others' may have elements of their 'own judgement'.

(a) Past examinations Eight graduates used professional examinations to determine what to learn, and eight graduates used local courses: "Studying for other exams (MRCP!)" "Partly exam courses, such as the Wessex MRCP course and predicting important subjects popular in the exam" "Actual hard bookwork is presently covered by the MRCP exam" "Also courses in preparation for exams" "Exam syllabus".

(b) Medical literature Six graduates also used journals "to keep up to date", and "doormat bump" to browse.

(c) Working with others Six graduates specified the talk and/or questions generated by working with other people: "Questions students ask" "Patients and their questions often lead me to rethink certain topics so that I may be better prepared in future. This I found especially in general practice" "Other doctors and their knowledge help to highlight the weaknesses in my knowledge. This then makes me find out more about the subject" "Advice from others that I am working with" "Tips from consultant ward round, but most tips come from registrars" "Comparison with others' knowledge at the same grade".

Their own judgement

(a) Clinical experience All eighteen graduates said their clinical experience (ward and out-patients, and general practice) determined what they decided to learn: "I base my

learning requirements very much on what I need to know in the clinical situation" "I just learn about things I see frequently" "Clinical encounters" "Increasingly I tend to limit myself to what will be useful to my specialty" "Finding the necessary information to deal with clinical problems as they arise" "Admitting a patient that you are uncertain about the diagnosis or that you know very little about the diagnosis".

(b) Interest Three graduates also mentioned 'interest' as a factor in deciding what to learn: "Occasionally I learn particular facts for interest's sake only" "Pure interest" "Things of interest". Another graduate, however, was quite the opposite: "I'm not interested in learning things for the sake of it. I base my learning requirements very much on what I need to know in the clinical situation."

12.2.2.3 Summary and comment

As medical students, many of these eighteen graduates had been undecided what to learn, commonly relying on the judgement of others to help them to decide, for example on lectures, other students, and examination topics. There was a considerable degree of dependence on sources outside themselves.

It is possible that some graduates, in answering Question 1 about their 'learning' as students, interpreted the word 'learning' as learning in the pre-clinical years. It would be interesting to know. In any case, it is of interest that only five graduates mentioned clinical experiences as a factor, and only three others mentioned clinical aspects as playing a part. Even more interesting is the finding that these eight graduates, in the data of section 12.3 (below), all described their own clinical confidence in terms of decision-making.

As qualified doctors, all eighteen graduates used their day-to-day clinical experiences to determine what to learn; they relied on themselves to select what they needed to know from this experience. Generally, they selected what they judged would be commonly useful. Examinations and courses for examinations still played an important part in controlling what some of the graduates learned.

Perhaps surprisingly, interest provides a very marginal reason for learning at both the student and the doctor stage. (Medical students have often told me that "Interest is a luxury you cannot afford", and so they find interest frustrating.)

12.2.3 Views of knowledge

12.2.3.1 Introduction

Questions 5 and 6 of the fourth questionnaire were expressed as follows:-

Question 5 Teachers/lecturers talk a lot about knowledge. What do you think they mean by knowledge?

Question 6 Is this your meaning of knowledge? Yes/No. If no, what do you mean by knowledge?

The answers to these two related questions are dealt with together in the next two sections: twelve graduates thought that their teachers' views of knowledge and their own were different (12.2.3.2); six thought that they were similar (12.2.3.3). A summary and conclusion are provided in Section 12.2.3.4.

12.2.3.2 Teachers' views regarded as different

The twelve graduates who thought that their view of knowledge was different from that of their teachers/lecturers fell into two groups: a group of eleven and a group of one.

The group of eleven

The eleven graduates used terms such as "absolute" "true" "facts" "information" to describe their teachers/lecturers' view of knowledge. For example: "I feel they use it to mean facts which they accept as true and wish us to absorb" "Factual information about a topic" "An absolute knowledge of certain principles or facts" "Lots of facts" "Facts assimilation".

Three of the eleven graduates also included the notion of recall in their view of their teachers/lecturers' views of knowledge: "Facts which are known and can be recalled instantly" "They tend to mean the ability to regurgitate facts." Three other graduates included understanding: "Factual recall, possibly combined with an appropriate conceptual understanding" "Often detailed facts, perhaps understanding of a subject". One graduate in this group included both recall and understanding.

In describing their own view of knowledge, eight of the eleven graduates in this group made reference to the "use" "application" "relating" of knowledge: "Being able to apply it to think laterally from what you are taught" "It's knowing how to use the facts that's more important" "But to me its the use of various bits of information" "Using basic facts, principles and skills to initially diagnose and manage problems" "Factual information that is usable and can be implemented in the management of a patient in an appropriate way" "My meaning of knowledge is the ability to know a few basic facts and relate them to the appropriate situations, i.e. to be able to use facts rather than regurgitate them."

The other three graduates out of the eleven included an element of intuition: "A combination of knowing the facts, understanding them and, above all, having a certain feeling for a subject" "Also a more intuitive type of knowing - more a feel for what is likely to be wrong with somebody" "Using information, extrapolating from it, playing hunches etc...it's more fluid."

Three graduates also included a knowledge of what you do not know: "Knowing about your don't-knows" "A more practical working level of things to know, or things you know you don't know" "To know when referral of a problem to seniors or to another specialty is appropriate".

One graduate included the ability to explain to others: "My meaning of knowledge is not only with reference to absolute knowledge but the ability to convey such factual detail to anyone."

The group of one graduate

The single graduate who formed the other group saw his teachers/lecturers' view of knowledge as more ward-based: "Theoretical and practical skills, for example, knowing what complications can occur in an illness and knowing how to recognise and treat them". Whereas his own view of knowledge was "I tend to think of it in a more academic sense, i.e. how many little facts one has packed into one's head from books and the general understanding of them."

Thus of the twelve graduates who thought their view of knowledge was different from that of their teachers/lecturers, eleven had a practical view of knowledge use, whilst they thought that their teachers/lecturers had a more academic view of knowledge as facts.

However, one graduate thought just the opposite of this, since his view of knowledge was academic whilst that of his teachers/lecturers he thought was more practical.

12.3.3.3 Teachers' views regarded as similar

Six graduates said their own and their teachers/lecturers' view of knowledge was the same. They described knowledge in terms of "data" "information" "facts" "stuff that you know".

Four of the six graduates included understanding and one also included retention of facts: "Both information and an understanding of the facts/information" "Facts: an ability to understand a topic" "Both comprehension of concept plus retention of facts -- the proportion depending upon the area". What exactly these graduates meant by 'understanding' is not clear, but in answer to Questions 7 and 8 on the questionnaire, which were concerned with understanding, none of the four mentioned 'knowledge use', (contrast Section 12.2.3.2 above re. graduates whose view of knowledge is different from that of their teachers/lecturers). They described understanding in terms of "to comprehend" and "to see the meaning". Medical students frequently used the term "understand" if the content/material was logical and cohesive. They often claimed "I understand, but I can't explain it to you."

One graduate had a wider perspective of knowledge: "The acquisition of facts and their place in overall (clinical) practice". Perhaps "place in clinical practice" implies knowledge use (section 12.2.3.2).

12.2.3.4 Summary and comment

To summarise, twelve graduates saw their view of knowledge as different from their teachers/lecturers' view of knowledge. Eleven of these graduates said their teachers/lecturers' view of knowledge was a body of true or absolute facts to be learnt and recalled -- a 'static' view -- whereas their own view of knowledge was a 'dynamic' view of knowledge-in-use and somewhat intuitive. It also included self-knowledge. One graduate's view of knowledge was more static than that of his teachers/lecturers.

Six graduates saw their view of knowledge as the same as their teachers/lecturers' view of knowledge. They described knowledge as facts/information -- a static view of knowledge

-- though four also included understanding. Perhaps one graduate had a 'dynamic' view; he included the place of facts in overall clinical practice in his account of knowledge.

12.3 The graduates' descriptions of their clinical confidence and the graduates' career choices

12.3.1 First questionnaire (6 months)

(Appendix 2; 21 graduates replied)

In response to Question 1 of the first questionnaire, "What would you say were the main things you got out of your house post?" twenty (nine male/eleven female) of the twenty-one graduates who replied included confidence. Above all else the graduates had gained confidence. This was linked, with one exception, to experience or to abilities.

Confidence from experience

Nine of these (four male/five female) linked their confidence to medical emergencies and/or the management of patients and/or clinical procedures, as illustrated by these comments: "Confidence from learning the basis of managing common acute medical conditions" "More confident at practical procedures and general acute medical problems" "Experience and confidence dealing with emergency and routine ward work" "Confidence in dealing with medical emergencies".

Three of these graduates (one male/two female) included other people in their description of what they had got out of the house post: "More able to talk to relatives" "Experience in dealing with all sorts of people: the sick, grieving, angry relatives, drug reps, allied professionals" "Good team and hospital".

These graduates can be thought of as having confidence when they see a task needing to be done and have acquired the necessary skills, procedures, knowledge; that is, they are confident if they have experienced the task before and have been successful in coping with it.

Confidence from abilities

Ten of the graduates (five male/five female) linked their confidence to their own abilities and/or decision-making, and/or thinking things through. In their words: "More confidence in my own abilities and knowledge of medicine" "More ability to make decisions on my own and hence more confidence" "Confidence in learning to trust myself and finding out that I can do and cope with things I never thought I would be able to" "The confidence to decide when a physical sign is present or not and to initiate treatment on my own physical findings" "Confidence in own ability to deal with work" "More confidence in dealing with clinical situations and diagnoses and the numerous small decisions that have to be made".

Six of these graduates (three male/three female) included other people in their description of what they had got out of the house post: "I did get a sense of satisfaction from handling difficult/stressed patients at times, but was usually too rushed or tired to do this" "Satisfaction from being useful to patients" "Realisation that I can get on with people" "Relations with hospital staff in the many departments I found very helpful, and I learnt a lot from them."

These graduates can be thought of as having confidence when they realised that they had the abilities needed for the task; that is, they are confident that they can make the decisions demanded by the task and that these decisions will be successful.

One female graduate simply said in answer to Question 1 "Confidence" without giving further details. Another graduate (male) in answer to Question 1 showed no indication that he had gained confidence.

Other

Interestingly, one graduate said "Quite quickly my confidence in dealing with patients was established even though I knew little of the theory behind the decisions made by the consultants."

Table 12.1 summarises the graduates' descriptions of their own clinical confidence.

Other comments by graduates

There was also, for many of the graduates, the enormous impact of "exhaustion, chronic fatigue!" "Surviving" "Coping under stress" "Avoiding panic". These feelings were closely linked with the graduates' answers to Questions 2 and 3.

The graduates also listed the acquisition of the following skills and knowledge:-

(a) "Continuing to acquire medical knowledge" "More practical working knowledge" (7 graduates). One graduate admitted to an "increased desire to learn more", with accompanying exclamation marks!

(b) "Various practical procedures" (five graduates).

(c) "The basic running of a ward, i.e. organising routine investigations as well as specialised investigations; becoming familiar with the protocols and getting all the results etc. co-ordinated and available for the rounds" (four graduates).

(d) "Care of the terminally ill" (one graduate).

(e) "Speaking at medical meetings" (one graduate).

(a) to (e) above were highly valued by the house officers concerned.

12.3.2 Second questionnaire (12 months)

(Appendix 2; 22 graduates replied)

Since the first questionnaire showed that the development of clinical confidence was very important to house officers, Question 3 on the second questionnaire tried to find out something more about this clinical confidence: "From your replies, 'confidence' was clearly something all of you got from your first house job. Can you say something about this new-found confidence, e.g. where does it come from, where does it apply, what does it feel like, etc.?"

The twenty-two graduates who replied described their clinical confidence as arising from working successfully as housemen. There were elements of 'familiarity', 'repetition', and 'getting used to' the day-to-day activities on the ward. One graduate vividly described the dynamic nature of this confidence and its context-relatedness: "I find it's a fluctuating confidence - present when all is going well, blown away at the whiff of disaster"; another claimed "I feel unconfident in each new situation."

There were also aspects of novelty, especially at the beginning, generally relating to the way other people behaved: "For the first time people are asking you what to do" "Suddenly having the respect of the patients and other ward staff" "Being an important integral part of the team". Clearly such working relationships are very influential. They control the development of confidence to a large extent.

This aspect was also shown to be important in a small pre-registration year study carried out by interview by the present writer (Coles and Mountford 1983). The graduates said that knowing personnel can make the job "so much easier"...and senior staff, in the words of one graduate, could "boost it or kill it" where 'it' refers to the graduate's authority (1983:13).

The graduates' clinical confidence developed from actually doing the house officer job and doing it relatively successfully, i.e. commensurately with a house officer post, as opposed to being taught or assessed for example.

However, confidence arises in two different ways: twenty of the twenty-two graduates described themselves as belonging to one way or the other.

Confidence from experience

Ten graduates (five male/five female) expressed their confidence in terms of "experience". They said that they could work successfully because of their knowledge of the work routine and their previous experiences of the patient's condition/problem or of similar patient conditions/problems: "Confidence in experience and familiarity with common conditions and their treatment" "Confidence in experience in dealing with similar cases successfully" "Confidence from experience and recognition of problems" "Confidence comes from having seen the problem before." Two of these graduates, both female, expressed their confidence in terms of acute medicine: "I think that seeing people when

they present acutely gives you confidence in treating the same condition again" and "Having coped successfully with emergencies gives you more confidence for the emergency next time."

Three graduates (one male and two female) introduced the notion of 'coping' into their answer: for example the quotation just given, and "The knowledge and experience necessary to cope with a given situation -- I feel less confident in each new situation"

"Experience helps a lot, plus the fact that you are the one who has to cope, unlike as a student; therefore one copes, and builds up confidence for the same situation next time round."

Knowing that you can cope "without worrying" and that you can keep a "cooler head" helps to build up confidence. For all these graduates, confidence comes from experience and is basically task-centred: confidence breeds confidence.

Confidence from abilities/decision-making

Ten graduates (four male/six female) described their confidence in a different way. Though they may include experience (two male/three female), they emphasised that their clinical confidence develops from their own abilities and activities, especially their decision-making activities. They learn to trust their own judgement and they recognise that they are the ones who have to take the decisions: "Confidence in decision-making and diagnostic ability comes from being forced to make decisions" "Having to make decisions" "Confidence arises from panic. Initially you panic, then eventually you realise that it's up to you to get on and do what you have to."

These graduates may even stress that confidence arises from new situations: "Being able to do the right thing without any supervision leads to the 'confidence' that you can tackle the problems, think them through, under any circumstances. Experience then adds on to this feeling of being able to cope -- "'no-sweat' attitude" "It comes from dealing with new situations."

Four of the graduates (one male/three female) recognised the non-absolute or relative nature of their task as house officers: "Having to do things and finding out that even if you do make mistakes they can usually be coped with" "I trust my judgement more and realise that everything is a guess rather than a certainty and that no-one is correct all the time. I

feel I realise broadly if someone is ill or well now, and do not miss out the most important things, even if I don't know obscure things. I now realise that we have less responsibility than I felt before, and we do not control life itself" "You do things once, and because the patient doesn't die you think you can do it again. Makes you realise that people carry on without you, and that often things you do aren't that dangerous. Necessary for carrying on, otherwise you would be a nervous wreck" "It comes from knowing that the only person to do it is oneself, and it applies to the assessment of ill people -- one is forced constantly to make black and white decisions on shades of grey."

As with the other group of graduates, confidence breeds confidence.

Exceptions

One graduate's comment, quoted already, fits into neither group: "I find it a fluctuating confidence -- present when all is going well, blown away at the whiff of disaster." And one graduate did not find confidence: "I am obviously an exception to this rule."

12.3.2.3 Summary of the data from first and second questionnaires

To summarise: Broadly speaking, confidence for one group of graduates (ten) is based on experience and repeated successful encounters with the same or similar patient conditions/problems. For the other group (ten), though experience plays a part, responsibility and their own active involvement in decision-making is central to shaping their clinical confidence; they begin to trust their own clinical judgement; they also acknowledge that mistakes are possible, though rarely critical or dangerous (Table 12.2). Most graduates remained in the same category: 66% of graduates remained 'experience-centred'/'task-centred', and 70% remained 'decision-making-centred'/'own-abilities-centred'.

12.3.3 Third questionnaire (16 months): a follow-up to the first and second questionnaires

(Appendix 2; 20 graduates replied)

Sixteen months after the first questionnaire and ten months after the second, I sent to each graduate a copy of their answer to Question 3 on the second questionnaire and asked

if they still agreed with their answer, and, if not, in what ways they now disagreed.

All the graduates agreed with the answer they gave earlier. All extended their comments, those graduates who derived their clinical confidence from decision-making -- their own clinical abilities -- extending their comments most. There was a feeling from some graduates that confidence on the wards "influences other aspects of my life in general" and increases "the enjoyment of the job".

Confidence from experience group

Eight graduates (four male/four female) replied. They continued to express their confidence in terms of "experience": "I still agree with my original opinion. Even now I still find confidence is gained in facing situations one has faced before and dealt with successfully" "Confidence seems to be based on 'knowledge' that you have, i.e. if you have seen CCF or an infarct twenty times you have confidence and competence to deal with it. This 'knowledge' is both practical and theoretical about a condition" "The same applies. It's just a matter of slipping into a 'routine' with patients. Now, as an SHO [Senior House Officer], it's automatic -- history, assess the patient's condition, investigations too and diagnosis, and then treatment, applies in most cases."

One graduate, who on the second questionnaire expressed confidence in terms of "the knowledge and experience necessary to cope with a given situation -- I feel less confident in each new situation" (12.3.2), now saw that there were helpful similarities across experiences: "True at the time -- each new job was so unlike the previous one that there was no store of experience to draw on. Now with each new job there is a degree of overlap so now the changes are not quite as traumatic as before!"

Two graduates valued experience, but they also stressed the role of support and teaching and advice from senior colleagues: "Experience is the main factor and support from colleagues is very important. Experience alone is of little use unless those above reinforce this with teaching" "I agree with my previous answer, but I would add that although confidence is clearly desirable, it has to be at the right level; it is important also to realise one's limitations and be ready to ask for senior advice promptly if required."

Confidence from decision-making group

The ten graduates (four male/six females) who had explained their growing confidence in terms of their own abilities, especially that of decision-making, continued to express their confidence in this way: "I agree. The ability to be able to trust one's own findings is crucial" "I still agree. Confidence also comes from the knowledge that one's previous decisions have turned out to be right. However, it only takes one wrong decision to severely shake it."

One graduate included, as part of confidence, the skills of her specialty:

"Confidence...relates...to what you are specialising or generalising in (at the time), e.g. if you are doing O & G then it is conceivable that you may have lost confidence or competence in putting a chest drain into a pneumothorax." Another graduate referring to procedures said: "Nurses (for example) are nurtured and supervised throughout their training/professional experience." This graduate regretted that when teaching clinical procedures, student doctors did not have the same kind of guided practice that student nurses had.

Five graduates (one male/four female) also included working successfully with other people as an important part of developing confidence. They stressed these interpersonal characteristics: "There was also increasing confidence in meeting people and obtaining information from them as well as giving advice with more authority" "As above, and also you get used to giving instructions and you get more confident as people expect you to be. To a degree, the more one has to decide the better, but in a graded way, and always with someone to refer to if one feels it's necessary. I feel not enough thought is given to how to get this balance right" "I agree plus: confidence is also very important in casualty work -- having confidence in your own decisions and conveying it to patients and also nursing staff."

Two graduates wrote "You need to learn to care for yourself and those you work with" "One important aspect is caring for yourself and others!" This 'taking care' included self-knowledge and feeling in control. Both graduates regretted that "you don't get any praise" "praise is thin on the ground most of the time."

One graduate was beginning to "sort things out in my own mind". This led him to say "you have to appear confident even if you are not, otherwise the professional/client interaction

doesn't function properly. The patients respect you more, and you are 'socialised' still further into the appropriate role." This graduate was thinking deeply about his career and about medicine. He had started "to see people as people again, and life is richer for that!"

Exceptions

Again one graduate (the same as before, in 12.3.2) was unable to be classified as either deriving confidence from experience or from his own abilities. However, his confidence seemed to be developed because of external factors, since the whole experience of the house job brought confidence; part of this was an effect of seniority, but also: "Seeing a new batch of housemen with even less confidence makes you realise that you are no longer so worried." The one graduate who had left medicine also agreed with his previous comments.

Summary

In summary, the general conclusion is that graduates gained a new-found clinical confidence when qualified and working on the wards. Some graduates believed this confidence was largely developed as a result of dealing successfully with patient cases that they had experienced previously: a job-centred or task-centred confidence develops which was based in experience. Other graduates believed they developed confidence largely as a result of their ability to make decisions. Most decisions were successful, and those that were not could be rectified. Though mistakes of this kind are to be avoided, they should also be expected. These graduates developed a self-confidence centred on their own abilities, which permeated other aspects of their life. The graduates felt in control because they were able to function "under any circumstances". They also included the context in their view of their own confidence; this may be in the form of either social interaction or the medical specialty.

The graduates' views on how their confidence developed were consistent over the ten-month period: all the graduates who at the end of their pre-registration house year described confidence as "arising from experience" continued to describe it in this way; similarly for all the graduates who gained their confidence from "making decisions".

12.3.5 Fourth questionnaire: follow-up to the first, second and third questionnaires

(Appendix 2; 18 graduates replied)

Three years after their graduation I again asked these graduates by means of a postal questionnaire, about their clinical confidence. The two questions were: "Most students say they want to feel confident. What do you mean by feeling confident?" and "What gives you confidence now?"

Confidence from experience group

Six graduates (three male/three female) described confidence as based on their experience. These six graduates had also described confidence as arising from experience in their responses to the second and third questionnaires, and four of them had done so in response to the first questionnaire. Typical comments now were: "Familiarity with the situation, and feeling competent to deal with it" "Doing things I know I can manage well" "Seeing problems through, this adds to confidence the next time a similar situation arises" "Confidence comes from having met a situation before and knowing how to deal with it. As one goes on, one's confidence grows as there is less 'insecurity' about unknown situations." One of the six graduates used "self-assuredness" when describing their confidence, but it was still a confidence based on experience: "Self-assuredness comes from clinical experience and being confident in your knowledge of medical matters. Seeing clinical situations repeatedly you are able to deal with the common ones with ease. It also seems to me that there are only a finite number of combinations and permutations of disease, although of course these may present differently in each individual, and those which are exceedingly rare are always a problem for all doctors, including consultants."

Four of the graduates (two male/two female) also included others they were working with in their description of their acquired clinical confidence: "I gain confidence when working in known surroundings and with familiar people...if I move to a new hospital I find I need time to settle down and regain confidence even in things I am quite competent in" "Practice, and support from fellow doctors, nurses etc., together with patient feedback on the wards" "The response of patients to one's explanations and their relationship with you". Interestingly one graduate claimed that "lack of confidence comes from 'teaching hospital' stereotype of consultant who always finds something you don't know!"

Confidence from the decision-making group

Eleven graduates (five male/six female) described a clinical confidence which was based on making decisions. Nine of these graduates had also described their confidence in this way in response to the second and third questionnaires and seven in response to the first questionnaire.

Five graduates, all female, expressed their confidence in knowing that they were doing the patient no harm, that they were safe practitioners: "Not having the nagging feeling in your stomach that the patient is unsafe with you and would be better seeing someone else" "Knowing that the answers I give are more likely to be right than wrong and are unlikely to jeopardise patients" "Feeling I haven't done people too much harm...and I may not have got the management completely right medically, but I haven't done anything too drastic in a negative sense, and that I've done it all in a reasonable manner" "Knowing how to cope with what I have to deal with, safely and adequately" "Knowing that you've done all that you can do and that you are treating the patient to the best of your ability (both medically and socially)".

Four of the remaining six graduates (three male/one female) expressed their confidence in terms of knowing their own limits: "When/when not to ask" "Knowing when referral of a problem to seniors or another specialty is appropriate" "Knowing when one is out of one's depth" "Being able to know my limits".

Eight of these eleven graduates also included the dynamic social context in which they were working; five (one male/four female) included both patients and colleagues, whilst three graduates (one male/two female) included colleagues only. Typical graduate comments were: "Having people come back to express pleasure with the way something was done" "Feedback from patients and from colleagues" "Patients saying I've done things well or I've been kind or helpful or whatever" "Being able to talk to patients and other doctors/nurses etc. and to understand what they want to know and to be able to explain accordingly" "Having good support from seniors" "It helps to have someone to refer to." These graduates saw the wider context of their job, especially the social interaction element, as being important and a source of confidence.

All of these eleven graduates showed an aspect of self-knowledge in their description of confidence: they knew that the patient was safe with them, or they knew their own

limits. They also appreciated the interactive features of being a doctor. Some of them expressed a non-absolute or relative view: "Knowing that there is more than one way of doing things 'right'" "Knowing that the answers I give are more likely to be more right than wrong" "Nurses and patients often ask me things that they won't ask other doctors" "Knowing that how I do it is often as important as what I do -- or more so".

From experience to decision-making

Two of the graduates had previously expressed their confidence only in terms of experience; now they saw experience as valuable but having only a part to play. Their comments included: "Feedback from patients and colleagues and self-analysis of what I am doing" "Competent to deal with any situation". Both graduates seemed to be moving away from an externally controlled confidence via experience to a more internally controlled confidence via their own abilities.

Exception

One graduate's comments regarding confidence still fell outside the two main categories, though, in the terms just introduced, his confidence seemed to be externally determined, rather than internally, since "reassurance" was an example of what gave him confidence now.

12.3.6 Summary and conclusion

The evidence concerning graduate confidence over the three-year period can be summarised by means of a table (Table 12.3).

From the Table 12.3, it can be seen that fourteen graduates described the development of their clinical competence over the three years since graduation consistently in the same way: six of these graduates focused on experience/task-centred confidence, whilst eight focused on their decision-making skills/ability-centred confidence.

Graduate confidence and career choice

Postal questionnaires sent to graduates included questions on career choice. By the time of writing, all graduates had committed themselves to specialise in either hospital practice

(8 graduates) or general practice (11 graduates). Each graduate's description of clinical confidence can be mapped against their chosen career to give Tables 12.4 and 12.5.

Table 12.4 shows those graduates whose description of clinical confidence has remained unchanged against career choice.

Five graduates had changed their description of their clinical confidence over the four years since graduation; one from a decision-making centred to an experience-centred (his chosen career is in a hospital specialty) and four from an experience-centred to a decision-making centred definition (three are following a career in general practice and one in a hospital specialty). The graduates' description of clinical confidence in the fourth questionnaire can be taken and mapped against their career specialty to give Table 12.5.

From Table 12.5, it can be seen that there is a trend for graduates with experience-centred clinical confidence to follow a career in a hospital specialty rather than in general practice (five doctors compared with two); whilst there is also a tendency for graduates with clinical confidence based on decision-making to follow a career in general practice rather than in a hospital specialty (nine doctors compared with three).

12.4 Tabular summary of sections 12.2 - 12.3

This section brings together the previous two sections (Section 12.2 on graduates' views to do with learning and with knowledge, and Section 12.3 on graduates' descriptions of their clinical confidence and the graduates' career choices) by means of tables (Tables 12.6, Table 12.7 and Table 12.8).

Table 12.6 shows the relationship between the graduates' clinical confidence, sex, career choice and view of knowledge, three years after graduation.

Table 12.7 shows the relationship between the graduates' descriptions of their clinical confidence three years after graduation and their view of knowledge.

Table 12.8 shows the relationship between their view of knowledge and their view of their teachers/lecturers' view of knowledge.

From these tables it can be seen that:-

- (a) there is a tendency for graduates who describe their clinical confidence in terms of their own decision-making (self) to choose general practice for their career;
- (b) there is a tendency for graduates who describe their clinical confidence in terms of their own decision-making (self) to describe their view of knowledge as dynamic or knowledge-in-use;
- (c) there is a tendency for graduates who see knowledge as dynamic, as knowledge-in-use, to say their view of knowledge is different from their teachers/lecturers' view of knowledge, since they perceive their teachers/lecturers' view of knowledge as static and factual;
- (d) the graduates who focused on clinical aspects to decide what they should learn when they were students, describe their confidence in terms of decision-making (self).

12.5 Conclusion

This data from graduates has been included for three main reasons.

Firstly, medical students have a wide range of learning experiences from very many teachers during their five-year course with the result that, unlike most students in higher education, they do not work closely in a sustained way with a particular department of academics. Under these circumstances, where teachers and students often do not get to know each other, didactic teaching may easily predominate, adversely affecting students' views of knowledge and of learning. The graduates considered in this chapter, for instance, believed their undergraduate teachers' views of knowledge were 'static'. The existence of many teachers also makes an autonomous approach to learning even more important, for without it, students develop a feeling of not knowing what to learn (which can persist throughout their course) and an over-reliance on instrumental factors rather than their own judgement. These graduates emphasised the value they placed on lectures, examinations and their peers when deciding what to learn as students.

Secondly, the data provided the opportunity to develop the theme of confidence. Graduates derived confidence primarily either from 'experience' or from 'decision-making'; the former tended to choose a hospital career and the latter a General Practice career. This can most probably be accounted for by the different jobs or setting requirements. Also, students whose confidence was based on decision-making had a 'dynamic'

view of knowledge, as knowledge-in-use, which was different from their perception of their teachers' (on the undergraduate Medical course) view of knowledge which was static.

Thirdly, if this is a general trend in career choice, what implications are there for teaching and learning medicine in hospital and in General Practice?

Table 12.1

The graduates' descriptions of their own clinical confidence
six months after graduation

	<u>Number of graduates</u>
<u>Graduates who developed</u> <u>clinical confidence</u>	20
Clinical confidence	
experience or task-centred	9
Clinical confidence	
decision-making or abilities-centred	10
Clinical confidence	
unclassifiable	1
No clinical confidence mentioned	1
Total number of graduates	21

Table 12.2

The relationship between the graduates' reply to their developing clinical confidence in Questionnaires 1 and 2

	<u>Number of Graduates</u>				<u>Total</u>
	<u>Questionnaire I</u>	<u>Same descrip- tion</u>	<u>Questionnaire II</u> <u>Changed descrip- tion</u>	<u>Extra graduate</u>	
Clinical confidence Experience or task-centred	9	6	4 (3 from decision-making and 1 from unclassified)	-	10
Clinical confidence decision-making or own abilities-centred	10	7	2 (2 from experience)	1	10
Clinical confidence Unclassifiable	1	-	1	-	1
No clinical confidence	1	1	-	-	1
Total number of graduates	21				22

Note: Most graduates remained in the same category:
66% of graduates remained 'experience/task-centred' and
70% remained 'decision-making/own abilities centred'

Table 12.3

The development of clinical confidence in graduates, over a three-year period immediately after graduation, together with career choice and sex

Graduate	6 month	1 year	2 years	3 years	Career Choice	Sex
1	Task	Task	Task	Task	Hospital	M
2	?	Task	Task	Task	Hospital	F
3	Task	Task	Task	Task SC	Hospital	M
4	Task	Task	Task	Task SC	Hospital	F
5	Self	Task	Task	Task SC	Hospital	M
6	Task	Task	Task	Task SC	G.P.	F
7	Task	Task	Task	Self	G.P.	M
8	Task	Task	Task	Self SC	G.P.	F
9	Task	Self	Self C	Self SC	Hospital	F
10	Task	Self	Self	Self SC	G.P.	M
11	Self	Self	Self	Self	Hospital	M
12	Self	Self	Self SC	Self SC	Hospital	F
13	Self	Self	Self C	Self SC	G.P.	M
14	Self	Self	Self SC	Self SC	G.P.	F
15	Self	Self	Self SC	Self SC	G.P.	F
16	Self	Self	Self SC	Self	G.P.	M
17	Self	Self	Self	Self SC	G.P.	F
18	-	Self	Self SC	-	G.P.	F
19	Self	Task	-	-	-	F
20	Self	Task	-	-	-	M
21	Task	?	Task	?	G.P.	F
22	None	None	-	-	-	

Key:- Task - Experience/Task-centred clinical confidence
 Self - Decision-making/own ability-centred clinical confidence
 C - Context of specialty included
 SC - Context of social interaction included
 ? - Unclassified
 - - No reply

Table 12.4

The relationship between graduates' description of their clinical confidence unchanging over three years and their chosen career

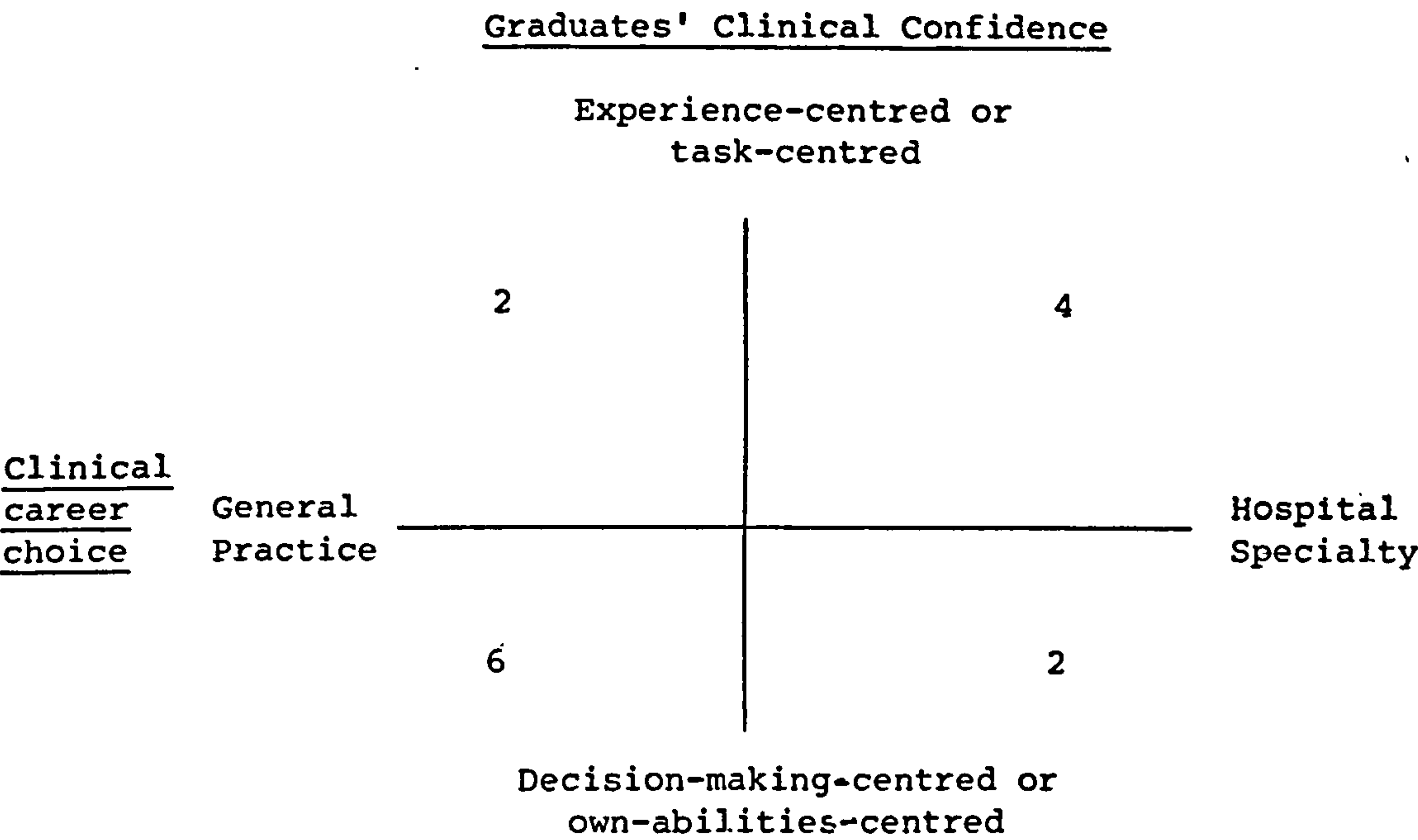


Table 12.5

The relationship between graduates' descriptions of their clinical confidence four years after graduation and their chosen career

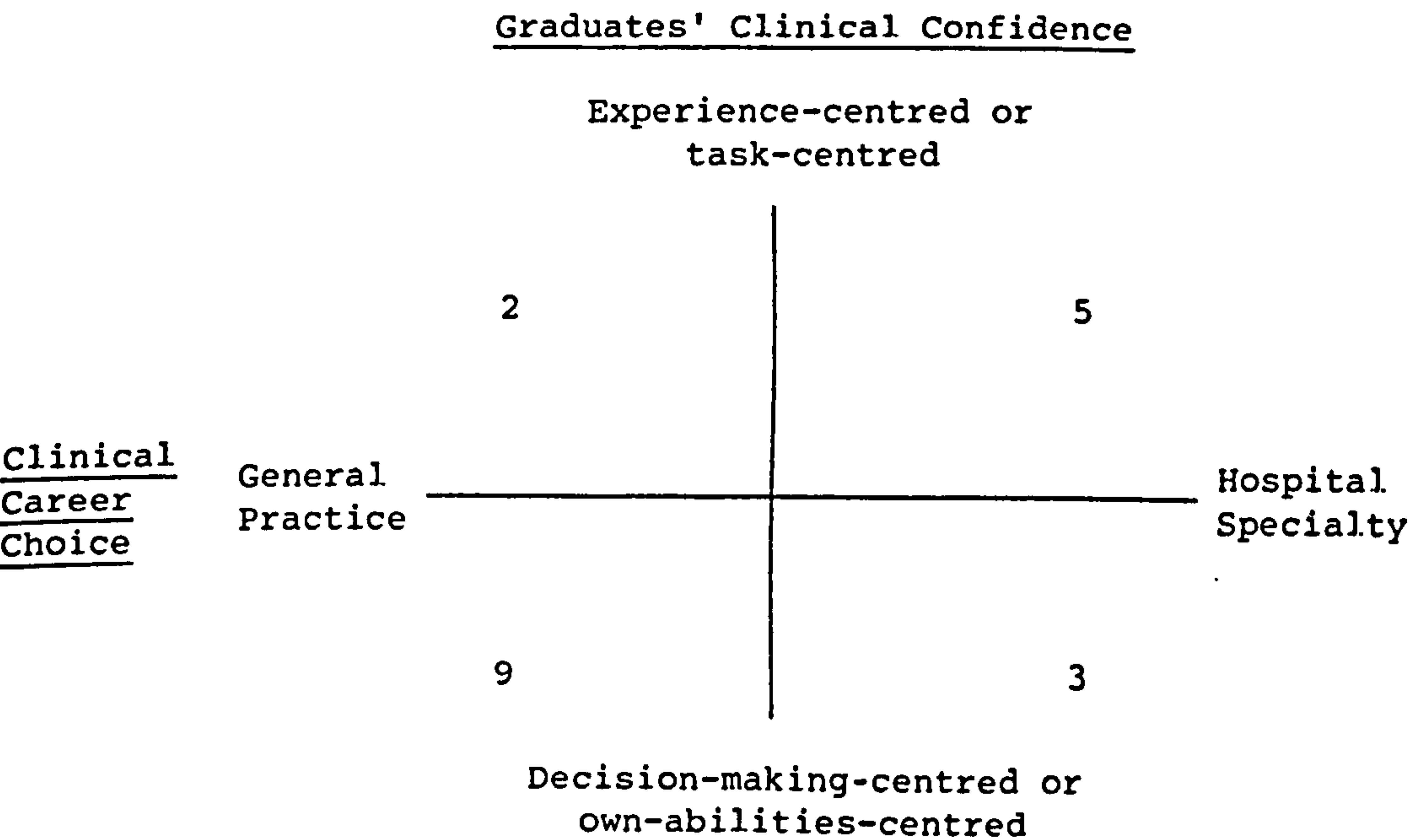


Table 12.6

The relationship between the graduates' clinical confidence, sex, career choice and view of knowledge, three years after graduation

Graduate	Clinical Confidence	Career Choice	View of Knowledge	Sex
1	Task	Hospital	Static T	M
2	Task	Hospital	Dynamic	F
3	Task SC	Hospital	Dynamic	M
4	Task SC	Hospital	Static	F
5	Task SC	Hospital	? T	M
6	Task SC	G.P.	Static T	F
7	Self	G.P.	Static T	M
8	Self SC	G.P.	Dynamic	F
9	Self SC	Hospital	Dynamic	F
10	Self SC	G.P.	? T	M
11	Self	Hospital	Dynamic	M
12	Self SC	Hospital	Dynamic	F
13	Self SC	G.P.	Dynamic	M
14	Self SC	G.P.	Dynamic	F
15	Self SC	G.P.	Dynamic	F
16	Self SC	G.P.	Dynamic	M
17	Self SC	G.P.	Dynamic	F
18	?	G.P.	Static T	F

Key:

- Task - Experience/Task-centred clinical confidence
- Self - Decision-making/own ability-centred clinical confidence
- SC - Context of social interaction included
- ? - Unclassified
- Static - Facts and information
- Dynamic - Facts and their use
- T - Same view of knowledge as teachers

Table 12.7

The relationship between graduates' description of their clinical confidence four years after graduation and their view of knowledge

		<u>Graduates' Clinical Confidence</u>	
		Experience-centred or task-centred	
Graduates' view of knowledge	Static	3	2 + 1?
	Dynamic	2	9
		Decision-making-centred or own-abilities-centred	

Table 12.8

The relationship between the graduates' view of knowledge and their view of their teachers'/lecturers' view of knowledge

		<u>Graduates' View of their Teachers/ Lecturers' View of Knowledge</u>	
		Static	
Graduates' view of knowledge	Static	5	11
	Dynamic	1	1?
		Dynamic	

CHAPTER THIRTEEN

DISCUSSION

"With more knowledge of the ways in which the goals of education are frequently defeated in the very process of education, we may achieve better control over the results of education."

(Spindler 1959:2)

13.1 Introduction

The data presented in Chapters 8 to 12 span eleven years. When my data collection began, the first intake of medical students was just about to graduate: in one very real sense the new Medical School with its new curriculum had achieved its goal. This achievement would not have been possible without the imagination, hard work and dedication of many people both in Southampton and elsewhere. At the long- and short-case Finals examination (chapter 4) this achievement was reflected in the enthusiasm and excitement shown by everyone -- internal and external examiners, students about to graduate, administrators, and even the catering staff. It was a very memorable occasion indeed, and one that I felt privileged to share. This feeling of privilege has stayed with me throughout my research.

Southampton Medical School was established in the late 1960s as a direct result of the recommendations of the Todd Committee (see chapter 2 of this study). Their Report (1968) emphasised the educational aim of the undergraduate medical curriculum: "Its object is to produce not a fully qualified doctor, but an educated man" (para 197); they continued, "We hope that he will be taught throughout in such a way as to inculcate in him a desire to continue learning not only during the post-graduate training which we hope he will undertake...but throughout his professional life" (para 200) (see chapter 1).

Thus undergraduate medical students need no longer be fully qualified doctors at graduation, provided that they are educated and that they possess the desire for life-long learning. Education (as distinct from training) would provide the graduate with the necessary skills for life-long learning and enable him to see the need to continue his education throughout life.

The present chapter summarises the findings presented in this study (section 13.2), revisits the methodology and methods used (section 13.3), and suggests recommendations on teaching and learning for a young Medical School wishing to ensure that graduates are practitioners of excellence who continue to learn throughout their active professional life and beyond. The fourteen Recommendations are set out in a list in section 13.4; they are discursively presented in a final section (section 13.5).

13.2 Summary of findings presented in Chapters 8-12

The Dean, Deputy Dean, Dr Colin Coles and myself decided that evaluation should begin with Year Three (see chapter 4, section 4.3, and chapter 6, section 6.2.5.3 above) for two principal reasons: (a) Year Three had the greatest overlap of theory (taught courses) and clinical practice (chapters 2 and 8) -- here the curricular structure maximally reflects the concept of integration which is at the heart of Southampton's educational philosophy (section 2.2); and (b) in Year Three, students experienced hospital attachments (10 weeks) for the first time -- and clinical medicine is central to medical education.

In this section (13.2) the findings are presented under three headings: Teachers (section 13.2.1), Learners (section 13.2.2), and Integration (section 13.2.3)

13.2.1 Teachers

13.2.1.1 Dichotomies in the organisation of teaching

Chapters 8 and 9 described Third Year medical attachments on two Firms A and B, at the same hospital. Firm A was a large firm, so that, as would be expected, some differences in teaching occurred within the Firm itself (chapter 8). But over and above these individual differences, there were clear differences of emphasis between the two Firms A and B in the way they organised their teaching (including non-timetabled time). Firm A kept their teaching quite separate from their day-to-day patient-care activities, so that students on Firm A did not contribute to the life of the Firm. Firm B, on the other hand, blurred the distinction between their teaching and their patient-care, with the result that students were part of the Firm, working with clinicians as they cared for patients. These differences are summarised in Table 13.1.

The two approaches to teaching have been called, in this study (section 8.4.5.4), a 'training' approach (Firm A), where the student was seen as a 'product' of the teaching, and a 'working' approach (Firm B), where the student was regarded as a colleague (Handy & Aitken 1986). The 'working' approach involved students in the purposeful activity of caring for patients. Here, clinical skills and knowledge were acquired in use rather than for use -- these are the essential skills for giving care. Students also had responsibility commensurate with their clinical abilities: as these developed, so did their experiences and responsibilities. Thus teaching and learning were interactive (students and teachers both learnt and taught); they were also responsive to change, not only to change in students and teachers, but also to change in patients, who provided the focus for meaningful teaching and learning. The 'training' approach, of teaching clinical skills and knowledge for future use, was by comparison purposeless, one-way (teachers taught, while students learnt) and non-responsive. The learning outcomes of these two approaches were different (section 13.2.2.1).

The data in chapter 10 show that these two patterns of organisation of teaching can also be seen in the comments of the nine clinicians from another Medical Firm, Firm C, at a different Southampton hospital. Four clinicians (Group One) thought students should not try to be house-officers at this stage of their course ('training' approach); whilst five, more experienced, clinicians (Group Two) said students should be made to feel part of the Firm and should contribute by learning clinical procedures and by attending 'takes' etc. ('working' approach).

Chapter 11 presents data from outside the hospital: GPs organised Third Year attachments in ways which paralleled the organisation of Firms A and B. Some taught students on a few specially invited diagnosed patients ('training' approach), whilst the majority gave students opportunities to contribute to their morning surgery ('working' approach).

13.2.1.2 Anomalies in the teaching of clerking

Doctors' clinical skills centre on clerking, which consists of (at least) history taking, physical examination, diagnosis and patient management. The prime stated aim of Year Three attachments was for students to acquire the skills of history taking and physical examination (chapter 8). The Introductory Course to Clinical Medicine (at the end of Year Two, in the Summer Term) prepared them for this. They were formally told to put

diagnosis to one side until later in their course; little attention was given to patient management.

I was puzzled that, by the end of two consecutive Medical attachments on two separate Firms, I had not seen a doctor taking a full patient history or carrying out a full physical examination during the formal teaching sessions for students. Nor had I seen a doctor observe a student taking a full patient history or carrying out a full physical examination. I had expected to see both, since the central aim of Third Year attachments was for students to acquire the clinical skills of history taking and physical examination.

The timetabled clinical teaching I had observed on Firms A and B (section 8.3.1.1) was principally bedside teaching ('clinical' is derived from the Greek kline, meaning 'bed'). Each session began in the seminar room, with a student presenting a patient case (the patient was chosen on the spot) and the doctor painstakingly correcting it; the group then moved to the ward, where they talked to the patient and carried out a part physical examination. Teaching was concluded either there and then on the ward or after a follow-up session in the seminar room.

Case presentation, the product of clerking, was a central part of teaching: but clerking involves diagnosis and patient management as well as history taking and physical examination. Written case notes, also a product of clerking, formed part of the teaching each week for Firm A. However, Firm B formally assessed students' written case notes only twice during the attachment, though they did assess them informally, since students routinely put their written case notes into the patients' files (section 8.3.5).

Thus, though physical examination formed part of the timetabled teaching, the activity of history taking did not. History taking, when it was the focus of formal teaching, was described by doctors as essentially a sequence of questions which were put to patients in a thorough and systematic way, beginning with the patient's presenting complaint. When all the data were gathered by asking the set questions, a diagnosis, differential or definitive, was attempted, but students could omit this aspect of the history at this stage. Thus, history taking was described as a set linear process. Doctors on Firm A described history taking in this 'full-blown' way and their teaching (a 'training' approach) reinforced it: Firm B on the other hand, though they described history taking as linear, required students to attend to the diagnosis, since their teaching (a 'working' approach) demanded it.

Clerking, as a whole, was also described as a linear process. History taking was the primary clinical activity which, when completed, gave a suggested diagnosis. This was then checked by physical examination: the function of physical examination was secondary, intended to confirm/disconfirm the findings of the history. Management and prognosis were ignored in this description of clerking for students. Again, doctors on Firm A adhered to this description of clerking, whereas doctors on Firm B did not exclude patient management and prognosis.

Two months later, when I attended the Introductory Course to Clinical Medicine, I found confirmation of these linear views of (a) history taking and (b) clerking as a whole. Both models were clearly and frequently articulated, and given to the students as preparation for their Third Year attachments. (Data on the Introductory Course is not included in this study.)

The unscheduled 'unseen' patient session on Firm A (chapter 9, section 9.1) allowed me to glimpse the activities of history taking and physical examination as they were never formally taught. Uniquely, the clinician I observed on this occasion began with physical examination, then, moving repeatedly between history taking and physical examination, he and the students focused on interpretation and hence diagnosis, whilst at the same time trying to account for their findings and suggestions. The repeat Out-patients Clinics together with the local hospital visits and the 'twinned' firm sessions of Firm B, also reported in chapter 9 (sections 9.3.3 and 9.3.4), yielded teaching which seemed much more like the authentic history-taking and physical examination of experienced doctors.

This prompted my visits to the new Out-patients clinics (which students did not attend) of the doctors on Firm B (section 9.2). I now observed that history taking and physical examination as practised were very different from history taking and physical examination as taught: they were dynamic, evolving processes on undiagnosed or 'unseen' patients. Though clinicians on Firm B recognised these differences and saw them as significant, they attributed them to "short cuts" which experienced doctors took but which novice medical students should not take. They said medical students needed to be thorough and systematic when learning clinical skills (section 9.2.7).

By getting behind the scenes, as it were, especially with the 'unseen' patient and the new Out-patients clinic, I was able to see hospital doctors at work in a non-acute setting. ('Take' sessions also provide an opportunity to see doctors at work, but in an acute set-

ting, where the atmosphere and pace are different (section 9.3.2.) This highlighted for me the marked contrast between history taking and clerking as practised by hospital doctors, on the one hand, and as taught by them, on the other. Both, as practised, are complex, interactive, evolving processes with a clear purpose, namely diagnosis and patient management. The linear model which is taught is quite inappropriate and hence unhelpful to students. Also, when hospital doctors attend in their teaching to student case presentations and written case-notes (the products of history taking/clerking), they are not helping students to improve their history taking/clerking skills and conceptual understanding of these clinical activities -- quite the opposite, since doctors are focusing on and giving importance to the product at the expense of the process.

All hospital doctors held the view that the patient history was more important than the physical examination, which, they claimed, could only confirm the history findings. Despite this, more time was spent on teaching the skills of physical examination to students in Third Year Medical attachments (and on the Introductory Course to Clinical Medicine). This teaching ratio is very surprising, especially when the complexity of the history-taking activity is added to its centrality. (Some of the complexity is reported in Barrows et al. (1978), Norman and Tugwell (1982), Norman et al. (1985), Gale and Marsden (1983), Grant and Marsden (1988), Barrows and Feltovich (1987) and Rimoldi (1988).) Also, it will be remembered, students did not observe doctors taking a patient history, nor did doctors observe students taking a history.

The principal aim of Third Year attachments is for students to continue to develop the skills of history taking and physical examination (section 8.1.3). Clearly, for the doctor, the authentic activities of taking a history, making a physical examination, arranging and interpreting tests etc., all lead to establishing a diagnosis and a management programme for the patient. This is the 'clinical process'. It seems to be tacitly assumed by hospital doctors generally that 'proficiency' with the separate skills of history taking and physical examination as ends in themselves will automatically equip the student with the important and complex interactive skills of diagnosis and making patient management decisions. These skills were rarely made explicit or even identified, nor were they taught in any general or conceptual way other than by improptu comments and rule-of-thumb guidelines when appropriate. Third Year students saw the importance of arriving at a diagnosis, though they seemed rather confused about 'how to get there'. As one student said, "We don't know what chest pain and breathlessness can mean. We need to go through it and work it out. We would then know which questions to ask automatically"

(chapter 8). In short, they were not taught diagnostic skills in timetabled sessions. (Yonke (1979), Balla and Edwards (1986), Barrows and Feltovich (1987) all claim that clinical decision making is rarely explained to medical students.)

Students were, however, taught in timetabled sessions how to present cases and some were taught how to write patient notes: but these two activities, though important clinical skills, were not part of the stated aims of Third Year attachments.

Interviews with nine clinicians on a different Medical Firm (Firm C) at another Southampton hospital (chapter 10) confirmed the two disparate views of history-taking/clerking -- namely the linear and the evolving. The four less experienced doctors (Group One) said that medical students should focus on learning the skills of history taking and physical examination at this stage of their course. These doctors described history taking as gathering all the data, which could then be sorted out later into relevant and non-relevant by thinking of case presentation and/or writing case notes -- a linear model. On the other hand, the five more experienced doctors (Group Two) expressed concern when they found students regarding history taking as a list of questions to be asked; they went so far as to say that if students saw history taking in this way, the attachment had failed, since this was not how patient histories should be taken in practice. Differential diagnosis was central to the activity -- an evolving model.

Chapter 11 gave data from Third Year students' descriptions, at interview, of their GP attachments. A small number of GPs organised their teaching around specially invited diagnosed patients, but the majority simply worked with students during their routine morning surgery. The minority group's emphasis might be equated with teaching students around patients who were already clerked, using case presentation and physical examination as the focus: this reflects traditional bedside teaching in hospital with a linear view of history-taking/clerking. However, the majority group's emphasis was quite different since it was based on history-taking/clerking as practised by doctors -- an evolving view. Students derived most from the attachments where they worked with GPs; this was especially so as the year progressed. Students said that their clinical skills, together with their perceptions of clinical skills more generally, developed accordingly: they began to see links between hospital practice and general practice and to use the opportunity offered by general practice to "experiment". For example, they piloted different history-taking techniques in authentic GP consultations, and if the feedback indicated success, they,

understandably, adopted the particular technique in their hospital practice. This was very beneficial for students.

13.2.1.3 Putting the organisation of teaching and the teaching of clerking together

(a) Teaching in the hospital

The observations of the teaching of clerking in hospital medicine, as reported in this study, can be listed as follows:-

1. A primary aim of the Third Year attachments was for students to acquire the clinical skills of history taking and physical examination.
2. These skills were taught as a linear sequence: history taking followed by physical examination.
3. Doctors claimed that history taking was much more important than physical examination, and that physical examination could only confirm findings from the history.
4. Yet much more timetabled time was devoted to teaching physical-examination skills than history taking skills.
5. History taking was formally taught as a set of questions to ask patients in a systematic order and with an open mind; a diagnosis was obtained by analysing the data after it had all been collected. Patient management was not a feature of history taking as taught.
6. Hospital teaching was based largely on diagnosed patients; this reinforced the model of history taking as taught.
7. Students very rarely (if at all) saw clinicians taking an authentic patient history; when they did, it was usually on 'take' with the attendant stress of acute emergency medicine.
8. Clinicians very rarely (if at all) saw students taking a patient history.
9. Students were rarely (if at all) able to take an authentic patient history since they were rarely (if at all) first to clerk.

10. Students' history-taking skills were judged by the quality of their formal case presentation and written patient case notes (both products of the interactive process).
11. Much formal timetabled time was spent teaching the skills of case presentation and, on some firms, the skills of writing patient case notes.
12. Neither case-presentation nor writing patient case-notes were stated aims of Year Three attachments.
13. Student contributions were largely academic.
14. The role of the students stayed the same throughout the attachment; it rarely evolved to reflect their increasing clinical skills and knowledge.
15. The perception of a standard patient with a standard known disease who required a thorough history to be taken by asking an exhaustive list of questions, and checked by a systematic physical examination, was pervasively imparted by the organisation of teaching.
16. Experienced clinicians (Firm C, Group Two) emphasised that students should not be taught history taking as a list, since this conception seriously distorted the history-taking process as practised by doctors.
17. Some experienced clinicians (Firm B and Firm C, Group Two) emphasised that students should learn clinical skills purposefully and indirectly: that is, the skills should be learned by students whilst they are working with doctors helping to care for patients.

*

(b) Teaching in general practice

The characteristics of the teaching of clerking in general practice as reported in this study from student interviews can be listed as follows:-

1. The context was authentic, in real time, with undiagnosed patients.

2. The students' clinical task was based in understanding the patient as fully as possible; the value of listening to patients was demonstrated.
3. Students were purposefully involved in the whole process of clerking patients, including diagnosis, management and prognosis -- an evolving process.
4. Students were often first to clerk.
5. Doctors saw students clerking patients.
6. Students saw doctors clerking patients.
7. Students were given quick and constructive feedback on their clinical skills; often they were given tactical suggestions to help them to develop these skills.
8. Students discussed each patient they had clerked immediately after clerking and before their next patient clerking. Thus students were given the opportunity to introduce changes to their clerking practice, and to assess the effects of the changes, immediately and with the GP's help; they were able to "experiment" in a secure, informative, authentic setting.
9. Students were helped to group information they obtained from the patient in order to interpret it and to suggest a diagnosis.
10. Students were helped to see what other information they should have obtained from the patient to assist their diagnosis and patient-management decisions.
11. Students' contributions were of practical value.
12. Each student's role grew as they acquired clinical skills and knowledge.
13. Students saw something of the range and the continuity of care in the community, together with its organisation.
14. Students experienced general-practice medicine with the full range of patient problems.

15. Students had first-hand experience of other models of history taking (and of community medical practice) in action.

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It is worth noting that the term 'clerking' is not commonly used in General Practice; the terms 'consultation' and 'interview' are used instead. This in itself can alert one to significant differences in the clinical skills required.

Essentially, clerking was taught by Firm A in the way characterised by the list (hospital medicine), and their organisation of teaching (a 'training' approach -- chapter 8) favoured the adoption of this linear pattern of clerking by the students. Similarly the four Group One clinicians on Firm C (chapter 10) and those few GPs who invited selected patients to attend surgery for Third Year attachments (chapter 11) also encouraged students to adopt a linear pattern of clerking -- the espoused model -- since their organisation of teaching was a 'training' approach. It is significant to note that the dominant model of clerking parallels the traditional model of the scientific method.

Though Firm B espoused a linear model for the teaching of clerking, they organised their teaching so that students worked with them as they cared for patients (a 'working' approach -- chapter 8). Thus students could not fully adopt a linear model of clerking. This evidence points to the conclusion that teacher behaviour is more influential for student learning than teacher belief or statements of intent.

The five Group Two clinicians on Firm C (chapter 10) claimed that students should be part of the Firm and work with doctors. But they, unlike Firm B, rejected the espoused linear model of clerking as taught: consequently, students working with them would not fully adopt a linear model of clerking. Finally, GPs working with students during a normal morning's surgery enabled students to experience authentic practice. Students observed GPs-at-work and GPs observed students. Open discussion focusing on both patient care and students' acquisition, by practice, of clinical skills promoted an evolving model of clerking. Yet, despite these excellent learning opportunities offered to all students by authentic General Practice only some students benefited. Some students even experienced difficulties: this was because of the mismatch between clerking as taught to them and as practised by them in hospital attachments, on the one hand, and clerking in general practice, on the other.

The next section (13.2.2) focuses on learners and may help to explain these student difficulties.

13.2.2 Learners

13.2.2.1 Dichotomies in the approaches to learning

The following data, collected during the first twenty weeks of the academic year, apply to Third Year medical students on their first Medical attachment.

(i) Students' own focus for learning (hospital attachments)

Observation of Third Year medical students discussing informally amongst themselves revealed that some of them interpreted controversial issues related to their course in a literal way, whilst others interpreted them non-literally (chapter 8). (What was particularly striking was that all students talked in a non-literal way about their own life events. It was as if some students' intellectual equipment for educational purposes lagged behind their everyday intellectual equipment.)

(ii) 'Literal' students on Third Year medical attachments

Chapter 8 described how 'literal' students were uncommitted, at least initially, to any particular approach(es) to learning: they freely changed their focus according to their perception of the context; they had no overall strategy to guide them. Their teachers and the course aims were the most influential factors. Since students attached to Firm B worked with their teachers on the wards as part of the Firm, they were purposeful learners. But students on Firm A were not part of the Firm, and generally found themselves in the unenviable position of feeling increasingly unable to achieve the stated aims of the attachment.

The main differences, as the attachment progressed, between the 'literal' students on Firm A and the 'literal' students on Firm B are shown in Table 13.2.

It appears that 'literal' students only make real progress with a 'working' approach (Firm B) to teaching. Students with a 'training' approach (Firm A) gradually and increasingly became demotivated, claiming that they had lost confidence in themselves and in their

ability. They even began to have doubts about their chosen career, medicine. Needless to say, they did not enjoy their attachment. They looked forward to the new start which they hoped their next attachment would provide. However, students on Firm B slowly but progressively adapted to the 'working' approach: they developed a fluctuating confidence which was 'context sensitive'. Increasingly, they were able to tolerate the ambiguity of their learning experiences and of their own progress. They saw clerking as fruitful (though in different ways) both for patients and for themselves. They enjoyed their attachment, though they were apprehensive about their next one.

It seems that students on Firm A were not given the necessary learning experiences to help them to re-think their perception of their learning task: they remained dependent. Students on Firm B effectively re-thought their perception whilst working with clinicians: they began to be much less dependent.

(iii) 'Non-literal' students on Third Year Medical attachments

As described in Chapter 8, students who were 'non-literal' attached to Firm A changed their learning environment by becoming "pushy" -- they asked to do things and developed a high profile: their learning became 'doctor-centred'. Students on Firm B, on the other hand, simply accommodated themselves to the experiences offered, and worked with the doctors: their learning became 'patient-centred'. A distinguishing characteristic of both kinds of student-learning focus was the students' ability to decide how best to spend their time. They were resourceful, showing initiative and imagination; they were not afraid to make choices, nor were they afraid to re-consider and change their mind. These students were autonomous learners with a clinical confidence that steadily increased.

(iv) Which student focus for learning is better - a 'patient-centred' or a 'doctor-centred'?

Table 13.3 gives differences between the 'doctor-centred' and the 'patient-centred' student focus.

Chapter 8 described how 'patient-centred' students used a wider variety of resources for learning, namely the patients, other health-care personnel, and clinical and pre-clinical texts. Their key purpose was to identify and to understand the patient's problem as fully as possible. In order to do this they made use of the patient's own questions, and of the management strategy and the patient's progress, following both closely. An important

aspect here is that, because they followed up their patients' progress by talking to them and by taking a 'daily' history, these students were, in effect, 'first' to clerk, that is to say, they could pick up changes in a patient's physical, psychological and social well-being and report them to the team. The clinicians on Firm B valued such student contributions; they told the students this. Also, because students were working on the Firm, they commonly shared the doctors' clinical thinking and 'know-how' (Polanyi 1962a; 1962b) in the authentic environment of caring for patients in hospital. Such student/doctor discussion, with the common purpose of patient care, enabled both to construct new meanings and understandings and thus to learn from each other. This created a healthy atmosphere for learning and teaching and an open and candid attitude. As a result, both students and clinicians readily said if they did not know or understand. Thus both parties used the opportunity for fruitful learning. Students derived sufficient satisfaction from their work to increase their motivation; they did not seek external rewards such as high grades and praise.

The 'doctor-centred' students focused on becoming doctors rather than on caring for patients. In one sense, this should not be surprising, as they were still not half-way through their course, so that caring for patients was perhaps ambitious. But, significantly, the ward context in which they found themselves did not encourage them to care for patients -- quite the opposite. They were advised, rather, to concentrate on satisfying the aims of the Third Year attachment, especially on acquiring the clinical skills of history taking and physical examination: learning clinical procedures, becoming part of the Firm, and caring for patients were inappropriate.

These students' approach to learning had a clear element of professional 'reproduction' (Atkinson 1983): they were very concerned with good performance. They focused on learning quickly the necessary technical vocabulary and the style of qualified doctors, somewhat at the expense of understanding. Apparent fluency and a polished performance do not always signal competence and understanding (examples from other fields are 'rote learning' and 'barking at print'). 'Doctor-centred' students were concerned with appearances: they wanted to be noticed during the attachment by the doctors on the firm and to be awarded a high grade in the assessment. The 'hidden curriculum' (Snyder 1973) and 'making the grade' (Becker et al. 1968; Miller and Parlett 1973) were important to them. Moreover, they exhibited 'learning pathology' (Entwistle & Ramsden 1983), at least insofar as they referred to the patient ward-notes secretly, and rarely said that they did not understand or that they did not know, preferring to bluff their way through.

However, they made sure that they learned the material for next time. Haas and Shaffir (1982) refer to this phenomenon of bluffing as 'the cloak of competence': they found that even medical students taking a problem-based course demonstrated such cloaking behaviour.

'Doctor-centred' students may be regarded by both teachers and other students as "better" than 'patient-centred' students, since they 'model the master' (Stolurow 1972). Certainly in a viva or similar face-to-face examination, the performance of the 'doctor-centred' student was impressive. 'Patient-centred' students may take more time to demonstrate their quality, and in examinations of this kind time is limited. (Some students need to adapt to the examiners' expectations in long-case vivas (Mountford 1987).)

It seems that a 'patient-centred' approach to learning was "better", since it fostered intellectual honesty and rigour; students learned meaningfully within the context of patient-care.

Firm B, by asking students to work with them, showed the characteristics of educators which are needed to help all students to achieve the necessary commitment for full intellectual development (Perry 1970). Both 'patient-centred' and 'doctor-centred' students showed such a commitment, but Firm A only provided this kind of education for its students in response to students being "pushy".

It is important to stress that in order to develop a commitment to either a 'patient-centred' or a 'doctor-centred' approach to learning, students need a 'non-literal' or relativistic view of their course, a view which a minority of medical students had at the beginning of Year Three. In this context it is important to explore the influence of the previous two years of their course at Medical School. These two years are designed to help students learn selected theory for use in their later clinical practice. Much of this theory has been taught didactically (Acheson 1974). "The character of the student's training in the pre-clinical subjects largely determines his mental attitude and intellectual methods on the clinical part of the course" (Goodenough 1944:134). If this is so, students in their Third Year may be less able to exploit the opportunities provided by clinical settings than they were at the beginning of their course.

13.2.2.2 From learning to practising medicine

Chapter 12 reported a small four-year follow-through study of Southampton graduates. Twenty out of twenty-one graduates claimed that the house-officer year had brought them clinical confidence. This was the one factor on which all graduates could be said to agree: the one graduate who did not find clinical confidence, subsequently left Medicine.

Four years after graduation, all graduates (18 replied) clearly saw the need to continue to learn: deciding what to learn was easy for them, since they simply focused on the actual patients in their care. However, in the run-up to professional examinations, a majority of graduates turned to the exam syllabus, past papers, and local courses to find out what to learn. They all recollected that as medical students deciding what to learn had been a very different matter, one third of the graduates claiming that they really had not known what to learn. In the main, as students, they had relied on the judgement of others, especially the lectures (incidentally, not the lecturers) (78% of graduates -- 14 out of the 18), on past examination papers (39%), and on other students (39%). However, eight graduates (44%) had used clinical aspects to guide their learning, but of these eight, only five (28%) said they had used their own actual clinical experiences (section 12.2.2). It seems that for these graduates at least, life-long learning is far less problematic than their undergraduate learning was.

All teaching embodies a view of knowledge. Eleven graduates (61%) claimed that (on their undergraduate medical course) their teachers/lecturers' view of knowledge seemed atomistic, academic and static, whilst their own current view of knowledge was integrated, usable, and dynamic (elements of intuition and tacit knowledge were included by three graduates). However, five graduates (28%) said their own current view of knowledge and that of their undergraduate teachers/lecturers was the same, namely atomistic, academic, and static (section 12.2.3). (Two graduates' responses fitted neither of these categories.)

13.2.3 Teaching and learning: an integrated approach

Integration is at the core of Southampton's curriculum (chapter 2). Chapter 3 argued from a literature survey that the integration intended was unlikely to become reality, since the characteristics which accompany successful integration were not in evidence.

The Todd Report (1968:para 229) claimed that "the patient [is] the best focus for integration." Chapter 3 outlines Armstrong's belief (1977; 1980) (using Bernstein's (1971) categories of classification and framing) that the pre-clinical years of undergraduate medical courses typically provide a 'collection code' curriculum, but that the clinical years provide an 'integrated code' curriculum.

However, the present study has described (chapter 8) how a majority of students at the beginning of their Third Year had a 'literal' approach to their course and were unable to make use of the new opportunities for integration offered by the clinical setting: only 'non-literal' students were able to benefit fully and to develop an integrated approach to their learning. They also developed clinical confidence. (Jones et al. (1986), researching medical students' acquisition of cognitive knowledge in clinical settings concluded that students may have different "capacities...to benefit cognitively from clinical experiences".) Over the course of the attachment, 'literal' students on Firm B moved towards an integrated approach as they worked with clinicians caring for patients. By contrast, the 'literal' students on Firm A were unable to develop such an integrated approach throughout the whole of their clinical attachment: clearly a clinical setting is not sufficient for integration.

Firm A's 'training' approach to teaching was based on a particular commonly held view of teaching and learning, namely that teachers have an expertise (skills and knowledge) which they are able to give or transmit to students by teaching -- the learning outcomes being that students acquire the desired expertise. On this view, teaching and the resultant learning is a one-way process, encouraging a static view of knowledge as atomistic facts and information. This was the view graduates said was given to them as medical students by their undergraduate course (chapter 12).

This training environment of Firm A also allowed the teaching view of (a) clerking as a linear process of history taking and physical examination, in that order, and (b) history taking as a linear sequence of questions put to patients in its entirety, followed by diagnosis, to become established for students. Both teaching views (a) and (b) were further encouraged by doctors not observing students clerking and by students not observing doctors clerking, and significantly by ward teaching which focused on diagnosed patients, well-known medically to the doctors.

Integration is an activity based on synthesis: course aims and objectives are based on analysis. This study showed that where teaching was organised as 'training' (a one-way process) closely adhering to the Third Year course aims, integration was difficult for teachers and learners alike (chapter 8: Firm A; chapter 10: Group One clinicians; and chapter 11: GPs with 'invited' patients). However, where teachers worked with students caring for patients in a clinical setting, integration was not only possible, but probable (chapter 8: Firm B; chapter 10: Group Two clinicians; and chapter 11: GPs with undiagnosed patients).

When doctors and students work together caring for patients, they utilise the full range of information available to them. This is because their joint activity not only widens their perspective of their task, it also increases their total resources. Patient-centred caring increases the perspective and the resources even further. Task progress is greatly enhanced, including patient care and compliance. Cognitive progress is also promoted as Laura (1985) claims: "Cognitive progress, if it is to be achieved at all must come from our willingness to interpret and unify the vast array of human experience, and to do so in such a way that our experience of the world is more comprehensive for the interpretation."

The organisation of teaching controls the behaviour of teachers, in this case doctors. Teacher behaviour overrides beliefs and stated aims; it provides the context for student learning. A working approach where teacher and student actively engage in the purposeful, reflective activity of caring for patients, prevents the teachers' espoused views of the teaching of (a) clerking and (b) history taking becoming established in the learners. Working together provides a context for flexible and meaningful teaching/learning for both teachers and learners. Conceptual integration -- "cognitive progress" -- is the essence of such teaching/learning activities.

13.3 Revisiting methodology and methods used

13.3.0 The previous section (13.2) summarised the findings presented in this study in chapters 8 to 12. Any research findings are based on particular methodologies and methods used to collect and to interpret data: chapters 5 and 6 gave a full account of the methodology and methods used in this curriculum inquiry.

The opportunity is now taken to recapitulate the methods used, their background and their emphases (section 13.3.1), and to argue their appropriacy and effectiveness (section 13.3.2).

13.3.1 Recapitulation of methods used

This section (13.3.1) recalls briefly the background to the choice of method of inquiry (13.3.1.1), summarises the methods used (13.3.1.2) and finally re-emphasises the interactive nature of the methods as used (13.3.1.3).

13.3.1.1 Background to choice

On the evidence available, the Medical Faculty decided to establish a post to research the curriculum, as more effective feedback was seen to be needed (chapter 2, section 2.3.5). I was appointed (an educationalist, not a doctor) just before the first intake of students graduated (sections 2.3.6 and 4.1).

The research methods to be chosen needed to enable me to become fully acquainted with the complex process of medical education at first hand, and to go beyond 'espoused' theory to 'enacted' theory, since what teachers and learners say may not match with what they do in practice. Accordingly, participant observation and unstructured interviews were the methods selected by the Dean, Deputy Dean, Dr Coles and myself (sections 4.1, 4.2 and 4.5).

The choice of particular inquiries was determined by the purpose of the overall inquiry -- namely to understand the process of teaching and learning medicine with an eye to course development. Year Three was a pivotal year in the curriculum for a variety of reasons (chapter 2). The Dean, Deputy Dean, Dr Coles and myself considered it reasonable that my inquiries should begin with Third Year clinical attachments, viz. Medicine (ten weeks) and Obstetrics and Gynaecology (five weeks -- not reported in this study) (sections 4.2 to 4.4). This group also decided that I should gather data, interpret, and write reports for each component inquiry, and that, in order to preserve confidentiality, my reports should be given only to the Head of Firm/Course Co-ordinator and to the Dean and Dr Coles (section 4.2). These reports were the most formal and permanent outcome of the inquiries: they focused on description, interpretation and questions raised (section 4.5), rather than on recommendations. This again was part of the research policy adopted and

implemented by the Dean's group, since subsequent course development was seen to depend on staff discussion and 'ownership' of any planned change.

13.3.1.2 Methods used

The central methods used were participant observation and unstructured interviews (details described in chapter 6), as can be seen from the headings to chapters 8 to 11, where the core findings of this study are presented. The graduate findings (chapter 12) are based on the graduates' written responses to open-ended postal questionnaires. It is important to remember that I knew these particular graduates well: we had worked together during all of their five undergraduate years; also, the questions asked were based either on the graduates' own previous comments (at interview, or in questionnaires/letters) or on other students' comments, and thus were grounded in emergent topics appropriate to the medical graduates concerned.

13.3.1.3 The interactive emphasis

Participant observations and unstructured interviews were chosen as the central methods for the curriculum research; however, they were used in a very interactive way. The approach adopted was to involve and to interest all staff and students concerned with the inquiries; it was agreed that such a working partnership would not only contribute to making the research findings valid and reliable, but would also pave the way for any subsequent course development by means of an increased awareness and commitment developed amongst the participants (section 4.5).

The style was interactive in three main ways:- (a) all participants were co-workers contributing to the research, looking for meaning and collectively making sense of curricular experiences; (b) unstructured, or unfolding, interviews merged into and emerged from 'wide-angled' participant observation (all data were legitimate; there were no preconceived constraints on what to look for or to verify); and (c) as the data were collected, they were interpreted, and they were re-interpreted as further data were collected; the emergent themes, or foci, were grounded in the data, which were part of the process of teaching and learning medicine.

Initial planning by the Dean's group had not seen that this degree of interaction was possible; a 'fly-on-the-wall' was the kind of approach envisaged (sections 6.2.5.3 and

8.5). But, in the event, I was involved by both staff and students (section 6.2.7) as they involved themselves with the research; anything less would have been inappropriate and unsuccessful. As far as I am aware, this interactive use of participant observation and unstructured interview was original in Medical Education (section 6.2.5.1). Certainly, neither the staff nor the students at Southampton had been involved in this kind of educational research before. Southampton is, of course, only a young Medical School; but inquiry in the research literature and amongst professional acquaintances has not revealed any similar long-term research elsewhere. Chapter 6 describes in detail how the methods were put to use.

13.3.2 Appropriacy and effectiveness of the present methodology

13.3.2.0 In this section (13.3.2), the selection of inquiries reported in this study is set back into the larger context of all my work as evaluator of the Medical School curriculum. I deal first with the general problem of role-conflict and the solution I found to it (13.3.2.1), and, in support, I extend the framework from that of the selected component inquiries to that of my evaluatory investigation as a whole (13.3.2.2). This investigation is then set into a wider perspective of scientific inquiry (13.3.2.3).

13.3.2.1 Role-conflict

Some researchers who have adopted participant observation as a method of research in educational settings have been troubled by role-conflict, for example Hargreaves (1967). Hargreaves was a social psychologist who undertook school-based research, having himself been a school teacher. In the course of his research, he was assigned a variety of roles by the staff and pupils -- for example, an 'inspector', a 'spy', a 'teacher' (he did, however, actually teach pupils on occasions at the school researched). He was troubled whenever he was "drawn into conversation" or "forced to take sides" (ibid page 198), even though he acknowledged that these were signs of acceptance and that behaving otherwise (to avoid any affiliations) would have been disruptive and would have risked social exclusion. He speaks of "controllers" (the teachers) and the "controlled" (the pupils) and of his inability as participant observer to bridge the gap. Significantly he describes his research role as "external to the system" (ibid page 204): he recognised that under such prevailing conditions his relations with neither the teachers nor the pupils were satisfactory. Only when he lost the teacher role and "became part of the system" (ibid. page 204) did his relationships improve and hence his research.

I did not have to manipulate my role as Hargreaves did: I just began to work with teachers and learners to find out with them about their teaching and learning. I was privileged to have a new and unique, clearly defined role within the young Medical School. I was not researching for my own ends nor any outside interests; I was not researching 'them' -- the participants. It was not my research, but a joint activity designed to help Faculty and individual teachers and learners with their educational enterprise -- teaching and learning medicine. My role was fully understood and appreciated: evaluation of the new medical curriculum was considered necessary as well as innovative by staff and students alike (sections 6.2.5.2 to 6.2.7). Also, since I was not attempting to verify or to test ideas, but to describe and to understand actual experiences of teaching and learning medicine, 'selective reinforcement' was not at issue (section 6.3.3.4).

A key problem for any researcher (for example, Hargreaves above) who uses a particular educational setting for their own research is that the 'participants' are not fully involved; they are not working along with the researcher on a joint project. (A mark that it is the researcher's own research is that it could be undertaken in any other equivalent institution.) The 'participants' have no effective control over the process or the outcome of the research. Stenhouse (1985) sees this as research on education (section 5.5). Research in education is qualitatively different, for it is specifically undertaken to improve the educational practice of all participants (ibid). Importantly, such research is essentially a joint enterprise. The research reported in this study was research in education for the teachers and learners at Southampton Medical School.

13.3.2.2 Success extended to the whole of the evaluation inquiries

Chapter 4 describes the evaluation inquiries which I carried out for the Faculty of Medicine. The full range of inquiries, from which the data presented in this study are a selection, are included as Appendix 1.

Some measure of the appropriateness and the success of the methodology and methods used in this interactive research, can be gained by considering relevant features of the research activity. Initially my appointment was part-time for three years. It was formally made a full-time appointment when it was realised that collecting and interpreting data, together with report-writing and follow-up were all very time-consuming activities which would suffer if artificially pruned -- they simply had to follow their own course (sections 2.3.7, 4.1 and 4.2). My appointment was extended by two years for different reasons,

namely because of the richness of the data, and the curricular insights the data and its interpretation provided (section 4.2).

I was fully accepted at the time of the research by both staff and students (section 6.2.7). Only once did any teacher (a visiting clinician) show hesitation when I asked if I might observe (section 6.2.5.4). (Subsequently this particular clinician was very welcoming to me.) Not only was I accepted, but Heads of Firms/Course Co-ordinators requested me to study 'their' attachments/courses; unfortunately it was not possible to satisfy all of these requests (section 6.2.5.4). Similarly, students always expressed pleasure whenever my research continued to involve them (section 6.2.7). The graduates (chapter 12) suggested that we should keep in touch. Clearly, there was a willingness, even a desire, on the part of teachers and learners alike to participate in this research.

My written reports were always accepted at the time, by the Heads of Firms/Course Co-ordinators, the Dean and Dr Coles, as were the follow-up discussions which in some cases were quite extensive (sections 4.2, 4.3 and 6.9). This is not to say that individual members of staff necessarily agreed with everything (interestingly, those who had participated very fully did), but that they accepted the interpretation and written record as quite legitimate. Sometimes staff photocopied the report I had written for them and circulated it amongst their immediate colleagues or more widely. On one occasion a course co-ordinator agreed, at my request, to lend their copy of my report to another course co-ordinator with a similar teaching problem. A number of staff told me how helpful, both conceptually and as a basis for possible change, it was to share the research findings.

However, my reports were never given to students nor to the Teaching Methods Working Party: this was Faculty policy, intended to protect confidentiality and to exercise caution initially. This policy was never revised (sections 4.2 and 6.9). It is interesting to speculate what the consequences of this non-revision were. One outcome would surely have been that the educational effect of the research would have been more widespread if the reports and their findings had been discussed by more teaching staff and students (section 4.3). Another limiting factor was that, although the research activity itself, the reports and the discussion subsequent to the research frequently led to on-the-spot changes being made by individual staff to parts of particular attachments or courses (section 4.2), no institutionalised mechanism was established to ensure the intended formal course development.

In the years following my main Medical Curriculum research, during which I continued as an evaluator in respect of Nursing Education, I was often surprised, and, needless to say, encouraged by impromptu and chance-encounter questions and requests from Medical staff and students concerning a variety of educational issues. Indeed, I continue to receive encouragement from a small core of staff to make the findings of the research known to a wider audience.

I have been fortunate to have been given the opportunity to verify findings by talking to new cohorts of students and also by continued talk with staff (both clinical and academic) and with past students, now graduates. The findings continue to help staff, students, graduates, and myself, to make sense of teaching and learning experiences -- to find meaning.

13.3.2.3 The new view of science

One main thrust of the previous sections is that, in this research, meaning was negotiated with all concerned as an on-going activity: no one person had a monopoly on meaning.

As was stated in section 1.3.1, the new view of science and scientific method has exposed the traditional view of objectivity as inadequate, even false. Kuhn (1962; 1970) has argued that "normal" science (traditional experimental science) is built on a set of embedded received beliefs or paradigms, which are taken for granted by current workers in the field. Such paradigms or sets of agreed assumptions, generally remain unarticulated and unquestioned; they provide the blue-print for ideal practice and for conventional thinking about practice. The new view of scientific objectivity is that we believe what we believe because it makes sense, and because others working in the same sphere share the same beliefs. Eisner (1979:214) defines objectivity as "a function of intersubjective agreement among a community" of fellow-workers. Eisner continues: "What we can productively ask of a set of ideas is not whether it is really true but whether it is useful, whether it allows one to do one's work more effectively, whether it enables one to perceive the phenomenon in more complex and subtle ways, whether it expands one's intelligence in dealing with important problems."

This new view of science is, in its own terms, useful; it does expand intelligence when dealing with important problems. It is central to the methodological debate and to evaluation methodology (chapter 5 'Methodology and Methods: an Educational Problem'): both

would profit from being viewed as an educational problem. It is central to the interactive curriculum inquiries which were carried out for Southampton Medical School -- to those few reported here (chapters 8 to 12), to the evaluation inquiries as a whole, and consequently to the consensual validity of the findings. It is central to achieving curriculum development (including assessment) via staff development, both of which depend on an interactive view of education and of knowledge and skills, whereby teachers both teach and learn, and learners both learn and teach, as knowledge and skills are interpreted, re-interpreted and structured through their purposeful use and re-use. Finally, it is central to understanding how Flexner's (1910) recommendation that scientific method (Dewey 1910) was "just as applicable to practice as it was to research" (page 53), for he anticipates the reflective practitioner of Schon: "A professional habit definitely formed upon scientific method will convert every detail of his practising experience into an additional factor in his effective education" (Flexner 1910:55). It also helps to explain why Flexner's recommendation could be so deeply misinterpreted, as we shall see.

13.4 Recommendations on teaching and learning for a young Medical School

13.4.1 Introduction

As I have said, it was agreed that I should not make recommendations as such, but confine myself to making comments and asking questions at the end of my various reports. But it will be clear from what I have written that I had suggestions to make, changes to propose and policies to put forward. These derived, in part, from my immediate observations and inquiries, and from my ever-growing conception of medical education which emerged during my evaluation work, and also, in part, from a particular view of education that I brought with me to my work from my past experiences (section 4.1), and which my work in the Medical School seemed to confirm.

There is now an opportunity to make recommendations. I restrict myself to making fourteen recommendations, all of which arise from the findings reported here; they should be considered in the light of the details given in chapters 8 to 12. However, recommendations, like evaluation findings, may fail to be taken up and implemented. This is a very real problem for medical education, where there are many teachers from different faculties, the majority of whom have no educational qualifications (chapter 3). Two useful strategies which can be used are to find which members of staff are currently experimenting with teaching innovations or are interested in innovations, and importantly, to make

future appointments in the light of applicants' teaching abilities. Another difficulty is that medical education enjoys a high prestige. This encourages educators in other professions to base their courses on the medical education pattern, for example, in nursing education: in their eyes, there would seem to be no real need for substantial change.

Recommendations necessarily require change, and change is universally difficult to achieve (the educational literature is full of good ideas and innovations which have failed to achieve the intended outcomes). We are largely unaware of the attitudes, values, perceptions, assumptions and paradigms which control behaviour -- namely our enacted theory or theory-in-action. Moreover, our enacted theory is commonly at variance with our espoused theory (Argyris and Schon 1974). We do not necessarily do what we say we do. This applies to teachers and to learners, and needs to be taken into account in any educational inquiry (for example, Harden 1986). But also to be taken into account, in any recommendation for change, is the truism that actions speak louder than words. Changing attitudes is notoriously difficult: perhaps their modification can best be approached by changing the behaviour which reinforces them to behaviour which challenges them. Hence, the recommendations here focus on changing behaviour or actions, in an attempt to change attitudes, values, perceptions and paradigms.

13.4.2 The fourteen Recommendations listed

(i) A working approach to teaching

Recommendation 1 Ask all doctors to work with students in as wide a variety of authentic settings of caring for patients as they are able.

Recommendation 2 Ask all hospital doctors to ensure that, as they take patients' histories and physically examine them, they are observed by students. (See epigraph to chapter 9).

Ask all hospital doctors to observe students as they practise history taking and physical examination.

Recommendation 3 On hospital attachments, students should clerk fewer patients, but should acquire a greater understanding of each of their patients, by making patients the focus of all their learning activities -- patient-centred learning.

Recommendation 4 Ask all doctors to teach on undiagnosed patients whenever students are intended to learn clinical clerking skills from the teaching experience.

Recommendation 5 Ask all doctors to use the many and varied teaching opportunities that are available to them appropriately, emphasising the strengths of each situation.

Recommendation 6 The Introductory Course to Clinical Medicine should be discontinued, since it sets up the mismatch between clinical skills as taught and clinical skills as practised (see epigraph to chapter 8).

Students should learn clinical skills in use, working with doctors caring for patients, since these skills are tools, and not ends in themselves. (This Recommendation reinforces Recommendation 1 above.)

(ii) Open discussion: sharing differences

Recommendation 7 Ask all doctors to introduce patient-focused interdepartmental group teaching on the wards, together with open discussion.

(iii) Student learning: focus & outcome

Recommendation 8 Ask all doctors: to organise their teaching so that each student's learning is focused on 'their own' patients -- the patients they are clerking; to show students how they can make all their learning patient-centred and how they can help each other to do this; and to demonstrate the benefits of patient-centred teaching and learning.

Recommendation 9 Use student confidence as an essential measure of the success of medical education.

Measure student confidence by student self-assessment in a variety of purposeful, patient-centred activities working with doctors.

Recommendation 10 Research, using naturalistic methodology, the teaching and learning in the pre-clinical years, together with their educational implications (how students learn is just as important as what they learn).

Encourage teachers and students to speak frankly about their teaching/learning experiences; and consider scientifically the data that emerge.

(iv) The view of professional practice

Recommendation 11 Explore the new view of practice by engaging in rigorous reflection on and in authentic practice, focusing especially on 'surprise'. This activity will require simultaneous detachment and commitment to ensure a creative scientific approach.

Extend reflection to open discussion where all involved actively observe the practice researched; when data are available for scrutiny, then attitudes, values, perceptions and paradigms -- our assumptions -- are able to be identified and challenged.

(v) The view of medicine

Recommendation 12 Rigorously debate the thesis that the dominance of the bio-reductionist model of medicine has been sustained by a bio-reductionist view of knowledge and a concept of disease as a specific entity.

Explore and openly discuss (a) the claim that the reductionist model of medicine prevents a holistic approach to patient care, and (b) the many alternative models currently available and in use by some medical specialists and generalists.

(vi) Medical Studies

Recommendation 13 Introduce 'Medical Studies', in all five years of the curriculum, in order (a) to produce opportunities for, and to give status to, the open and critical discussion of the models or paradigms currently at work in medical practice, and (b) to provide a forum where medical students can attempt to make sense of their curricular experiences by asking questions and then trying to answer them.

(vii) A Scientific Approach

Recommendation 14 Make the new view of science as method the way of life for all medical students, thus equipping them to understand themselves and their patients and providing them with the cognitive insight to promote health and treat illness -- the goals of medicine.

13.5 The fourteen Recommendations presented discursively

The fourteen Recommendations just presented in section 13.4 were divided into seven groups, numbered (i) to (vii). In the present section, the seven groups are treated discursively, the fourteen Recommendations being introduced each in turn. Where subdivisions of a numbered group are required, these are labelled (a), (b), etc.

(i) A working approach to teaching

(a) Chapter 8 described the 'working' approach to the organisation of teaching shown by Firm B for a hospital Medical attachment. The central feature of this approach was that students were valued (and they were told that they were valued) as part of the team: their contributions were useful. One clear measure of this was that doctors said when they learned from students -- they expected to learn from them. 'Non-literal' students attached to Firm A (chapter 8) adapted the doctors' 'training' approach to a 'working' approach -- that is, they changed the behaviour of their teachers by being "pushy". Chapter 11 described how most GPs adopted a 'working' approach and how this was much more successful than a 'training' approach. A 'working' approach to teaching was clearly successful (chapters 8, 9 and 11); a 'training' approach, though closer to the attachments' aims and objectives, was not so successful.

Recommendation 1 Ask all doctors to work with students in as wide a variety of authentic settings of caring for patients.

Students would then learn history-taking and physical examination, along with other clinical skills, not as ends in themselves, but as part of the necessary tools for effective patient care.

(b) In order to enable students to acquire, efficiently and effectively, the skills of history taking and physical examination in hospital practice, students need to see qualified doctors practising these skills as they care for patients: likewise, doctors need to observe students. This would bring hospital practice into line with general practice.

Recommendation 2 Ask all hospital doctors to ensure that as they take patients' histories and physically examine them, they are observed by students. (See epigraph to chapter 9).

Ask all hospital doctors to observe students as they practise history taking and physical examination:

(c) Working with doctors as they care for patients should maximise the quality of student/patient contact, rather than the quantity.

Recommendation 3 On hospital attachments, students should clerk fewer patients, but should acquire a greater understanding of each of their patients, by making patients the focus of all their learning activities -- patient-centred learning.

(d) Chapters 9 and 11 described teaching events on undiagnosed patients in hospital practice and general practice respectively. These learning experiences, based on/derived from teaching on undiagnosed patients, were quite unlike the learning experiences based on/derived from teaching on diagnosed patients, and were the only effective experiences from which to learn clerking skills as practised by doctors. However, teaching on diagnosed patients was normal in hospital practice -- it enjoyed great prestige. Teaching on undiagnosed patients is normal in general practice.

Recommendation 4 Ask all doctors to teach on undiagnosed patients whenever students are intended to learn clinical clerking skills from the teaching experience.

(e) Hospital teaching and general practice teaching have different strengths. Hospital teaching on diagnosed patients can give students experience of, and help them to learn, for example the following: signs and symptoms of acute life-threatening illnesses; patient-tests and management schedules; continuity of care over a short period of time; how a team of doctors and other health-care workers co-ordinate when working together; doctor-to-doctor communication by case presentation (spoken) and case notes (written). General practice teaching on undiagnosed patients can give students experience of, and help them to learn, for example the following: how to 'design' patients' problems (patients are undiagnosed and no doctor has labelled or shaped the patient's problem in advance: problem design is a common activity for primary care doctors (see (iv) below)); how to select and use the different medical models available, in accordance with the variety of patient problems encountered (see (v) below); a more realistic perspective of

patient problems (10% or less of patients are in hospital (see (v) below)); how to give patient care within the general context of the community in which the patients live and work; real-time practice. (Freeman (1983) describes the characteristics of general practice for post-graduates.) Also, an important educational factor is that general practice is closer to the majority of students' previous experiences of the health-care system.

Recommendation 5 Ask all doctors to use the many and varied teaching opportunities that are available to them appropriately, emphasising the strengths of each situation.

(f) The recommendations for action (a) to (e) above seek to avoid the current mismatch between clerking skills as taught to students, especially history taking and physical examination, and as practised by qualified doctors (though there are at least some clinicians (Group One in chapter 10) who describe their own practice in a way which matches the way it is taught to students). The Introductory Course to Clinical Medicine maximises this mismatch and therefore should be discontinued. Here the articulated models of teaching and learning history taking and physical examination, and of clerking as a whole, are encountered in their extreme form. Students also claimed that the Introductory Course under-prepared them for their clinical attachments; that is to say, it was failing in this prime respect too. (At the time of writing: the Introductory Course to Clinical Medicine has recently been re-designed and re-sited, but informal feedback on this change is not very encouraging. In any case, the assumptions underpinning the course remain unchanged.)

Recommendation 6 The Introductory Course to Clinical Medicine should be discontinued, since it sets up the mismatch between clinical skills as taught and clinical skills as practised (see epigraph to chapter 8).

Students should learn clinical skills in use, working with doctors caring for patients, since these skills are tools, and not ends in themselves. (This Recommendation reinforces Recommendation 1 above.)

NOTE Patel and Dauphine (1985) wrote that "the learning environments in clinical disciplines are not homogeneous". In this study, the successful learning opportunities for Third Year medical students, for example on 'take'; the 'unseen' patient ward session (chapter 9), GP attachments (chapter 11), all enable the student to be a 'worker' (Handy & Aitken 1986). Similar observations have been made in student nurse education (Wong 1978; Orton 1981; Fretwell 1982; Ogier 1982). (Nursing is currently reacting against the

'worker' status of students; the term student nurse as 'worker' is, for nurses, pejorative.) When the teacher and student work together, they discuss openly, exploring with intellectual and emotional commitment their common purpose. It is an excellent example of reciprocity (Bruner 1966:125), the "deep human need to respond to others and to operate jointly with them towards an objective." Doctors' and medical students' common objective or purpose is the care of patients. Purpose is a key issue in education: Barnes (1976:106) seeks to substitute purpose for the more usual relevance/irrelevance issue.

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(ii) Open discussion: sharing differences

Chapters 8-11 describe differences amongst doctors, some substantial, with regard to their teaching. However, the doctors themselves were largely unaware of these differences (the students were aware of them only too well). Doctors need to discuss openly amongst themselves within the same firm and across firms, within the same general practice and across general practices, and within the same specialty and across specialties: "comparison of differences can be one of the best paths to conceptual learning" (Handy 1984:296). Todd (1968, para 229) advocated across-specialty comparison by means of inter-departmental group teaching at ward level (section 1.1.3.2.iv). The teaching-group, suggested by Todd, included (amongst others) a surgeon, a physician, a pathologist, a general practitioner and a psychiatrist. Such group-teaching, accompanied by open discussion, would counter 'the decline of the clinical dialogue' (Reiser 1978) by focusing on patients and the techniques of data collection rather than, as at present, on abstractions (Engel 1971) also, open discussion could make explicit the attitudes, values, perceptions, paradigms -- the assumptions which control behaviour or practice. Exploratory, frank discussion of this kind (the 'action learning' of Revans (1976, 1982)) is needed not only to co-ordinate teaching and learning, but also to implement change.

Recommendation 7 Ask all doctors to introduce patient-focused interdepartmental group teaching on the wards, together with open discussion.

The benefits of comparison as a route to conceptual growth were demonstrated by students attached to Firm B (chapters 8 and 9). Their rich variety of clinical experiences and the 'what if?' sessions (section 8.3.9) allowed creative comparison of experiences. Also, chapter 11 described how, only when students saw that it was quite legitimate to compare

within general practice (experiencing as they did, four different GP attachments during the year), did they begin to compare beyond, that is, to compare general practice and hospital practice. (This Recommendation reinforces Recommendation (1) above.)

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(iii) Student learning: focus and outcome

(a) 'Literal' students had difficulty knowing what to learn (chapter 8). This was especially so when they were attached to a 'training' firm; they relied on the doctors and the written aims to tell them what to learn. But because of mixed messages and a lack of apparent achievement, they gradually became demotivated. Chapter 12 described graduates' reflections on their undergraduate medical course. As students, one-third of them had had difficulty knowing what to learn: all had relied on others (especially lecturers) to make decisions for them; whilst only one-third had used their own clinical experiences. Now, as graduates, they all readily decided what to learn: they focused on the particular patients in their care -- their learning was patient-centred.

This strategy of focusing on patients was adopted by 'non-literal' students on the 'working' firm (chapter 8). These 'patient-centered' students were intellectually 'healthier' than the 'non-literal' students on the 'training' firm, who were 'doctor-centred'. Doctors' espoused theory is generally that effective learning is patient-centred: patients provide "the best focus for integration" (Todd Report 1968 para 229) (see section 1.1.3.2.iv above).

Recommendation 8 Ask all doctors: to organise their teaching so that each student's learning is focused on 'their own' patients -- the patients they are clerking; to show students how they can make all their learning patient-centred and how they can help each other to do this; and to demonstrate the benefits of patient-centred teaching and learning.

(b) Effective learning leads to confidence, in students (chapter 8) and in graduates (chapter 12). Graduates described their confidence as either experience-centred (task) or decision-making-centred (self); these differences tended to be associated with a career in hospital practice and in general practice respectively. It seems reasonable to suggest that this reflects the two contexts rather than particular graduate perceptual styles.

Rutherford (1981:27) found that medical student confidence was correlated with assessment grades: "...highly confident students attaining better grades in both their pre-clinical systems course assessments and in their Clinical assessments". On the other hand, dental student confidence "was more highly correlated with clinical grades than with didactic grades" (Ettinger et al. 1982). In both cases, confidence was associated with higher grades. Confidence is also associated with intellectual maturity: Miller (1973:11-12) found academic confidence to be associated with university student intellectual development and success, together with a "sense of 'belonging'" to their departments. Firm B welcomed their students as part of the Firm; the students felt they belonged (chapter 8).

Confidence is easily recognised but difficult to define. It is a personal characteristic. We can say we are confident or unconfident but we cannot say someone else is: we can only say they seem confident or unconfident, or they ought to be confident. Self-assessment is central to confidence (UKCC 1983). Competence on the other hand can be defined and assessed by others: UK nurse education is based on defined competences. Self-assessment is not central to competence.

Confidence is clearly an important outcome of education. The Foundation Dean (Acheson 1974:9) hoped that Southampton students would "come to the bedside...in their third year with a good deal more confidence than did their predecessors." How can it be measured or assessed? Jaros et al. (1988), using a biomatrix systems approach to stress, employed the new concept of 'telentropy' as a measure of doubt: it could be useful to measure confidence (Jaros 1988). Gage (1978:16), using the example of "teacher warmth", argues that such 'high inference' variables need to be objectified into 'low inference' variables for measurement; but he also points out that objectifying tends to lose the essence of the variable.

Perhaps students' self-assessment of confidence is the only valid measure. Self-assessment is quite natural: it is part of every day purposeful activity since the activity provides its own meaningful feedback (Smith 1975:234-235).

Recommendation 9 Use student confidence as an essential measure of the success of medical education.

Measure student confidence by student self-assessment in a variety of purposeful, patient-centred activities working with doctors.

(c) It is important to ask why so many Medical students had a 'literal' perception of their course at the beginning of their Third Year (chapter 8), when they had already spent the previous two years in University Medical Education. Goodenough (1944:134), quoted in Section 13.2.2.1.(iv), claimed that "The character of the student's training in the pre-clinical subjects largely determines his mental attitude and intellectual methods on the clinical part of the course." Dean Acheson (1974) expressed his misgivings about the Southampton pre-clinical years when the first intake of students was only half-way through the course (section 2.3.2). Coles (1985) showed that there was a deterioration in student learning strategies over these years. Also, we must ask why all the graduates reported in chapter 12 said that their teachers had a static view of knowledge, an opinion determined by their various experiences of the undergraduate medical course.

All teaching embodies a particular view of knowledge (for example, Barnes 1976; Ball 1981; Beers 1988). The organisation of teaching reflects this view; it determines the relationship between teachers and learners and also the nature of the student learning outcome.

Teaching provides an environment to which students adapt. (An exception to this general rule is provided by 'non-literal' students in a 'training' environment (chapter 8).) How the teacher sees knowledge and therefore his task determines this environment. A Table can represent this interaction (Barnes 1976:113):-

<u>Predominant Teaching Role</u>	<u>Pupil's Role in Communication</u>	<u>Predominant Form of Communication</u>
1 Assessing (Transmission mode)	Presenting	Final Draft
(Knowledge is seen as a public body of fact: student learning is typically rote memorisation.)		
2 Replying (Interpretation mode)	Sharing	Exploratory
(Knowledge is constructed from experience: student learning is typically meaningful.)		

Bruner (1962:83) describes the two basic kinds of interaction, as the 'expository mode' (transmission) and the 'hypothetical mode' (interpretation). The former mode occurs whenever the teacher has control over content and style of presentation. The student is required to listen and is often unaware of the teacher's decision-making activities. In contrast, the latter involves the student in these activities. The modes match tight classification and framing -- a 'collection code' -- and loose classification and framing -- an 'integration code' -- respectively (Bernstein 1971) (see chapter 3 above).

The transmission/expository mode has been criticised increasingly: 'being told' leads to a particular kind of learning -- passive learning. As Whitehead (1932:42) vividly put it: "Learning is often spoken of as if we are watching the open pages of all the books which we have ever read, and then, when occasion arises, we select the right page and read aloud." The same sentiment is expressed by Barnes (1976:18): "Learning is not just a matter of sitting there waiting to be taught;" and by Smith (1975; 1982): we do not "Passively assimilate what others try to teach us" (Smith 1975:118).

When teachers and pupils work together ('replying' rather than 'assessing', 'sharing' rather than 'presenting'), new knowledge reshapes old so that new understandings are constructed (for example, Britten 1970; Donaldson 1978; Driver 1983). However, "this is likely to be difficult for teacher and pupil alike" (Barnes 1976:111) and may lead to teaching/learning difficulties. These are most likely to occur when students make the intellectual move from dualism (knowledge as fact) to relativism (knowledge as construction): "the most difficult instructional moment for the students -- and perhaps therefore for the teacher as well -- seems to occur at the transition from the conception of knowledge as a quantitative accretion of discrete rightnesses...to the conception of knowledge as the qualitative assessment of contextual observations and relationships. In approaching this point of transition the student generally misconstrues what his teacher is doing, and both suffer" (Perry 1970:210).

When a teacher 'replies' to pupils, this "strengthens the learner's confidence in actively interpreting the subject-matter; the teacher and learner are in a collaborative relationship" (Barnes 1976:111); whereas when teachers 'assess', they ally themselves "with external standards which may implicitly devalue what the learner himself has constructed". Both assessment and reply are necessary aspects of teaching, but the emphasis and balance is important: replying encourages the student to see his task as "relating new knowledge to old", rather than "towards [the] externally acceptable performances" (Barnes 1976:111) en-

couraged by transmission. According to Esland (1971), the former teaching/learning activity characterises a kind of learning which is typically that of 'world-producers' (successful students) and the latter typically that of 'world-receivers' (less successful students). The explosion of knowledge increases specialisation, since knowledge "has become more clearly differentiated" (Hirst 1974:26). Compartmentalised knowledge helps to emphasise transmission teaching and learning.

Bruner (1966:72) put this explanation into context: "A curriculum reflects not only the nature of knowledge itself but also the nature of the knower and of the knowledge-getting process...[Teaching] is not a matter of getting him [the student] to commit results to mind. Rather, it is to teach him [the student] to participate in the process that makes possible the establishment of knowledge. We teach a subject not to produce little living libraries on that subject but rather to get a student to think mathematically for himself, to consider matters as an historian does, to take part in the process of knowledge-getting. Knowledge is a process, not a product." The process view of knowledge sees learning as changing the "theory of the world in the head" (Smith 1975:119), where knowledge and the knower are inseparable. The interaction between teachers, disciplines and students reflects the teacher's view of knowledge and hence the type and quality of students' learning.

The teacher/student interaction in the first two years of the medical curriculum is largely based on lectures, and consequently on the transmission of knowledge as facts and information. "While lectures have a place in transferring information, several studies have shown that they are less effective in stimulating thought or changing attitudes than projects and tutorials with active participation by the student" (Acheson 1974:10). Clearly the Foundation Dean identified a significant problem. But, though lectures may be less effective in changing attitudes, they may well have been very effective in changing medical students' views of knowledge (to one of literal facts and information); for they changed their learning strategies (Coles 1985), and learning strategies depend on a view of knowledge. (This effectiveness may unfortunately be enhanced because medical students are committed to Medicine on entry, and since they have no sustained clinical experiences during the first two years are prepared to take on trust the educational package given to them by the Medical Faculty.)

Recommendation 10 Research, using naturalistic methodology, the teaching and learning in the pre-clinical years, together with their educational implications (how students learn is just as important as what they learn).

Encourage teachers and students to speak frankly about their teaching/learning experiences; and consider scientifically the data that emerge.

NOTE It is very encouraging that two-thirds (12 out of the 18) of graduates (chapter 12) have attained intellectual maturity, defined by seeing knowledge as dynamic, intuitive and useable (Perry 1970), despite their perception of the view of knowledge embodied in much of the teaching on their course. A 'training' approach to teaching (chapters 8,10 and 11) is based on the transmission of knowledge model, whereas a 'working' approach (chapters 8-11) focuses on its interpretation. These data reinforce Recommendations 1 - 6 (in (i) above: 'A working approach to teaching and learning'). (A greater proportion of Fifth Year teaching and learning at Southampton embodies a 'working' approach; this was part of the initial philosophy that "further development of clinical skills is best fostered by the student being given the maximum responsibility under supervision" (Acheson 1974:9).)

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(iv) The view of professional practice

A particular view of professional practice was responsible for a curricular design which delayed students' clinical practice experience by two pre-clinical years, during which they learnt relevant theory, largely biomedical sciences.

All professional practice is traditionally built around a single model or paradigm, namely "professional activity consists in instrumental problem-solving made rigorous by the application of scientific theory and technique " (Schon 1983:21). This model of 'technical rationality' accounts for our views of professional practice, of research related to practice, and of professional education: as such the model is firmly built into our institutions, as was argued in Chapter 1. Medicine epitomises technical rationality: "the physician's diagnosis and treatment of disease became prototypes of the science-based, technical practice" (Schon 1983:32): as a result, scientific research became separated from professional practice but was seen as the basis for it. Dale (1954), one of the first full-time professional medical researchers in the UK, describes this movement (see chapter 1

above), which Schon (1983:38) summarises as follows: "Nowhere was the rate of increase in research spending more dramatic, and nowhere were the results of that spending more visible, than in the field of medicine. The great centres of medical research and teaching were expanded, new ones were created. ...Here was a solid base of fundamental science, an equally solid base of applied clinical science, and a profession that had geared itself to implement the ever-changing products of research."

Since scientific research or 'pure' research is not the only source of theoretical knowledge, a new view of practice has emerged. This new view also emphasised the role of 'soft skills' (Klemp 1977; Raven 1982; Spencer 1983). Knowledge can be generated by rigorous reflection-on and in-action (Schon 1983;1987; Eraut 1984;1985; Stenhouse 1985; Carr and Kemmis 1986; Usher and Bryant 1987;1988). The hallmark of research as creative enterprise is "an act that produces effective surprise" (Bruner 1962:18), and "the triumph of effective surprise is that it takes one beyond the common ways of experiencing the world" (ibid:22): rigorous reflection on and in practice can do just this. Bruner suggests that simultaneous detachment and commitment are necessary -- an apparent paradox, but one that ensures creative minds are "disengaged from that which exists conventionally and are engaged deeply in what they construct to replace it" (ibid:24).

Such creativity or 'playing' with ideas is responsible for changes of paradigm (Kuhn 1962; 1970). It has been equated with play (Piaget 1951; Chukovsky 1963) and experimentation (Whitehead 1932; Watson 1968; Britton 1970; Handy 1984). Eisner (1979) sees play as the climax of rational thought. Playing with ideas may seem inappropriate for patient care and thus for medicine. But seeing in new ways is valued by medicine and has marked the progress of medicine: it is resourceful practice "in the face of the unanticipated" (Buchler 1961:34).

Changes of paradigm produce cultural and intellectual revolutions (Kuhn 1962;1970; Perry 1970; Engel 1977; McWhinney 1986). Schon's (1983) view of practice revolutionises not only practice but also research related to practice, and the education of professionals. He (1983:69) suggests that technical rationality should be discarded in favour of "an epistemology of practice which places technical problem solving within a broader context of reflective enquiry, shows how reflection-in-action may be rigorous in its own right, and links the art of practice in uncertainty and uniqueness to the scientist's art of research" (1983:69).

It is the uncertainty and uniqueness of practice which Schon emphasises. He sees problem design at the centre of practice rather than problem solution: "In real-world practice, problems do not present themselves to the practitioner as givens. They must be constructed from the materials of problematic situations which are puzzling, troubling, and uncertain" (ibid:40). Construing problems is an act of design (Cross et al. 1986), or, differently expressed, "Problem setting is a process in which, interactively, we name the things to which we will attend and frame the context in which we will attend to them" (Schon 1983:40).

Barnett (1987), surveying teacher education, has shown that over the last decade lecturers in education departments have seen their role moving away from an academic perspective to a professional practice perspective. The model of the professional practice for teachers is changing rapidly. This reflects the emerging view of practice (Schon 1983;1987) and of research in education (Stenhouse 1985).

Recommendation 11 Explore the new view of practice by engaging in rigorous reflection on and in authentic practice, focusing especially on 'surprise'. This activity will require simultaneous detachment and commitment to ensure a creative scientific approach.

Extend reflection to open discussion where all involved actively observe the practice researched; when data are available for scrutiny, then attitudes, values, perceptions and paradigms -- our assumptions -- are able to be identified and challenged.

NOTE 1. If this view of practice is valid, a 'working' approach to teaching and learning Medicine could be implemented from the beginning of the undergraduate course, and the pre-clinical years could be abandoned. Research on the pre-clinical years as such (Recommendation 10 above) would obviously be superseded, as there would then be no pre-clinical years.

NOTE 2. The innovations in medical education mentioned in chapter 1 (in section 1.2.2.3: (i) integrated courses, (ii) problem-based, and (iii) community-based) are modelled on the traditional technical rationality view of practice. All seem attractive. However, (i) and (ii) reinforce learning out of the context of actual practice; they are designed (see, for example, Schmidt & De Volder (eds) (1984), Barrows (1985); and chapter 1 above) for the acquisition of abstract knowledge and cognitive skills which can be recalled for later use in practice. The 'technical rationality' model of professional practice is reinforced, even though these innovations may achieve the goals, namely knowledge and cognitive

skills acquisition, retrieval and use, with increased effectiveness and increased motivation. Surprisingly, they may even be counterproductive because of these 'good' qualities. Neither approach articulates problem-design or framing (only problem-solving), nor the particular view of knowledge on which the model is based; the view given, of what counts as knowledge, is likely to be a body of facts and information.

The most recent innovation in medical education is community-based learning (section 1.2.2(iii)). Here students experience the health-care needs of the local community, by working with members of the health-care team, from the beginning of their course. This emphasis allows students to learn in the context of authentic practice: "learning by doing" is brought into the core (Schon 1987:311).

Flexner (1910), too, recommended this approach of 'learning by doing'. Significantly, since students are working in authentic settings, actually giving care, the 'technical rationality' view of practice may be ousted: teaching and learning behaviour overrides belief and statements (Firm B chapter 8). Also, students are involved with problem-design as they work in a primary care setting with people rather than with diagnosed patients. They are like students at Southampton who work with GPs (Recommendation 5 above).

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(v) The view of Medicine

Like all professional practice, the view of medicine depends on the general view of practice: but what is particular to medical practice? The answer lies in how medicine frames problems, since reality is taken and 'framed' into a problem for solution by the professional (Simon 1969). Thus design is at the centre of particular professional action: it accounts for different health-care professionals seeing patients' problems differently. Walton (1984) suggests that health professionals need to be educated together to provide co-ordinated health care. One clear outcome would be an understanding of each other's design priorities, which would yield the better all-round understanding needed for co-ordinated health care desired by Walton.

Scientific theory provides the framework for the design activity according to Simon (1969). This is the traditional view. But it is inappropriate where reality is seen as

unique, messy, complex and uncertain, for sometimes "there is a problem in finding the problem: this may lead to reframing" (Schon 1983:129). Where practice is seen as messy and uncertain, the professional practitioner (or teacher using actual practice) must impose a frame on reality "that lends itself to a method of enquiry in which he has confidence" Schon (1983:134). Thus ability to design or to frame from real-life situations is the first step in professional activity. Professional education has traditionally omitted this crucial aspect of practice, namely design (Schon 1983;1987) (see (iv) above).

Designing, for Schon (1983:78), is "a conversation with the materials of a situation". This involves sifting to determine what is significant, what needs to be attended to and what can be ignored. It involves choice, an important intellectual tool (Bruner 1966; Donaldson 1978), and a "what if?" phase of decision and indecision: "there is a continually evolving system of implications within which the designer reflects-in action" (Schon 1983:100). Finally there is commitment, "an acceptance of the imperatives which follow from choice" (ibid. page 101). "What if?" sessions were used very effectively by a clinician of Firm B to involve students in on-the-spot thinking about patient care (chapter 8). The clinician in these sessions was unknowingly focusing on the much-neglected design element in professional education.

Why is the design element neglected? The answer requires a historical perspective: it depends on the overriding success of a particular design frame, in the evolution of a profession which then becomes taken for granted. Medicine, in the early part of the last century, wholeheartedly adopted the biomedical model, "devised by medical scientists for the study of disease" (Engel 1977), as the clinical model for medical practice. It was very successful; consequently it survived as the model in both Western medicine and in Western folk belief (section 1.3.1(2)). Because it was the 'fittest' it suppressed all other models at the time; hence "bio-reductionist assumptions have dominated the theory and practice of medicine" (Laura 1985).

In essence, technical rationality depends on "agreement about ends. When ends are fixed and clear, then the decision to act can present itself as an instrumental problem" (Schon 1983:41). It also depends on a view of knowledge, what knowledge is, and where and how knowledge is generated and constructed. McWhinney (1986) claims that "a redefinition of what medical knowledge is and how it can be obtained" is needed, whilst Laura (1985) sees that the desired "holism in medicine ultimately depends upon holism in

epistemology." Reflection on practice offers doctors a useful source of knowledge which is unaffected by the bio-reductionist view.

Howell (1987) has pioneered such an approach by combining Popper's view of knowledge (1963;1968) with the experiences of teaching medicine and medical practice. Popper argues that nothing is able to be proved scientifically, only refuted. Thus, only when theories are able to be refuted are they scientific; if they are not open to refutation they are unscientific. Popper's theory suggests that knowledge is not absolute but consists of the most plausible hypotheses currently available.

Hospital medicine, which is the home of clinical teaching and learning (Newman 1957), is typically concerned with disease and with all its ramifications. If disease is seen as an entity, something that exists in its own right, "this places a disease in the same category as an absolute truth. Popper has termed this the essentialist view which by his philosophy is not scientific" (Howell 1987) (cf. section 1.3.1(2)). Alternatively, disease may be seen as a collection of observable features with a name, for convenience, but without independent existence (Lewis 1944): "This is the nominalist view of a disease, fundamentally different from the essentialist view, and one which describes reality" (Howell 1987).

Howell (1987) draws attention to the tendency of clinicians when teaching about disease to talk "as though the disease actually exists, as though it is an essential truth, and it can be characterised by certain essential features." A root of this distortion is that, in hospital, teaching is for the most part on diagnosed patients. But if diagnosis is seen as "a system of more or less accurate guessing, in which the end-point achieved is a name", and names are "temporary conceptions" (Lewis 1944), this misrepresentation could be avoided.

The bio-reductionist medical model, with disease as entity and knowledge as fact, has a long and powerful history (for example, Dubos 1965;1968; Engel 1977; Capra 1982; Laura 1985; Kriel 1987); (chapter 1). This controlling paradigm is being questioned increasingly since it is not adequate for all medical practice: it does not fit, for example, general practice, psychiatry or child health (Carmichael 1980; Engel 1978a; McWhinney 1983;1986; Levenstein et al. 1986; Jennings 1986). Seeing knowledge of diseases as fact and diseases themselves as specific entities rather than as conceptions, impedes medical progress (Lewis 1944). Howell (1987) makes a more concrete claim, for when diseases are seen as specific factual entities "anything which is discordant with the disease may be ignored or attributed to other factors...because it does not fit the essential features. Where disease is

seen as a concept or 'best fit' hypothesis capable of modification then every piece of discordant evidence may be approached with interest and belief."

Understandably, the doctor/patient relationship is significantly affected by the doctor's model of disease and diagnosis. The Third Year 'doctor-centred' students focused much of their learning on disease characteristics; they used only clinical textbooks to account for their clinical findings (chapter 8). The 'patient-centred' students, on the other hand, focused their learning on the patient holistically; they used discipline-based textbooks in addition to clinical ones. Perhaps the former students were in danger of coming to see disease as an entity, unlike the latter. Perhaps students who see history-taking as a systematic list of questions to ask patients, also see disease as factual, absolute and as an entity. The way the process of history taking is taught by clinicians may reinforce this view, whereas learning history taking by working with clinicians may avoid it.

Doctors who "approach discordant evidence with interest and belief" scientifically explore the evidence (Bruner 1962). Discordant evidence will bring with it surprise. The practitioner who "allows himself to experience surprise, puzzlement, confusion in a situation which he finds uncertain or unique ... reflects on the phenomena before him, and on the prior understandings which have been implicit in his behaviour. He carries out an experiment which serves to generate a new understanding of the phenomena and a change in the situation. When someone reflects-in-action, he becomes a researcher in the practice context.... he does not keep means and ends separate, but defines them interactively as he frames a problematic situation" (Schon 1983:68). Such an approach to professional action is vital for practice-based research (Bruner 1966; Stenhouse 1985) and for actual practice whenever situations are uncertain or unique, as they increasingly are in medicine. Buchler (1961:34) describes professional action of two kinds: one "has to do with prepared order eligible for application to appropriate circumstances; the other has to do with a power of adjusting practice to variable circumstance. The one emphasises a fund or store of techniques whose function is anticipatory; the other emphasises resourceful practice precisely in the face of the unanticipated." The first emphasises routine practice, the second innovation. Perhaps the graduates, in Chapter 12, whose confidence came from experience and managing acute patient cases were focusing on the anticipated, the hospital team's routine treatments, whilst the graduates whose confidence came from decision-making and interpersonal communication were focusing on the unanticipated. Howell (1987) sees the doctor's concept of disease as the factor which determines which of the two approaches the doctor adopts.

Recommendation 12 Rigorously debate the thesis that the dominance of the bio-reductionist model of medicine has been sustained by a reductionist view of knowledge and a concept of disease as a specific entity.

Explore and openly discuss (a) the claim that the bio-reductionist model of medicine prevents a holistic approach to patient care, and (b) the many alternative models currently available and in use by some medical specialists and generalists.

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(iv) Medical Studies

The Todd Report (1968:86) rejected the notion of two separate undergraduate courses, one for GPs and the other for hospital clinicians, because of the unity of medicine (page 97) and the special educational value of general practice (page 99). One of the educational values of a unified approach lies in the variety of medical models available and in use by doctors and other health-care workers. Carmichael (1980) claims that only 15% of patients seen by GPs can be cared for by the 'traditional' biomedical model (traditional for over 150 years in Western medicine). Other models are described in the literature (for example, Sheldon 1970; Brody 1973; Engel 1980; McWhinney 1983;1986; Levenstein et al. 1986; Brown et al. 1986; Jennings 1986; see section 1.3.3).

The general practitioner's aim is initially to understand the particular patient rather than to detect or diagnose disease. This introduces new perceptions of practice and the use of new models as guides. McWhinney (1986) sees medicine "on the brink of a major transformation in clinical methods", which will demand many physicians getting rid of the "preconceptions and prejudgements which they formed under the influence of the biomedical model of disease entity". Doctors will need to adopt new approaches which focus on the "patient's expectations, feelings and fears" (Levenstein et al., 1986). Somehow medicine has to encompass this new vision, and medical education must provide the key.

In order that medicine can consciously develop the medical models or paradigms needed for successful practice in many different contexts (Marinker (1983) outlines some of these contexts), another central change is necessary. This concerns a change in the epistemology of medical knowledge. McWhinney (1986) advises that "a redefinition of what medical knowledge is and how it can be obtained" is needed. Such a redefinition will only be

possible if practising doctors take time to think critically about medical knowledge, how it is generated and used (for example, Allen 1978; Reiser 1978; Schon 1983; Brookfield 1983;1987; Eraut 1984;1985; Laura 1985).

'Reflection' is the intellectual tool required (Bruner 1966:25-26 & 124), for the technology of language is used to process information (Vygotsky 1962; Britton 1970): it is a tool "for the process of reflection" (Bruner 1966:28). Reflection on and in actual practice will be needed. Schon (1983) sees such reflection as the appropriate model of practice itself, replacing the traditional technical rationality model. By exploring the epistemology of medicine -- what medical knowledge is and how it can be obtained -- doctors will also explore at the same time the model of practice. Schon's view of practice, if adopted, would necessitate the changed view of medical knowledge creation and use demanded by Laura (1985) and McWhinney (1986).

All courses for the education of teachers have a component which articulates the theory of education and its practice. More recently, courses for the education of nurses have come to include a component called Nursing Studies, which also articulates theory, namely the theory of nursing and its practice. There is no corresponding formal component 'Medical Studies' in the education of doctors: currently the theory of medicine and its practice is left to chance and is often unarticulated (Armstrong 1977;1980).

What both the argument and the evidence of the present study point to is an educational need within one Medical School. How it might be satisfied lies well beyond the bounds of this writing. But at least the need can be formulated. The argument from educational thinking is that learning proceeds by reflection upon experience and by the sharing of experience in discussion. The evidence gathered here suggests that there is enormous scope for discussion -- discussion among students, between students and staff, and among staff, to name three main axes of discussion. There is, of course, discussion already, but it is not harnessed to the cumulative learning of the institution and of the individuals who compose it. And it is easily overlooked, for we articulate our experience as much in the questions we ask as in the statements we make. Perhaps more. It is by asking questions that students attempt the continuous task of making sense of their curricular experiences. Medical Studies might be seen as one way of helping them not only to answer those questions but also to ask them.

Recommendation 13 Introduce 'Medical Studies', in all five years of the curriculum, in order (a) to produce opportunities for, and to give status to, the open and critical discussion of the models or paradigms currently at work in medical practice, and (b) to provide a forum where medical students can attempt to make sense of their curricular experiences by asking questions and then trying to answer them.

These recommendations (in Recommendation 13) are far-reaching. It is hoped that by focusing on recommendations which can be enacted in changed behaviour together with reflection, rather than attempting to change attitudes and assumptions directly, implementation will be more viable and can grow from the interest and enthusiasm of staff and students -- however few in number they might be (section 13.4.1). Such a strategy will need to be accompanied by open discussion -- not discussion of the usual kind where "most of so-called reasoning consists in finding arguments for going on believing as we already do" Robinson (1923:56). Argyris and Schon (1974) explain such behaviour in terms of espoused theory and theory-in-action; the latter is commonly unarticulated belief. Progress is possible only when theory-in-action is challenged: this is because of in-built individual and institutional negative feedback. Such negative feedback ensures that "organisations on the whole are inimical to learning" since they actively discourage "curiosity, discovery and experiment" (Handy 1984:296).

Candid open discussion is the mechanism to avoid 'negative feedback' (which would ensure no change) by re-setting the thermostat in a 'double-loop' learning activity (Argyris and Schon 1974:18-19) (cf. sections 2.3.5, 4.1 and 4.5). Recommendation 7 (Open discussion: sharing difficulties) which asks all doctors to introduce patient-focused inter-departmental group-teaching on the wards, together with open discussion, would be an ideal opportunity to explore 'thermostat settings' -- that is, the attitudes and assumptions in medical practice which in turn will be reflected in medical education. The use of horizontal evaluation and educational intelligence (section 4.1) will facilitate the scientific interpretation and use of data in discussions.

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(vii) A Scientific Approach

A scientific approach to evaluating the implementation of these Recommendations will control the success of the educational enterprise: the new view of science will need to be embraced by the evaluation. How do the old view and the new view of science differ?

Historically, scientific inquiry has been dominated by the experimental natural science approach, to the neglect of natural science as observation (section 5.3). Experimental science gained its reputation from the successes achieved in physical-world investigations based on a linear model of cause and effect, for example, the gas laws. This experimental approach using a single linear model has been gradually extended to include a more complex and sophisticated model based on probability (Bronowski 1951). But the linear cause-and-effect model remains influential even in settings which are quite unlike the physical-world investigations for which it was designed: for example, 'people-studies' are judged by their closeness-of-fit to the linear experimental model, and medical practice is judged by its fit to the bio-medical reductionist model.

Characteristics of this linear model are the testing of hypotheses for validity by controlled experimentation: it is positivistic and reductionist. In outline, two variables are chosen for experimentation; all others are controlled or randomised by the size of the sample. The independent variable (for example, temperature) is carefully manipulated and the dependent variable (for example, volume) is accurately measured. The whole process is seen as objective, that is, independent of the experimenter, leading to proof/disproof of the hypothesis, and with proof to a body of knowledge which is true and certain.

However, increasingly this model has been criticised and seen to be inadequate by scientists and non-scientists alike in the post-relativity theory era (see section 1.3 and sources cited there). A new view of science has emerged with different characteristics. Firstly, science is no longer seen to be searching for a body of absolute knowledge which is true, but rather to be trying to eliminate dogma and prejudice by offering a more adequate understanding and explanation of reality. Secondly, scientists are not passive observers or spectators discovering the world: they actively seek to explain the world more fully by creating new theories and by challenging existing theories. Thirdly, science is a process -- a method of inquiry -- where objectivity is based in shared intersubjective agreement rather than in uninterpreted neutral facts that 'speak for themselves'. Objectivity, therefore, is only achievable when existing views and preconceptions are made explicit, so that

discussion and argument proceed with openness and candour. Fourthly, science takes place in a social setting where all participants are active and on equal terms. Explanations are thus grounded in multiple concrete experience and open discussion (Glaser and Strauss 1967; Glaser 1978) rather than in any *a priori* assumptions and logical deductions.

Any educational evaluation will more adequately meet these four criteria if a group of educationalists commit themselves to medical education (within the wider contexts of medicine and of education, especially comparative professional education) by becoming 'insiders' (Hewton 1982). This was the model on which the evaluation at Southampton was built when the Medical Education Group was founded (chapter 4 and section 5.10).

Flexner's (1910) innovations were intended (1) to free medical practice and medical education from the authority and dogma of empiricism and existing ideas, (2) to enable medicine to be forward-looking in an enterprise of inquiry utilising to the full the rigorous scientific approach of observation and inductive reasoning, and (3) to improve the educational methods and standards of medical education (section 1.1.2). According to Flexner these innovations could be achieved by placing science as method (Dewey 1910) at the centre of medical education, and by placing medical education within the university. Science as method was Flexner's strategy for implementation. But sadly, Flexner's recommendation of science as method was misinterpreted, and science as content became the core of the medical curriculum (section 1.3.2). Yet this was only for the first two years -- the preclinical years -- and this was because 'technical rationality' was the view of practice.

This misunderstanding is ironical, since Dewey's 1909 address to The American Association for the Advancement of Science (Dewey 1910) was central to Flexner's thesis. Dewey in this address clearly set out the argument for the distinction between science as content (after-the-fact science) and science as method (before-the-fact science), a distinction intended to increase skills and reduce cognitive confusion. Dewey saw the need to redress the balance in science education because science as content dominated the curriculum at all levels. He proposed that an education in science could only be based on science as method (section 1.3.2). Neither Dewey nor Flexner saw implemented their innovation of science as a way of organising action and thought -- the new view of science.

Science as method is just as appropriate for medical education now as it was 75 years ago.

Recommendation 14 Make the new view of science (science as method) the way of life for all medical students, thus equipping them to understand themselves and their patients, and providing them with the cognitive insight to promote health and treat illness -- the goals of medicine.

* * *

A quotation from Whitehead complements the epitaph from Spindler with which this Chapter began:-

"An education which does not begin by evoking initiative and end by encouraging it must be wrong. For its whole aim is the production of active wisdom...It should be the chief aim of a university professor to exhibit himself in his own true character -- that is, as an ignorant man thinking, actively utilising his small share of knowledge. In a sense, knowledge shrinks as wisdom grows: for details are swallowed up in principles. The details of knowledge which are important will be picked up ad hoc in each avocation of life, but the habit of the active utilisation of well-understood principles is the final possession of wisdom" (Whitehead 1932:58).

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Table 1.3.1

Table to show the chief differences in the characteristics of the organisation of teaching on the two Medical Firms A and B

<u>Characteristics</u>	<u>Firm A</u>	<u>Firm B</u>
1. Size	large	small
2. Atmosphere	busy and formal.	busy and informal.
3. Attitude to aims of Year 3	ends in themselves for students to learn	tools of clinical practice for students to use
4. Attitude to time-tabled sessions	very important for students to attend all timetabled sessions	one of many resources for students; they should attend whenever possible
5. Perception of taught sessions	'coverage' of the necessary core-topics was seen as important	'coverage' was not seen as important for Third-Year students
6. Selection of content of taught sessions	usually a topic was chosen and then a patient; a record of the topics covered was kept and consulted to help choice	the 'best' patient on the ward (physical signs, classical history, 'special' case etc.) was chosen
7. Perception of clerking patients for student learning	students should clerk as many patients as they could and follow them up when they could	students should clerk a few patients well, following them up daily
8. Perception of patients' tests and investigations for student learning	if possible, students should go with the patients they have clerked	students were expected to go with the patients they had clerked
9. Perceived role of students	to acquire clinical skills: students learnt from doctors	to work as colleagues and to acquire skills: doctors and students learnt from each other
10. Perceived focus for student	acquiring clinical skills	patient problems and so acquiring clinical skills

/continued...

11. Perception of students' patient diagnosis	a check of the student's clinical skills	useful in patient management and a check of the student's clinical skills
12. Perception of student's written patient case notes	a check of the student's clinical skills: the student's notes of one patient were checked weekly	practically useful and included in the patient's ward files where they could be informally checked: only checked formally twice
13. Perception of student's views and knowledge	regarded as rather 'academic', not practically useful for the Firm	regarded as useful practically for the Firm
14. Attitude to 'take' sessions	students were encouraged to attend	students were expected to attend; 'Bleeps' and accommodation were provided
15. Attitude to 'return' out-patient clinics	students were not timetabled to attend	each student attended about three times during the attachment
16. Perception of other health care workers for student learning	-	students were encouraged to talk to them about the patients they were clerking.
17. Other resources for clerking	-	local non-teaching hospital and 'twinning' firm, also 'what if?' sessions
18. Overall emphasis of Firm	clinicians saw their teaching and their patient care as separate activities: they adopted a 'training' approach.	clinicians blurred the distinction between their teaching and caring for patients by encouraging students to work as colleagues: they adopted a 'working' approach.

Table 13.2

Table to show differences between 'Literal' students of Firms A and B on Third Year Medical Attachments

<u>Characteristics</u>	<u>'Literal' Students on Firm A: 'Training Approach'</u>	<u>'Literal' Students on Firm B: 'Working Approach'</u>
Students' focus for learning	largely what doctors taught: they wanted to be told what to learn, to let others make decisions for them	what the doctors taught and what emerged from non-timetabled talk with them. Increasingly they made their own decisions
"	repeatedly referred to the written aims of attachment. Saw a mismatch between the aims of Year 3 and their expectations of Year 5	rarely referred to the written aims of the attachment after the first weeks
"	Troubled when teaching sessions failed to materialise	Increasingly began to occupy themselves productively if teaching sessions did not take place
Students' view of the patients	Increasingly sorry for the patients since they had to endure the imposition of students' clerking	Tried to help the patients when clerking, though they realised their help was limited
"	Did not seem to hear patients' questions	Wished they knew more in order to answer patients' questions more adequately
Students' perception of history taking	learning to take a history (and physical examination) was a chore and annoying to patients	learning to take a history (and physical examination) was a slow process but they felt increasingly positive about it
"	Tended to try to clerk a patient at one 'sitting': focused on a 'crib-sheet' or list of questions to ask	Tended to break clerking into manageable units and increasingly listened to the patients' accounts of their history

/continued...

Students' perception of history-taking	Discouraged when patients were unavailable for clerking, or if they said they did not want to talk just now	Usually knew when patients would be unavailable for clerking and expected that patients sometimes may not want to talk
"	Mistakes in history taking tended to make students very discouraged	Mistakes in history taking were put down to their inexperience
Students' attitude to their own lack of knowledge	Wanted more teaching by the doctors	Wanted more time on the wards, so that they could learn more
"	Looked forward to the next attachment and a new start	Wanted more continuity (no Monday/Friday lectures) and a longer Medical attachment; were hesitant about their next attach- ment
"	Wanted to be more involved and to work with clinicians on the wards, but they saw no opportunities	Increasingly worked with clinicians on the wards
"	Troubled by their lack of progress, even doubtful about their suitability for a medical career	Determined to progress and to succeed
"	Felt overloaded and in the way, increas- ingly demotivated and lacking confidence	Felt valued and motivated but with fluctuating confidence
Students' attitude to hospital doctors	"Them and us"	Colleagues
"	Thought that the doctors' vast knowledge and skills set them an impossible target to reach	Thought that the doctors were very knowledgeable and skilful but not infallible; knew doctors welcomed their comments, views, information etc.
"	Believed they had nothing to contribute	Believed they had a growing contribution to make to the Firm as their expertise developed

/continued...

Students' own
performance goal

Wanted to impress
the doctors
sufficiently, so
that they would 'pass'
them at the end of
the attachment

Did not wish to
impress the doctors;
they wanted to
contribute to the
Firm's patient care

Students' perceptions
of feedback

Wanted more formal
feedback, though
they were anxious
about assessments

Knew how they were
progressing: took
assessments in their
stride but would have
preferred not to have
them

"

Hoped to pass, though
they were prepared
for failure.

Expected to pass with
an average grade.

Table 13.3

Table to show the differences between the 'doctor-centred' and the 'patient-centred' student focus on Third Year Medical Attachments

<u>Characteristics</u>	<u>'Doctor-centred' students on Firm A</u>	<u>'Patient-centred' students on Firm B</u>
Students' focus for learning	largely what the doctors taught or what they said or did: they used clinical texts, took initiative and responsibility by being "pushy"	largely the patients they were clerking: they used clinical texts and texts from Years 1 and 2, responded positively to the many opportunities offered
Students' view of the patient	people to meet in order to learn clinical skills: recognised patients may be bored or inconvenienced by students' clerking but unavoidable	people with problems who they could talk to and help, and learn clinical skills
"	students disregarded patients' questions	students valued patients' questions as a focus for learning. They would aim to be able to answer them
"	students did not attempt to involve patients in their own care	students talked to patients about their own care
Students' perception of history taking	students aimed to take a history at a single interview, about 30 minutes	students saw the history as never really taken; it was evolving
"	students revisited their patients to complete or to check the history	students revisited their patients to see developments and changes, and to get to know them
"	students were disappointed if patients were discharged before they had clerked them fully	students were glad when patients went home

/continued...

Students' perception of history taking	students went to tests with patients if this could be fitted in	students went to tests with patients to extend the patient history and their knowledge of management, and to get to know patients and to offer them support
"	students tended to blame the patient if they got a 'wrong' history	students saw misunderstanding at the root of a 'wrong' history
Students' use of patient's written ward notes	students used the ward notes secretly!	students openly checked the ward notes against their own findings
Students' attitude to their own lack of knowledge	students rarely admitted they did not know: they bluffed their way through	students admitted they did not know and would learn by it
Students' own performance goal	students quickly learnt the correct vocabulary and tried to acquire a standard case presentation and case notes	students did not learn conventions quickly and simply for their own sake: they hoped to contribute to the Firm
Students' perception of feedback	students welcomed formal feedback, often taking the initiative themselves by asking questions, but they also used other sources and reflection	students relied on many informal sources and reflection
"	students aimed to get a high grade	students aimed to pass
Students' perception of other health care staff as a learning resource	students might/might not use the resources of the health care team.	students routinely use the resources of the health care team, especially to learn about the patients they clerked.

APPENDIX ONE

APPENDIX 1

An Overview of Data Collected from Medical Students and Graduates during the Eleven Years

Key to data

Interviews of teachers and students - I
 Interviews of students/graduates - Is
 Observations - O
 Questionnaire - Q
 Reports written for Faculty - R

	Data Collected	Methods Used	Student/Graduate Group
1.	Yr 5: Finals Exam Long & Short Cases (Vivas)	I	Students A
2.	Yr 3: O & G (5 weeks x 4 groups) Medicine (10 weeks x 5 groups) attachments	I,O,R	Students B
3.	Yr 2: Introductory Course to Clinical Medicine + Yr 3 'follow-up' on 1st attachment	I,O,R	Students C
4.	Yr 4: Projects	I,R	Students B
5.	Yr 4: Ophthalmology attachment	I,O,R	Students B
6.	Yr 5: Regional attachments	Is, Letters from students	Students B
7.	Yr 2: Systems Course, Muscular Skeletal	I,O,R	Students D
8.	Yr 1: First 6 weeks of the curriculum and Anatomy continued throughout the 1st yr	I,O,R	Students E
9	Yr 1+ E.M.C.	I,O,R	Students E
10.	Yr 2: Introductory Course to Clinical Medicine: Clinical Technical Terms, student understanding pre- and post-course.	Q,R	Students E

	Data Collected	Methods Used	Student/Graduate Group
11.	Yr 6; House Officer posts	Is, R	Graduates B
12.	Yr 3; Attachment and History Taking (23 students)	Is	Students D
13.	Yr 4; (23 students)	Is	Students D
14.	Yr 5; Year experiences; Before written exams; After written exams; At long and short case exams (23 students)	Is	Students D
15.	Yr 6; House Officer Posts (23 graduates)	Is (some)+Q	Graduates D
16.	Yr 7; First Registration Year	Q	Graduates D
17.	Yr 8; Second Registration Year	Q	Graduates D

APPENDIX TWO

APPENDIX 2

To:

From: Brenda Mountford

January

House Post: August . . . - January .

1. What would you say were the main things you got out of your House Post?
2. Would you have liked to have got anything else out of the post?
3. Was anything particularly good/particularly poor?
4. Was the post what you expected, and why?

5. If someone said to you that Years One-Five of the undergraduate course were in preparation for your House Posts, what would you say?
6. Looking back at Years One-Five, is there any way in which you would like to see them changed, and why?
7. Is there anything in Years One-Five that you feel should definitely NOT be changed, but should be retained and even extended, and why?
8. Any other comments.

Contact address for the next 6 months is:-

Thanks a lot.

Brenda Mountford
January

To:

From: Brenda Mountford
Medical Education

July

House Post, February - July

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. Taking the answers some of you gave for the <u>FIRST</u> house post, can you mark on the scale your answers for your <u>SECOND</u> house post.				
a) There was the right balance of responsibility and supervision				
b) A more co-operative approach to team work was needed				
c) I don't think I had the opportunity to learn enough practical procedures				
d) I saw enough of the 'common conditions'				
e) I would have liked more opportunity to have studied illnesses from an academic point of view				
f) I was so tired for a lot of the time, I missed opportunities for learning				
g) There was a shortage of qualified staff on the wards				
h) There was much more freedom to learn as you want, unlike Years 1 - 5				
i) I learnt how to cope with stress				
j) Having the label of 'doctor' helped				
k) There was more administration than I expected				
l) I made lots of new friends				
m) I never seemed to finish one job before I had to start another				
n) I felt like a clerking machine				
o) I gained valuable knowledge of surgery/medicine				
p) Sharing a job, shared the worries too				
2. Would any of the answers above have been very different for your <u>FIRST</u> house post? Can you indicate which?				

(continued)

3. From your replies, "confidence" was clearly something all of you got from your first house job. Can you say something about this new-found confidence, e.g. where does it come from, where does it apply, what does it feel like, etc?
4. What would you say were the main things you got out of your SECOND house post?
5. Would you have liked to have got anything else out of the post?
6. Looking back on your two house posts - what advice would you give a fifth-year student about the pre-registration year, if they asked?
7. In the light of your pre-registration experience, what questions would you ask house officers, in order to learn the significant things about the year for them? i.e. if you were drafting a questionnaire for house officers on the pre-registration year, what question(s) would you include?
8. Any other comments:
9. Have you decided in which area of medicine you will specialise?
10. Your contact address for the next six months is:-

Thanks a lot

From the House Post, August . . . - January . . . Questionnaire -

"If someone said to you that Years One to Five of the undergraduate course were in preparation for your House Posts, what would you say?"

Your answer to this question was:-

Do you still agree with what you said in January . . . ; if not can you say in what way you now disagree?

From the House Post, February . . . - July . . . Questionnaire -

"From your replies 'confidence' was clearly something all of you got from your first house job. Can you say something about this new-found confidence, e.g. where does it come from, where does it apply, what does it feel like, etc?"

Your answer to this question was:-

Do you still agree with what you said in August . . . ; if not can you say in what way you now disagree?

Brenda Mountford
May

To: Graduates

From: Brenda Mountford
Medical Education Group
July .

What to learn: what I know

One feature of medical education which has increasingly intrigued me over the past 10 years is how do students decide what to learn? There is so much to learn, students must decide to learn some things better than others. Please can you think back to your course here in Southampton and also what you do now, and have a go at answering these.

1. B.M. Students learn a lot of material on their course. When you learnt material on your course, what helped you to know what to learn?

2. As doctors you are learning all the time. What helps you now to know what to learn?

3. Courses often assume that students learn all that they are taught. But generally, students are taught more than they learn. If you think of your course in Southampton teaching you ten units in all, how many units would you say you generally learnt?

Units: 1 2 3 4 5 6 7 8 9 10

(Tick the number you think)

4. If you think of yourself now about how much of what you are expected to know do you know?

Units: 1 2 3 4 5 6 7 8 9 10

(Tick the number you think)

Any comments?

5. Teachers/lecturers talk a lot about knowledge. What do you think they mean by knowledge?

6. Is this your meaning of knowledge? Yes/No. If no, what do you mean by knowledge?

7. Teachers/lecturers talk a lot about understanding. What do you think they mean by understanding?

8. Is this your meaning of understanding? Yes/No. If no, what do you mean by understanding?

9. When doctors you are working with now, talk about knowledge and understanding is there any difference from your answers to 5 and 7 above? 'Yes/No. If yes what do they mean by knowledge and understanding?
10. Most students say they want to feel confident. What do you mean by feeling confident?
11. What gives you confidence now?
12. Anything else you want to say.

Thank you.

July

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