

WHY DO MEDICAL STUDENTS FAIL?  
A STUDY OF 1<sup>ST</sup> YEAR MEDICAL STUDENTS AND THE EDUCATIONAL  
CONTEXT

by

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## ***Abstract***

A third of medical students at Birmingham Medical School fail one or more first year exams. Alarm has been raised about the apparent over-representation of ethnic minority students amongst those who fail.

In this case study I ask:

1. Is there a connection between students' ethnicity and performance in end of first year exams?
2. Is the experience of medical students at this medical school conducive to effective learning?
3. What, if anything, could be done to improve students' learning?

I show that there is a link between particular students and exam performance, but the link is with socio-economic background, not ethnicity. Students from a privileged background appear to perform better than students from a disadvantaged background. I argue that this may be due to an environment which is not conducive to effective learning. Using a range of research methods I describe how students are expected to support themselves intellectually to become independent learners while passive educational methods such as lectures and a heavy timetable are favoured and students receive limited formative feedback on their progress.

The study ends positively, however, as I identify improvements that could be, and in some instances have been, made to the environment.

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## **Chapter 1: Introduction**

## CHAPTER 1 - INTRODUCTION

In this thesis I seek to explain the phenomenon of a substantial number of medical students failing one or more of their first year exams during their undergraduate degree course, despite having previously been highly successful students. Furthermore I examine the apparent over-representation of students from an ethnic minority in the failing group. I go on to question whether students are supported appropriately in terms of what is known about effective teaching and learning, and begin to consider how and whether the situation may be improved.

Specifically I seek to address the following research questions:

1. Is there a connection between students' ethnicity and performance in end of first year exams?
2. Is the experience of medical students at this medical school conducive to effective learning?
3. What, if anything could be done to improve students' learning?

In Chapter Two I set the scene, firstly in terms of my own epistemological position, my reasons for conducting the study and the values that I hope to uphold. I describe the context in which the research was conducted, including the specific factors of significance in medical education in general and the situation at this particular medical school. I go on to explain, in broad terms, the methodology that I employed in this research.

I then review the relevant literature regarding aspects associated with this study. In Chapter Three I examine what is known about effective adult learning and learning theory in Higher Education. I summarise current best practice in terms of student centred, social constructivist approaches to learning and explain why these approaches are thought by their advocates to be the most conducive to effective learning. I go on to explore the needs of medical students and educational methods commonly used in medical education, namely problem-based learning and traditional methods. I also examine the tensions created by the demands on academics of teaching within a research-led institution.

In Chapter Four I focus on current research into student selection, student retention and predictors of failure. The main focus of the chapter is on practice and findings in medical schools in the UK, but there is some consideration of findings from other disciplines and other countries. There is some overlap of issues in this chapter with the previous one since various studies have made the connection between student retention and student achievement.

The original impetus for this research was a concern raised by an external examiner for the medical course that students from some ethnic groups appeared to be more likely to fail than others. In Chapter Five I explore the literature concerning race and education. In most studies of University education, ethnic minorities appear to be under-represented. This is not the case in medicine with

respect to Asian British students, particularly at this Medical School, whereas Afro-Caribbean students are under-represented throughout Higher Education. However racism or more general prejudices may still be significant factors. Much of the available literature in this field pertains to schools rather than HE. I consider two aspects of race; the prevalence and affect of racism in HE, and the effect of racial background on a student's performance. At the end of this chapter I present a summary of the picture created by reference to the three areas of reviewed literature. This represents my understanding of the relevant issues against which I compare the findings of my research.

In Chapter Six I describe the first stage in this project which was a pilot study into differences in attitudes between students who had passed, and those who had failed, their end of first year exams. Before this pilot study there was no data about student attitudes to their studies, and virtually nothing was known about the students who left the course. Thus it was impossible to identify what the reasons might be for some students passing while others failed, despite an apparent homogeneity in the previous academic achievement of students admitted onto the course. This initial study had a powerful effect both on the subsequent research and on the management in the Medical School.

As a result of the pilot study I was able to decide on the direction my research should take. I had established what I felt were the key issues in the Medical School at that point. In Chapter Seven I describe the next stage in the research, to

address some of the limitations that became evident in the pilot study, and to attempt to clarify what, if any, connection there was between ethnicity and performance. In Chapter Seven I describe the more extensive prospective survey that was run with two cohorts of first year students, and the data that was collected in an attempt to triangulate the students' views. As a result of the findings presented in this chapter and from the pilot study, I offer an answer to my first research question concerning any link between ethnicity and performance, and begin to explore the second concerning the provision of support.

At the same time that I was conducting the student surveys I interviewed key members of staff. Chapter Eight includes the findings from these interviews, as well as a comprehensive personal account from one member of staff which I present as a vignette. I shadowed a group of students for a week, and collated information about the delivery of the course. I include my impressions in this chapter, since in addition to my role of researcher I am also a member of staff. I draw on the literature relating to student learning and retention in particular, to show how these findings help to answer the second and third research questions.

I have not conducted this project as an independent objective researcher, instead I have done this at the same time as performing an intrinsic role within the Medical School and the undergraduate medical degree course in particular. As a direct effect of the findings from my research, especially the pilot study, I have been involved in several changes to the course and to the School. In Chapter Nine I

describe these changes and explain how they relate to theories and issues presented in the literature review chapters.

Finally, in Chapter Ten I summarise the knowledge that has emerged as a result of this research. I clarify the limitations of the research, and show how the particular study of an isolated course may have implications and resonances for other medical schools and possibly other disciplines. Finally I highlight the most likely areas for future research.

## **Chapter 2 Context: The Research and The Researcher**

### 2.1 Research Context

### 2.2 Epistemological Position

#### 2.2.1 Postivism versus Interpretivism

#### 2.2.2 Quantitative versus Qualitative Research Methods

#### 2.2.3 The Purpose of Research

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### 2.3 Methodological Approach

#### 2.3.1 Survey Methods

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## ***CHAPTER 2 - THE RESEARCHER AND THE RESEARCH***

This research project concerns a specific group of students and staff in one UK medical school. This chapter begins with a description of the circumstances surrounding the research as an attempt to contextualise the project. I go on to provide a similar context for myself as the researcher. Finally I seek to explain and justify the methodological approach used in the research.

### **2.1 Research Context**

To become a medical doctor in the UK students must first complete an undergraduate degree. The most common route is through a five year MBChB degree course. This case study is concerned with the five year MBChB course at Birmingham Medical School in the UK, focusing on the period from 2002 – 6.

The MBChB (undergraduate medical degree) is not a static programme; it has changed significantly over the past decade in terms of content and student numbers. Prior to 1995 medical students took a five-year course, which was comprised of two years pre-clinical and three years clinical education. The two-year pre-clinical course was delivered entirely within the Medical School. The remainder was taught in NHS (National Health Service) hospitals. The pre-clinical course was made up of five discrete subjects: physiology, pharmacology, anatomy, biochemistry and medicine in society.

In 1995, in response to requirements by the General Medical Council (GMC) in their 1993 paper ‘Tomorrow’s Doctors (GMC 1993), The University of Birmingham Medical School (in common with most other schools) implemented a new course. It remained five years long, but the initial two years were redesigned as integrated modules, and were supplemented by students attending a General Practice (GP) surgery for a full day every two weeks, thus providing the students with clinical experience at a much earlier stage of the course than had occurred before.

*Table 2.1: Student Numbers MBChB 1993 – 2003*

<b>Year</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
1993 – 94	70	97	167
1994 – 95	88	102	190
1995 – 96	92	97	189
1996 – 97	129	92	221
1997 – 98	94	119	213
1998 – 99	106	109	212
1999 – 00	108	140	334
2000 – 01	133	191	334
2001 – 02	149	214	363
2002 – 03	140	229	369

Prior to 1995 student numbers remained fairly consistent at between 160 to 190 new entrants each year. In 1999 the School increased the numbers of students in response to the Labour Government’s joint policies to increase access to higher education from non-traditional groups (Widening Participation) and to increase the number of qualified doctors by increasing the number of medical students (HEFCE 1996; HEFCE 2001). By 2005 – 6 numbers had swollen to more than 380 on the standard five-year course and an additional 40 to 45 on a new four-year Graduate Entry Course (GEC).

In 1991 the Medical Workforce Standing Advisory Committee (MWSAC) was asked by the Secretary of State for Health to make recommendations about future intake to medical schools. MWSAC's (1997) recommendations were published in December 1997:

- *“the annual intake of medical students should be increased by 1,000 as soon as possible and in the most cost-effective manner*
- *Clinical courses with graduate entry should be developed*
- *The number of undergraduate medical students from overseas should be held constant.”* (p3).

Places were allocated following two rounds of competitive bidding. 1,129 places were allocated in the first round in 1999. Birmingham was awarded an additional 119 places, 19 on the basis of a pro-rata increase to all schools that wanted to take the additional places, and a further 100 after a competitive bidding round.

Birmingham was allocated these places on the basis of regional priorities and targeted areas of shortage. In the second round in 2000 Birmingham was awarded 40 places for a Graduate Entry course, but confusingly with the justification that it would

*“seek to attract an increasing number of students from local, socially deprived areas”(page 6).*

Students on a Graduate Entry course are by definition graduates, and we know that people from socially deprived areas are less likely than those from affluent areas to enter HE, so by reducing the potential pool to largely affluent students it is unclear how the university would achieve its aim of increasing the number of students from deprived areas, local or otherwise.

Table 2.2 compares exam results at the end of the first year of the last three years of the ‘old’ course with results of the current course immediately prior to the start of this project. The raw data shows that students are more likely to fail at least one exam at first sit than used to be the case and they now face nine exams, rather than four.

Table 2.2: 1<sup>st</sup> Year MBChB exam results 1992 – 95 and 2000 – 2003

	<b>92-93</b>	<b>93-94</b>	<b>94-95</b>		<b>00-01</b>	<b>01-02</b>	<b>02-03</b>
Total examined	179	160	183		334	363	366
Fail 1	5	16	14		44	51	67
% of year	3%	10%	8%		13%	14%	18%
Total failing any	12	20	19		141	151	177
% of year	6%	12.5%	10%		42%	41.5%	48%
Total number of exams	4	4	4		9	9	9

In casual conversation many of the staff involved in teaching report that the ratio of staff to students has fallen dramatically as the numbers have increased and that an increasing proportion of students fail one or more of their year one exams at the first sit. Of particular concern is the impression voiced by several staff that students from an ethnic minority, specifically Asian British, are more likely to fail than White British students. This is an issue that has been commented on by External Examiners.

The local situation at Birmingham Medical School is part of a national issue. For example on April 9<sup>th</sup> 2005, the *BMA News* front page headline was:

*“Soaring student intakes put med schools under pressure”.*

A planned increase in student numbers was exceeded as more students than had been expected had met entry requirements. There were reports that at the BMA medical students' conference the previous week:

*“Student leaders ... said that this [recent expansion in numbers] had had a detrimental effect on education in some schools and called for an urgent reassessment of medical school numbers ...As a result of rising intakes, students have reported problems including overcrowding in lecture theatres, an increase in numbers in so-called ‘small group teaching’, lack of contact with personal tutors and even canteens running out of food.”*

Other student oriented publications such as The Insider's Guide to Medical Schools (Burgess, Girgis et al. 2005) have noted specific problems at Birmingham:

*“Bad things about Birmingham (sic)*

- *The excessive number of examinations in preclinical years can put unnecessary stress on students.*
- *The large intake of students can at times leave the medical school having difficulties coping with administration and timetabling, and hospital placements are at risk of becoming overcrowded.*
- *The wait for exam results, particularly in early years, can be rather long.*
- *There is a very poor welfare system within the medical school and too many students are often left without anyone to speak to regarding personal or academic problems, particularly apparent at crucial times of the year such as when exams results are released. It is pot luck if you get a personal tutor who is prepared to meet with you regularly. There is little interaction with students from outside of the medical school, because the medical school is physically separated from all other departments, though it is located on the main campus.” (page 83).*

However, they do also note positive aspects such as:

*“Great things about Birmingham (sic)*

- *Fully integrated course with early clinical experience keeps your interest levels up.*
- *First class health care ethics and law teaching, beginning from year 1 and continuing throughout the course, which prepares students well for clinical and house officer years.*

- *The medical school is supportive of students learning about wider global health issues, and has introduced a global health SSM and is keen to start an international health BSc.*
- *Free printing in the computer cluster – no need to worry about the costs!*
- *There are a diverse and active group of student societies within and outside of the medical school – something for everyone to participate in.*
- *There is little PBL teaching – most students appreciate this aspect of the course!” (page 82).*

These comments should be viewed in the context that these are the views of a small number of students who contributed to the publication. However, they take on increased importance since potential students may read the comparative reports and form an opinion of a particular school as a result.

Furthermore the findings from the National Student Survey in 2006 showed Birmingham Medical School was poorly rated by 5<sup>th</sup> year students compared with other medical schools, in particular regarding the provision and quality of feedback from staff to students about their work.

When the course was redesigned in 1995 an internal report written at the time stated that the intention was to integrate students’ learning; to expose students to the clinical setting at an early stage; and to acknowledge the development in adult education across the Higher Education (HE) sector. Despite these intentions there is a concern amongst teaching staff that the emphasis on exams leads to students taking a superficial approach to their learning where their main goal is to pass each exam in order to progress to the next stage, rather than a desire to learn in

order to have a firm foundation on which to build. The increase in numbers, coupled with the perceived reduction in teachers has led to a sharp reduction in small group teaching and a significant increase in the proportion of lectures.

In recent years Higher Education in the UK has experienced a change of culture. Red-brick Universities, such as the one in this study, have a long tradition as research-led institutions. However this research has always taken place within a context of a great deal of undergraduate activity. The Higher Education Funding Council for England (HEFCE) contributes more into university coffers than research funding. The University's accounts (University of Birmingham, 2005) for 2003-4 show that teaching brought in an income of £105,200,000 while research brought in £70,201,000. Medical School figures indicate an income of £80 million overall, of which £23 million is generated by teaching activity. The Medical School's research activity is clearly of huge importance to the School itself, but it is also the largest contributor to the University's coffers. Further, in contrast with other university departments the Medical School gets most of its income from research.

The Guardian newspaper's guide to universities for 2005 ranked this medical school 19 out of 24 schools. The article only listed the first 20, which put the school second to worst according to their criteria (Education Guardian, 2004). The Admissions Tutor reported a marked decrease in the number of people accepting offers of places in the weeks following the publication of the league

table. One of the reasons this medical school appeared so low in the list was because the amount spent per student was low compared with other medical schools.

Several teaching staff have made the observation that students from an ethnic minority, in particular Asian males, are more likely to fail than white students of either sex. UCAS statistics (UCAS, 2005) give the proportions of ethnic groups among applicants to UK medical schools. In 1998, 61% were white and 28% were Asian, while in 2002, despite a slight change in the way that ethnicity is calibrated, the figures were very similar, with 61% white and 25% Asian. The 2001 National Census (National Statistics Website) shows that the proportion of Whites is 92% of the total population, 4% are Asian, 2% are Black and 0.4% are Chinese.

The area in the immediate vicinity to the medical school in this study does have a higher than average proportion of people from ethnic minorities, with 13% of the total population. This compares with less than 8% in the national population, and is the second highest concentration of ethnic minorities, with only London having a higher density. However this still equates to 87% of the population being white, compared with 61% of the medical school applicants, and 7.3% being Asian compared with 28% of medical school applicants. Prior to this research, precise figures were not available for the ethnic background of students actually on the MBChB, information regarding the ethnicity of applicants remains unavailable.



## 2.2 Epistemological Position

In order to explore my epistemological position I feel it is necessary to give some biographical information. Just as I have explained the context of this research, I feel it may be helpful to give some contextual information about the researcher.

I am a middle-aged white woman from a middle-class affluent background. My role in the Medical School is Medical Education Developer. I am not a clinician, I am interested in supporting learners and teachers. I believe in taking a reflective approach to my work and would describe myself as a ‘reflective practitioner’ (Schon, 1991), or at least as someone who aspires to take a reflective approach to professional life. Schon discusses the need to ‘reflect on practice’ as well to ‘reflect in practice’. He suggests that a fully functioning professional recognises that development and learning continues (or should continue) throughout professional life, indeed it is an acceptance of this approach that defines a person who is a ‘professional’.

As a consequence, in my role as staff developer I believe it is important that educational systems encourage and support the opportunity for staff to develop a critical approach to pedagogy and student learning. This is achieved by reflecting on practice as well as in practice. Reflection in practice may be achieved through procedures and activities that enable reflection on outcomes, including the opportunity to hear student perceptions and to take account of their starting points, prior knowledge and the needs of the student cohort in addition to being

concerned with the competencies and skills required by the qualified medical practitioner. Reflection in practice and reflection on practice can become merged to an extent, but the distinction lies in building in the opportunity for reflection in the processes and procedures, while reflection on practice involves the practitioner examining their performance and identifying aspects for future improvement and development.

Such cycles of reflection require the collection of appropriate data in the form of needs assessments, student and external evaluation, peer-review and moderation. Unfortunately reflection in practice can sometimes have the effect of being perceived as bureaucratic exercises unless the results of such processes are fed back actively into cycles of curriculum review and development. In other words, they need to shape the future planning by programme leaders and tutors who genuinely own these processes for reflection for themselves.

This approach of the reflective practitioner resonates with participatory and action research processes in which practitioners are engaged with improving their own practice. Whilst due to the nature of my role I was able to engage in neither action research nor participatory research, an intriguing question remains as to how to enable and encourage staff to own such objectives, in other words to develop their identity as educational practitioners as well as a professional identity in relation to medicine or biological science. Later in Chapter 8 I describe the outcome of a staff away day which was planned as a celebration and recognition of staff's

teaching commitment, but which was read by a significant minority as an attack on their ability as teachers. As the research project developed I was therefore concerned to explore the attitudes of tutors in this second professional identity as an educational practitioner. I was also concerned to present data in ways that would be seen as credible and convincing given the nature of these practitioners' approaches to their subject (their first professional identity) in which they are also researchers and which tends to be based on a very different epistemology to that of my own (a positivist stance which gives great weight and value to quantitative research methods).

In 1999 I moved into Medical Education having previously been in general staff development and learner support. I was surprised by the teacher-centred and staff controlled nature of the medical student experience. I was motivated to conduct this research by my belief that medical students can be supported more appropriately than is currently the case and that rather than reducing standards (by making the course easier) this would result ultimately in better-educated doctors. I was also intrigued by the observation that (compared with the general population) a disproportionate number of medical students are from ethnic minorities; and the claim by several members of staff that these students are more likely than others to fail. I want to discover if this is true and if so why this might be. I therefore came to this research with a particular set of beliefs about social justice, including the imperative to avoid bias against a learner on the basis of anything I consider irrelevant such as gender, ethnicity or social class. However,

not least as a potential consumer of the National Health Service, I also want to be reassured that the next generation of doctors is being educated appropriately.

My approach to the research project has been predetermined, to an extent, by certain conditions and constraints. The audience and sponsors of my research within the School of Medicine require research to be conducted into the potentially embarrassing observation that students with Asian-sounding names appear disproportionately on the fail list after the Year 1 Exam Board. The majority of teachers are employed as academic researchers or clinicians, not as teachers. Some of them are qualified to teach but the majority are not. All are familiar with natural sciences research techniques. I am acutely aware that any product of my research will be read in the context of their expectations. However, I am free to determine the precise research questions, the methodology that I use and to reach my own conclusions.

While conducting this research I have engaged with the debate regarding the position of the researcher vis-a-vis the research. In order to establish my own position I have found it helpful to explore the issues. In the context of my research these appear to be:

- positivism versus interpretivism;
- arguments for the use of quantitative or qualitative research methods;
- the purpose of research;
- these issues as they apply to medical education.

I shall now consider each of these aspects in turn and attempt to define my own approach in terms of each.

### **2.2.1 Postivism versus Interpretivism**

Bryman (Bryman, 2001) defines positivism as

*“an epistemological position that advocates the application of methods of the natural sciences to the study of social reality and beyond”* (page 12-13)

And interpretivism as

*“the view that a strategy is required that respects the differences between people and the objects of the natural sciences and therefore requires the social scientist to grasp the subjective meaning of social action.”* (page 13)

It appears that, from the scientific positivist perspective, knowledge is a finite given truth which will be gradually revealed as researchers uncover the evidence. The responsibility of researchers is to do this systematically using robust reliable research tools. Any interpretation of research is limited to deciding what to question in the first place and what and how to disseminate the findings, but the actual process of research is a value free activity. For example Scott's (Scott, 2000) description of a positivist approach is one where the method is accepted as the correct one for a particular situation and that provided the researcher rids him

or herself of preconceptions will show us the world as it is. Carr and Kemmis (Carr and Kemmis, 1986) tell us that:

*“Positivism is usually taken to refer to a style of thought that is informed by certain assumptions about the nature of knowledge”* (page 61).

This style of thought suggests that one can only call something knowledge if it can be perceived by the senses. So value judgements are not knowledge. Those who support this stance argue that we need to apply scientific methods so that we can arrive at a position where we know:

*“what is actually happening in educational situations rather than stipulate what somebody thinks ought to be happening.”* (Carr and Kemmis, 1986, page 63)

Interpretivists, on the other hand believe that knowledge is a construction that depends on the interpretation made by each individual. Carr and Kemmis (Carr and Kemmis, 1986) illustrate this approach when they say that it is not possible to research human action in the same way as natural objects through objective measurement. Actions have meaning that is given by the actor (e.g. raising a hand may indicate alarm, welcome, questioning and so on) the meaning is interpreted by the observer. Sometimes the observer ascribes a different meaning to the one given by the actor.

I feel more in tune with the philosophy underpinning interpretivist or constructionist attitudes, however I take comfort from Martyn Denscombe (Denscombe, 2002) that:

*“The opposition between positivism and interpretivism is something that exists in principle more than in practice.”* (page 22)

I take Denscombe to mean that while researchers may philosophise about the essential nature of ‘knowledge’ and the existence of ‘truth’, in practice researchers use a range of research methods. Some of these methods may be claimed by one camp or the other, but in practice may serve the needs of either.

However, several authors suggest that I need to align myself with one camp or the other within the positivist paradigm or somewhere within the myriad versions of the interpretivist paradigm. After all as Grix (Grix 2001) says:

*“It is clear that choosing one of [positivist or interpretivist] epistemological positions will lead you to employ a different methodology than you would were you to choose the other. It is also clear to see how a researcher’s ontological and epistemological positions can lead to different views of the same social phenomena.”* (page 28)

I am therefore in the position of aligning myself philosophically within the interpretivist paradigm, but at the same time reserve the right to make use of whichever methodology seems most appropriate, regardless of which paradigm claims it for its own.

### **2.2.2 Quantitative versus Qualitative Research Methods**

Research involves making decisions, not only about the arena for the research but also the methods used to obtain the data. Broadly these methods can be categorised as producing quantitative or qualitative data. Quantitative data is considered to be data that can be objectively measured, for example the number of students present in a lecture theatre, or the temperature of a room. Qualitative data involves that which is subject to interpretation, for example students’

responses to the question ‘did you learn from this lecture?’. The description of positivism and interpretivism suggests that positivists will be more in favour of quantitative data than qualitative, but that is not to say that there is a direct parallel between positivists using only quantitative methods and interpretivists using qualitative approaches. In this research project I have used a combination of both approaches. Rather than regard one or the other as a superior method, or capable of providing a ‘firmer’ or ‘softer’ version of ‘the truth’, I prefer to obtain as rich a picture as possible. In this study the sources of my findings are the students, the staff, institutional or personal data and my own observations. Some of these data lend themselves to quantitative analysis, such as the average exam score for students from different ethnic groupings, while others require more qualitative methods such as the structured interview used to elicit the views of staff. Rather than feel restricted to work within a particular paradigm, I prefer to feel able to use the most appropriate tool to achieve a given objective. Robson describes this as

*“a pragmatic approach: use whatever philosophical or methodological approach works best for a particular research problem at issue”* (Robson, 2002, page 43).

However, this research exists within a particular context. The likely audience (medical school lecturers and managers) are likely to take a positivist approach, and therefore give greater credence to quantitative, rather than qualitative research findings. As a result I have found myself experiencing a tension between my favoured approach, which is to explore qualitative research methods, and my



desire to be taken ‘seriously’ by my colleagues. Medical education is generally regarded within the context of medical research, rather than that of general educational research. As a result there is a tendency to give greater weight to ‘hard science’ which is usually taken to mean reproducible research, of which the gold standard is the Randomised Control Trial (RCT). I will discuss this further in section 2.2.4 below.

### **2.2.3 The Purpose of Research**

This discussion about the researcher’s orientation towards their research presupposes that it is necessary or even valuable to do the research in the first place. Several commentators such as Mortimore (Mortimore, 2000) tell us that the purpose of educational research is to produce work that leads directly to improvements in education. Carr and Kemmis (Carr and Kemmis, 1986) are even more forthright in their positivist belief in the need for objective accounts of what is actually happening. Research into education has been the focus of critical debate in recent years. Edwards (Edwards, 2000) presents one of the aspects criticised as a gap between educational research and actual change in classroom practice. Although she is referring to school-based educational research this also relates to medical education. She criticises the expectation for researchers to produce generalizations because this leads to fuzzy statements. Similarly, Skelton (Skelton, 2006) criticises the tendency by medical education researchers to over simplify complex issues.

However, if research findings lead to recommendations that are too prescriptive teachers tend to reject them as not relevant to their own specific situation.

Edwards argues that there is a need for the researcher to be independent from the subjects researched if their findings are to be taken as generalisable. This has an impact on my own research, since in my job role I am attached to the Medical School as an employee, but as a Medical Education Developer I am seen as detached from the teaching staff: both the medics and the academics. However, over the course of the research project I have become increasingly involved in teaching students and therefore I have moved from the position of detached observer to involved practitioner. It could be argued that I have therefore become one of the subjects in the study. Furthermore, I have limited my research to one institution.

Foster and Hammersley (Foster and Hammersley, 1998) agree with Edward's view of the limited effect of research on practice. They argue that individual studies are not enough to influence educational practice, rather that these individual studies should contribute to the wide body of knowledge on education, to be discussed and debated by practitioners (teachers and researchers). In conducting this research I did not expect to arrive at a grand new theory, but I hope that I have produced something that has a wider application than this single case and which will contribute to the educational debate, particularly to the education of medical students.

## 2.2.4 Application to Medical Education

The subject for this research involves two distinct professions: medicine and education. I have established that I am not a medic, however the audience for this research are likely to be medics. Medical Education is a field which has until recently been dominated by the values and approaches of medicine, rather than those of education. Skelton (Skelton, 2006) highlights some of the tensions in medical education, combining as it does, educationalists and medics. Skelton highlights the need for empirical research which provides evidence that medical education is effective, but identifies that part of the problem is that ‘effective medical education’ has not been defined. He goes on to criticise

*“the widespread willingness to reduce complex concepts and interventions to a set of clumsy constituents. Such research lacks depth and meaning, and risks building a mis-leading picture of education.”*  
(page 716)

This is made worse by the fact that

*“journals of academic medicine tend to be heavy on results and exasperatingly light on the details of what the teaching was actually like.”*  
(page 716)

I have noticed a tendency amongst Medical Education researchers to be defensive about qualitative approaches. For example, Ziebland and McPherson’s 2006 paper (Ziebland and McPherson, 2006) goes to great length to explain and justify the use of qualitative analysis in the context of patient care and medical education. This is not to claim that qualitative research is not accepted at all in medical education. Indeed I have myself been successful with colleagues in Public Health

in publishing the results of a comparative study which drew mainly on qualitative data obtained in focus groups (Mathers, Parry et al., 2006).

Pirrie (Pirrie, 2001) discusses the merits and disadvantages of adopting the medical model of evidence-based practice in the context of education. She refers to the work of medical educationalists such as Ronald Harden who has led the development of BEME: Best Evidence Medical Education as a reaction against the criticisms of the wider medical field that medical education has lacked the rigour expected in other areas of medicine. Pirrie questions the adoption of evidence-based education using the model of evidence-based medicine because of the assumed parallels between the roles of doctor and teacher. A doctor is expected to treat a patient who has a condition or conditions peculiar to them. This is not the same as a teacher who has a disparate group of students who need to be taught to the same level. The very people who advance the BEME approach are those who are influential in medical education. She argues that they do this in reaction to medics. The proponents of BEME tend to be doctors or academics who are well versed in natural science research, who value robust quantitative data and who largely take a positivist stance and who may not give due consideration to the interpretivist perspective.

Greenhalgh and Russell (Greenhalgh and Russell, 2005) also criticise the evidence-based approach to policy making. Their arguments are equally valid in the context of medical education. They argue that those who promote evidence-

based policy believe that there are ‘*technical solutions to what are essentially political problems*’. They refer to Aristotle’s philosophy of *analytic, dialectic* and *rhetoric* elements in ‘argumentation’, and argue that

“*most modern-day scientists (including those in the evidence-based medicine movement) hold that “rationality” is restricted to analytic argument*” (page 35)

that is “*logical argument using premises based on certain knowledge*”. However, according to Aristotle, all three aspects are valid. Greenhalgh and Russell expand on this to conclude that:

“*There never will be a ‘generalizable evidence base’ on which managers and policy makers will be able to draw unambiguously and to universal agreement ... there never can be a policy that is unambiguously ‘evidence based’.*” (page 37).

Policies (and I would argue educational interventions) are not decided on the basis of robust evidence, but are determined by the dynamic interaction of people, using skills or *rhetoric* and *dialect* to influence and create shared notions of meaning.

My approach to this research is therefore pragmatic, albeit based on an underlying interpretivist belief system. I have sought to identify meaningful research questions, to utilise the most appropriate methodology to answer them and to present my findings and conclusions as honestly as possible. Throughout I have been aware that however detached and independent I have aimed to be, the

very activity of conducting the research may have influenced the data and the findings. I will discuss this issue of reflexivity later in this chapter.

### **2.3 Methodological Approach**

I want to find out whether a widespread belief that students from an ethnic minority (specifically Asian British) are more likely to fail their end of first year exams than students from other ethnic groups, whether students are benefiting from the most appropriate learning environment, and if not whether this is something that can be addressed through intervention or change in provision at the Medical School.

From these aims I have derived the following research questions.

1. Is there a link between student ethnicity and their performance in end of year exams?
2. Is the experience of medical students at this medical school conducive to effective learning?
3. What, if anything, could be done to improve students' learning?

In order to explore these three questions I will draw on data from a range of sources including past and present students, teaching staff, and empirical observations of the educational setting. I shall now explore the rationale behind my chosen methodology in each area, but the detail of each stage in the research will be explored in the relevant chapter.

### 2.3.1 Survey Methods

A major methodological approach adopted in this thesis is that of the survey. The two most popular survey methods are questionnaires and interviews. I decided to use questionnaires in the case of the students and a combination of pre-interview questionnaire followed by a structured interview in the case of the staff.

According to Cohen and Manion (Cohen and Manion, 1989) interviews give more opportunity than questionnaires to probe and question. Specifically they give scope for follow-up or elaboration questions that can clarify responses and encourage fuller responding leading to fuller data. However questionnaires may reduce sources of researcher error or bias since each respondent is asked exactly the same question. Interviews open the possibility for inconsistency in questions asked, particularly when more than one person conducts the interview. They conclude that the overall reliability of questionnaires is 'fair' as opposed to 'quite limited' for interviews. However, the design of a questionnaire may also cause 'response bias' particularly through the use of leading or ambiguous questions or an imbalance in positively and negatively phrased questions. Moreover, whether the survey technique is a questionnaire or an interview the sample may not be representative of the relevant population.

Boynton and Greenhalgh (2004) writing in the British Medical Journal, and therefore by definition within a medical context, are perhaps even more cautious about the capacity for questionnaires to provoke quite such confidence in the

reliability of the data produced. They advise researchers to exert extreme care when designing such surveys since elementary methodological errors are common. As Boynton and Greenhalgh explain, reliability is concerned with whether the research tool is likely to produce a consistent response from repeated samples and/or different researchers asking the same group; while validity is concerned with whether or not the tool measures what it claims to measure. Questionnaire design can be vulnerable to both types of error for reasons set out above, and I discuss the specific threats to reliability and validity further below, and where I present the findings of the research.

To reduce the danger of low validity and reliability, Boynton and Greenhalgh recommend using an existing tested questionnaire where possible. Unfortunately this was not an option in my case, as the area that I wanted to explore was not one that had been researched before, or at least I was not able to locate an existing questionnaire. However, I was able to use an existing framework, which was the standard evaluation questionnaire already in use in this Medical School.

Cohen and Manion point out that interviews have a good rate of return in contrast with the usual poor rate of return for questionnaires, although securing commitment to take part may be more difficult. Questionnaires, on the other hand risk respondents finding it easier to decline to complete an anonymous survey than to refuse to answer questions in a face to face interview. As Denscombe points out (Denscombe, 2002) both interviews and questionnaires rely on the subjects of the research being “*willing to give their time and effort to help the*



*investigation*” (page 73). There is clearly not the same relationship between researcher and subject as there might be if the subject were an inanimate object or phenomena such as weather patterns for example. Thus, survey research involves sampling, if only on the basis of collecting data from those who choose to engage with the data collection and not those who choose not to and is therefore at risk of bias if relevant representative participants opt out.

In collating the data I had the advantage of relative anonymity. Certainly at the start of the project I was unknown to all but a handful of students. As I was not part of the teaching staff I was regarded as independent, or at least detached, by the staff. As the project evolved I became increasingly involved in the course and my position regarding the staff became more complex. However at the time the staff interviews were conducted I believe I was regarded as an independent researcher. I will explore the detailed design of survey instruments in the relevant chapters, for now I note that survey methods rely on the knowledge and perceptions of participants and it is helpful to triangulate data from a number of different stakeholders or experts with observational or related physical evidence. I designed the questionnaires with a combination of open and closed questions. The details of the actual questions and the reason for their inclusion will be presented in later chapters. I chose to use both open and closed questions because of the breadth of data that this would produce.

Robson (Robson, 2002) highlights the possible dangers inherent in questionnaire design. These dangers are echoed by Boynton and Greenhalgh (2004). I worded the questions to take account of these dangers. As a result I tried to keep the questionnaire short, used simple but not condescending language and tried to ensure that all questions could be answered. For example regarding housing, although I felt that I had covered every possibility in the range of housing types I included the option 'other' to ensure that if I had omitted an option a respondent could still make a selection. I also ensured that the possible responses related to one dimension; for example 'a lot more studying time' through to 'a lot less studying time', as opposed to 'a lot more studying time' through to 'easier work'. Before I administered the survey to the chosen population, I asked colleagues to complete it, and I adjusted questions in response to their comments.

Closed questions have several advantages when it comes to analysing the results. Since each respondent has answered the same question it is possible to make comparisons between various groups. In order to analyse the responses I gave each one a numerical value, for example 'Strongly Agree' = 1, 'Agree' = 2, 'No opinion' = 3, 'Disagree' = 4 and 'Strongly Disagree' = 5. I could then arrive at percentages of response in each category. Furthermore I could get an average response from a particular sub-group. For example, the average response of Female white students living in University-owned accommodation compared with that of Male British Asian students living in their permanent home address. This level of detail makes it possible to interrogate the data in some depth.

There are also disadvantages, however. Firstly there can be a danger of over-reliance on the statistical analysis. It is important to be vigilant about the scale as well as the detail of the question. For example it may be that a large proportion of the population score an average of e.g. 5 Strongly Disagree, while another group score an average of e.g. 4 Disagree. In effect this may not be very important, since what one person classifies as Disagree, another may classify as Strongly Disagree.

Perhaps the biggest disadvantage, however, is the aspect that may also strengthen validity: closed questions by definition close down the area under investigation. The researcher who designs the instrument determines the contested area. In an attempt to counter this problem I invited respondents to give their own comments. The disadvantage of this is that I then had to devise a way to analyse the open comments. Boynton and Greenhalgh (2004) highlight the problems inherent in the analysis of open comments, not least of which is that the process can be extremely time consuming.

I had a similar problem with the interviews that I conducted with the staff. In order to avoid my own preconceptions tainting the research I wanted to give the staff as free reign as possible to determine the content. However I did not have unlimited time and nor did they. In an attempt to give the discussions some structure, I sent the respondents a pre-interview questionnaire. This had a dual

purpose of giving me some insight into the key issues, but also of contextualising the research for the respondents.

I allowed an hour for each interview. I regarded this as a reasonable amount of time both in terms of imposing on their good will and to maintain focus on the relevant issues. I acted on Robson's advice and used the answers from the questionnaire as prompts for the interview (Robson, 2002). This led to a fairly unstilted conversation between me as the researcher and the respondents.

The decision to use questionnaires to gain data about the students is open to debate when considered in the context of my epistemological position. I realise that critics may question such a positivist approach from an avowed interpretivist. I chose this methodology because I believe that it is a valid and reliable approach, but also because of my knowledge of the subject group. As Medical Education Developer I regularly ask the students to evaluate their courses. Students are reluctant to engage in this activity. This has become a problem such that senior management issue warnings to the students at the start of each year reminding them of their ethical and professional duty to engage in this type of research. Evaluation is intended ultimately to improve the course and regardless of whether an individual will benefit directly as a result each student has a duty to engage.

In the original design it was agreed that the prospective survey would be compulsory (this is the research that is reported on in Chapter 7). However, a few days before it was administered, a senior manager reversed this decision.

Ideally I would have liked to triangulate the questionnaire findings and explore them further through focus groups. However this proved impossible as when I arranged six such sessions, such small numbers attended (from none to a maximum of 3) that I abandoned the exercise. Boynton, Wood and Greenhalgh (2004) discuss the problem of reaching hard to access respondents, but they focus on non traditional respondents such as disempowered and alienated members of society in broad surveys. In this case the main issue of encouraging medical students to respond seemed to be more complex, and a combination possibly of apathy, disinterest and a factor of anonymity. All of which may be factors in the subject of the study itself: students' attitudes towards their studies.

### **2.3.2 Survey Data Analysis**

If the collection of data through interviews and open questions is problematic, the analysis of the data is fraught with difficulties. As Robson (Robson, 2002) stresses the fundamental issue is that the researcher must be able to demonstrate how they got from their data to their conclusions (page 459).

I have approached the data analysis as a reflective practitioner. I was influenced by the principles of grounded theory, which was originally described by Glaser and Strauss (Glaser and Strauss, 1965) but is explained in detail by Robson (Robson, 2002). Grounded theory involves the generation of a theory to explain what is central in the data. This involves three stages. The first stage is to find

conceptual categories in the data, secondly to find relationships between the data and thirdly to “*conceptualize and account for these relationships through finding core categories*” (Robson, 2002). However much my approach was influenced by grounded theory, it can not be categorised as such because the design of the pre-interview questionnaire and the semi-structured nature of the interview were not unguided by theory and the final stage does not give rise to a new theory. While my aim is to be as impartial as possible so that the major themes and issues emerge with minimum influence from me, the design of the questionnaires prevents a wholly impartial approach. The respondent is unavoidably guided in their response to consider aspects that I had predetermined to be the contested area. In interpreting the results from the open comments, however, I feel that I have acted closer to the principles of grounded theory, I read through the data to identify recurring issues, categorised the issues as they emerged, and revisited the data repeatedly in an attempt to identify common and/or contradictory issues. However, ultimately I have developed my own approach to analyse the data, which is a reflection of my habitual pragmatic approach, rather than a slavish adherence to one theory or another.

This type of analysis is not without danger to validity. Robson terms this “*the deficiencies of the human as analyst*” (Robson, 2002, page 460). The issues relate to the nature of the data, such as a high volume, whether or not information is easy to obtain or not, and whether that which is easy to obtain is given disproportionate attention compared with that which is difficult to obtain. He also

discusses bias in the researcher, for example to ignore information that conflicts with an hypothesis, or to devalue the novel or unusual. Alternatively, to over or under react to new information may be a problem. He also refers to the danger of being over confident about a judgement once it has been made. As with all researchers I am human and therefore prone to deficiency. Consequently, although I would agree that most of the comments from staff and from students tend to tell a similar story I am aware of the requirement to include all issues and not just those that I consider to be important.

### **2.3.3 Observations**

In addition to interviewing and surveying staff and students I include direct observations. Denscombe (Denscombe, 2002) points out a danger inherent in this approach:

*“social researchers need to be aware that people act differently as a direct consequence of their awareness of being studied. They might be embarrassed by the attention they are receiving. They might feel flattered. They might feel threatened. Whatever, there is the very real prospect that they will cease to act ‘normally’. This is known as the ‘halo’ effect.”*  
*(page 107)*

This ‘halo’ effect may be a factor with the questionnaires and interviews too, but it seems that direct observation is most likely to lead to this sort of distortion. However, as Robson (Robson, 2002) explains, observation also has advantages.

*“A major advantage of observation is its directness. You do not ask people their views, feelings or attitudes; you watch what they do and listen to what they say”.* (page 310)

He goes on to identify the disadvantages too. Like Denscombe, Robson points to the danger of the researcher affecting the situation. He also points out that observation is a time-consuming technique.

I have chosen to include direct observation in this case study for several reasons. Firstly in a desire to triangulate the views of students and staff, for example I wish to experience the curriculum as received by the students, and not rely solely on the reported views of the staff and students. Secondly I am aware that no-one apart from the students themselves has done this, partly because of the time involved.

I have used a narrative approach to observation. Over my career as a staff developer I have had experience of observing teaching sessions, usually with the aim of providing formative feedback to the teacher involved. It is therefore true that I approach the experience of observing the students’ learning with a particular set of personal beliefs regarding what constitutes ‘good teaching’. I have aimed, however, to be open-minded about the nature of the experience, and to take a largely unstructured approach. This involves taking notes, recording the key events in, for example, a lecture, but it is highly impressionistic. I



acknowledge these criticisms, but hope that the combination of data sources will help to alleviate the inevitable bias incurred by each method.

To be more specific, the notes taken during the observation treat each learning event as a separate entity. In each case I follow Robson's guidance and record the following: space, actors, activities, objects, events, time, goals and feelings (Robson 2002, page 320). In addition to recording my own views I asked randomly selected students for their comments. I kept a field diary with standard headings for each of the learning events.

The analysis of the data produced as a result of the observation raises similar issues to those found in analyzing interviews and open comments. As Robson (Robson 2002, page 326) suggests I was driven at all times by the research questions. I used a similar approach to that described above regarding questionnaire data, in that I analysed each of the teaching sessions under observation to draw out common themes and concerns. The detail of this is discussed in Chapter Eight.

#### **2.3.4 Threats to Validity**

Validity is concerned with whether or not the tool measures what it claims to measure. Robson (Robson, 2002) identifies three ways in which qualitative research, in particular, may be threatened in terms of the validity of the method used. These are *description*, *interpretation* and *theory*.

A piece of research may be invalid if the *description* is incomplete: in other words if the data is either inaccurate or fails to give the whole picture. Similarly the validity may be questioned if the researcher imposes

*“a framework or meaning on what is happening rather than this emerging from what you learn during your involvement with the setting”* (page 171).

One way of demonstrating the validity of an interpretation is to be able to show the route by which you arrived at your *interpretation*. Finally, the third threat of *theory*

*“is in not considering alternative explanations or understandings of the phenomena you are studying.”* (page 172).

My choice of research methods has been based, in part, on a desire to avoid these three threats, however I am aware that regardless of intention it is possible that I have failed to prevent all elements of bias. In terms of description: I used a range of data collection methods, but I also aimed to be as rigorous as possible to ensure that I did not tell an incomplete story.

I did approach this research with a set of personal beliefs and previous experience which may well have influenced my interpretation of the data. However my interpretation did change during the course of the enquiry, and I can chart that development. I therefore hope that I can justify this interpretation.

Finally in arriving at this interpretation I have explored a range of educational theories, rather than relying on one. However, I feel that the various theories seem to point to a similar conclusion, and so I am open to the criticism that I may have given weight to theories that match my interpretation. However, I am not aware consciously of having done so, nor of rejecting any theories.

Robson suggests a range of strategies to avoid potential threats to validity. He refers to Lincoln and Guba's (Lincoln and Guba, 1985) classification of '*reactivity*', '*respondent bias*' and '*researcher bias*' and considers each strategy in terms of their affect on each. I shall return to this classification in Chapter Ten to explore whether I made appropriate use of the strategies and can therefore claim to have reduced the chances of producing invalid results.

Lincoln and Guba's first classification of '*reactivity*' relates to the effect of the researcher on the respondent, in other words, the extent to which the researcher him or herself becomes a factor in the research. As I have argued earlier in this chapter, I think that it is unlikely that a researcher would not have an effect, even if it is simply at the level of deciding to engage in the research at all. I feel that it would be disingenuous of me to claim that I am an impartial observer. I have therefore tried to reduce the impact of my views, position, or personality on the outcomes, by triangulating the data as much as possible, and by asking as wide a range of respondents as possible.

Lincoln and Guba's second category of '*respondent bias*' refers to a range of behaviour from respondents giving the answers that they perceive the researcher desires, to the opposite extreme of respondents deliberately withholding information or even deceiving the researcher. I hope that the range of data sources used in this research will reduce this threat as well as that of reactivity.

Lincoln and Guba's third category of '*researcher bias*' refers to the researcher imposing their own preconceptions and assumptions. This is similar to Robson's concerns with interpretation and theory, which I discussed earlier.

With regard to questionnaires Boynton and Greenhalgh (2004) identify specific threats to validity, reliability and reproducibility of data. They do acknowledge, however, that

*'A standardised questionnaire is one that is written and administered so all participants are asked the same questions in an identical format and responses recorded in a uniform manner. Standardising a measure increases its reliability.'* (p1313)

## **Summary**

This thesis presents the results of an investigation into a particular phenomenon at Birmingham Medical School. However it also charts my personal development both as a researcher, and as a participant in the field of study. My position as Medical Education Developer and researcher is full of tensions and contradictions. I am passionately interested in effective learning and I am committed to

improving practice through a reflective cyclical approach. Many of the subjects in the study (first year lecturers) regard me as an outsider, both in terms of my role in the Medical School Education Unit (MSEU), and professionally as a staff developer.

My professional background leads me to experience the world according to a social constructivist approach and from an interpretivist standpoint. However, because I wish to be perceived as credible by these colleagues I have felt obliged to take a more positivist approach than might otherwise have been the case.

In the next chapter I will review research literature as it relates to learning theory, providing an effective learning environment and meeting the learning support needs of medical students.

## **Chapter 3: Effective Learning and Learning Theory**

### **CHAPTER 3 – EFFECTIVE LEARNING AND LEARNING THEORY**

How do people learn and what constitutes effective learning? In particular, what is effective in the context of education for potential doctors? A review of the literature in this field reveals substantial support for a student-centred, activity-led, social constructivist model of education particularly where the aim is to encourage deep learning, rather than a superficial or surface approach to learning which is engendered by rote learning. (Marton and Saljo 1976; Marton and Saljo 1976). Potential doctors need to be able to take control of their own learning and to apply what they learn in the clinical context. It is not sufficient to be able to name the bones of the body, for example, if they are unable to identify what, and even whether, there is something wrong with the patient.

Research into education in general has shown that students learn more effectively when the learning is student-centred, i.e. they are able to have some control over the pace and content of the learning, and when there is sufficient opportunity for student interaction, activity and reflection (Kolb 1984; Gibbs 1992; Laurillard 1993; Race 1999). Research into the more specific area of medical education has supported these general observations (Sweet, 2003; Jolly, 1998; Dent, 2001; (Dent and Harden 2005).

First year students are in a transition period as they emerge from childhood and become young adults. The students in this study are mainly 17 or 18 years old,

although there are some more mature students in the cohort. As young adults they are developing into independent learners who need the skills to take responsibility for their own learning (Knowles 1990). This is not a sudden transition but in most cases a gradual development. Students need help to make this development, and a scaffolded process has been found to be an appropriate method.

Graham Gibbs (Gibbs 1992) discusses the desirability of encouraging students to take a deep, rather than surface approach to their learning. His work draws on that of Marton and Saljo. A deep approach is characterized by the student who sees learning as a process by which he or she transforms what is taught so that his or her understanding of the subject is changed. A student who takes a surface approach aims to replicate what is taught, without creating new meaning for him or herself. In contrast, deep approaches lend themselves to identifying relations across and between topic themes and between personal experience and more abstract representations of theory and practice. For example, Scouller (Scouller 1998) has demonstrated that essays encourage a deeper approach to learning than multiple-choice answer papers. Gibbs observed that courses associated with students who take a surface approach to learning, tend to have the following characteristics:

- a heavy workload;
- relatively high class contact hours;
- an excessive amount of course material;
- a lack of opportunity to pursue subjects in depth;



- a lack of choice over subjects and a lack of choice over the method of study;
- a threatening and anxiety provoking assessment system.

Chickering and Gamson (Chickering and Gamson 1987) identify seven principles for good practice in undergraduate education:

1. encourage contact between students and faculty;
2. develop reciprocity and cooperation among students;
3. use active learning techniques;
4. give prompt feedback;
5. emphasise time on task;
6. communicate high expectations;
7. respect diverse talents and ways of learning.

The description of the medical school given in the last chapter suggests that increased student numbers without a proportionate increase in teaching staff and the demands of research on staff have led to increased workload for staff. This, coupled with a lack of teacher training, might result in a curriculum that is restricted in terms of supporting deep approaches to teaching and learning.

Lave and Wenger's model of Communities of Practice (Lave and Wenger 1991) further suggests learning involves more than the individual; it is essentially a social activity which emerges from our experience as we participate in everyday

life. They argue that 'situated learning' emerges from involvement in a community of practice. Individuals are involved in a number of communities of practice, at home, at university and at work. In some they are core members in others they may be on the margin.

Some communities of practice are rigid and formal, others are more fluid and informal. A community of practice is more than a geographically located group, or a set of people with a common interest. A community of practice has a commonly understood purpose, mutual engagement binds the members together and there is a 'shared repertoire' of communal resources such as routines, expert vocabulary or conventions that have been developed by members over time. The group has a recognisable identity that can be seen in the resources it develops and these embody some of the accumulated knowledge of the community.

Lave and Wenger describe how people become part of a community of practice. In the early stage they are at the edge or periphery. As they become more competent they move nearer to the centre. Learning, in this model is not a process of acquiring facts or performing skills, rather it is a process of enculturation in which individuals increasingly occupy a more central position.

Medical students are involved in a medical community of practice, as well as an academic community of practice, particularly in the early years of the course. Over time they learn how to be part of the medical students' community of

practice, then subsequently the medical community of practice. They learn to become doctors.

From this perspective, medical students' interaction with each other, with students in other years through medical school events and societies; through those they meet via their accommodation and more informal social events, is more than a by-product of medical school experience, these interactions *are* the learning.

Learning is

*“an evolving, continuously renewed set of relations” (page 50).*

This model of learning places relationships in a much more central position than does experiential learning, although there are links and similarities. Experiential learning emphasises the value of carrying out a task or applying a concept in an authentic situation to generate deep understanding of underlying principles as well as competence in arenas of practice. Brown, Collins and Duguid (Brown, Collins and Duguid, 1989) explain how ‘situated learning’, that is, learning in the context where the knowledge will be used, acknowledges and emphasises the importance of social interaction in the process. Thus a medical student could learn to take blood pressure by first observing a clinician, and then performing the task themselves. According to situated learning, the student would by participating in authentic situations also absorb the professional’s use of language; the words used to speak to a patient may be different from those used when speaking about the patient to a specialist in hypertension. In addition, the student may absorb the expected way to touch a patient, and so on. For Lave and

Wenger, learning is about the relationships between people, rather than the accumulation of an hierarchically organised body of facts structured to form a knowledge base; the function of education is to enable learners to become participants in the relevant community of practice, and there is an intimate connection between knowledge, social interaction and activity.

Bernstein (Bernstein 1990) analyses educational institutions in terms of competence or performance based approaches. In competence based education the focus is on what the learner brings to the learning situation and on what they have the potential to acquire. Learning occurs in various places, and is at the student's pace. Learners are encouraged to decide what they need to learn and when, in order to become competent in a field. In contrast performance based pedagogy is centred on assessment, on identifying what the learner does not know. Learning is controlled by the teacher, since it is the teacher not the learner who has the authority to determine the content of the curriculum. Implicit in Bernstein's analysis is the suggestion that competence based approaches lead to self-motivated learners able to manage their future learning, while performance based approaches lead to a short-term superficial approach to learning.

Bernstein identifies a polarity of classification and framing in education which evolves from a post-Marxist analysis of society (Bernstein 1971). Collection codes are characterised as discrete groupings of units of education, the 'old' course at Birmingham is an example of this whereby physiology was taught

separately from biology or psychology. Integrated codes have an underlying unifying principle, but the boundaries of different subjects is blurred, for example in Infant School teaching in England prior to the introduction of the National Curriculum, where one teacher taught a group of pupils across the curriculum. Framing refers to the pedagogy – the mode by which the content is taught, with strong framing referring to systems tightly controlled by the teacher, weak framing where the student has more control over the timing and pace of delivery. If the ‘new’ course at Birmingham is indeed integrated, then it will show features of Bernstein’s classification such as a blurring between the boundaries of the various units. If the framing has become weaker, there will be evidence of greater horizontal relationships between teaching staff from different subjects, as opposed to just vertical relationships between teaching and managerial staff within a subject.

Colditz and Sheehan (Colditz and Sheehan 1982) surveyed first year medical students to establish their interpretation of the classification and framing of their course and the subsequent effect on learning. They claimed that strongly classified and framed subjects only encouraged the skills required for factual recall. Weakly classified and framed subjects failed to encourage these skills, but encouraged self-educative interpersonal and professional skills. They concluded that it is not sufficient to change the quantity or type of a curriculum in order to encourage these latter skills, but that it is vital to change the teaching styles and curriculum structure as well.

Vygotsky's (Vygotsky 1978; Vygotsky 1987) socio-cultural approach regards learning as a complex procedure which does not simply involve the transfer of ideas, knowledge or skills from one person (the teacher) to another (the student). The process of learning is viewed as an activity during which the learner's view of the world changes. As Anne Edwards (Edwards 2002) says, from this perspective learning involves the ability not to simplify and reduce, but instead to form ever more complex inter-relationships and to deal with those complexities. Learning is often conceptualised as a process whereby something that is perceived as being mysterious or complicated becomes simplified and accessible. From a socio-cultural perspective learning has in fact, the opposite outcome. Rather than simplify, or as well as simplifying a component of the phenomenon under investigation, the process facilitates the student's ability to appreciate other more complex and inter-related aspects.

The context in which learning takes place is significant: learning does not take place in a vacuum. Furthermore, effective learning involves integrating new knowledge with what was previously learnt not in a simple 'building block' or quantitative sense, but more like making a cake where the whole is something quite qualitatively different from its constituent parts. Rather than being a process of simplifying something complex, learning is a process whereby the student is enabled to comprehend complexity and inter-relation (Vygotsky 1978; Edwards 2002). This perspective is reflected in the integrated approach to learning

advocated by many, including some involved in medical education (Gibbs, Morgan et al. 1998; McCrorie 2005). While students may say they prefer a simplified approach to learning, as proto-doctors they are required to learn about complex issues so that as doctors they are better equipped to reach the correct diagnosis when presented with a patient with multiple facets and symptoms.

As Bleakley (Bleakley 2006) has argued, Vygotsky's social constructivist approach has not attracted as much attention in medical education as other individual constructivist models such as those of Kolb. Bleakley argues that this is because of the paradoxical nature of medicine – a field in which team work is acknowledged as essential but the very structures of reward and progression value individual effort.

Bernstein (Bernstein 1971) refers to the 'ultimate mystery' of a subject; something which is traditionally revealed to a student late in their educational career, such that the majority never appreciate the uncertainty of knowledge and the arbitrary nature of classification. It is this demarcation of knowledge that protects the power of those who have achieved the exalted level of expert from those without the power who have been excluded. Bernstein describes the behaviour of typical academics in terms of such power struggles. Those with power: the experts, wish to maintain their position, but that position relies on less powerful novices desiring the information i.e. learning, that they, the experts, control. In many academic disciplines the expert remains aloof from the novice,

even when the educational course has concluded, only a very few (i.e. Ph.D. students, junior academics) will aspire to join the experts, ultimately, as peers.

Medical students are in a different situation. Unlike many undergraduate degree courses, where a student's ultimate career choice could be in a number of directions, from day one of the course there is an assumption that the vast majority will become doctors. In the first two years of the course students are taught almost exclusively by academics, (i.e. not medical doctors) who will regard the students in the same power paradigm as they will other undergraduate students. However, the rest of the course is delivered almost exclusively by members of the student's future profession.

In UK society, doctors maintain an exalted social position. The social standing of university lecturers has declined in the last fifty years. An example of this can be seen in the stark contrast in earning power. The people who teach the students in the first two years will earn a salary, depending on age and experience of between £20,235 and £47,685 if they are non-clinical academics, whereas clinical lecturers are employed by the University on a scale from £28,930 rising to £75,404 for the most senior (University of Birmingham, 2006a and University of Birmingham, 2006b). Clinical teachers who are employed by the NHS (National Health Service) either as hospital consultants or General Practitioners and who provide most of the teaching in the last three years of the course, are not employed directly by the University, and would typically command a salary in



excess of £120,000. Whether we approve of this or not, the salary attached to a role is a short-hand reference to the value afforded to the position by society.

Bernstein's (Bernstein 1990) description of the power relations between academics and students is complicated in this context. In relation to the academics, the students are unlikely to achieve the 'ultimate mystery' since they will not progress as far as the average biological science undergraduate who will spend an additional year studying the subject. They will, however, achieve the 'ultimate mystery' in medicine when they eventually reach the expert level of consultant or G.P. In order to reach that level they will learn how to apply their learning from the early part of the course, but they will remain permanently separated from the professional concerns and interests of the non-medical experts.

The people who teach students at university are not generally regarded as belonging to the same profession as the people who teach pupils in school. Whereas people who teach under 11 year olds and people who teach 11 to 18 year olds are regarded as belonging to two distinct groups, they all fall under the general description of school teachers. Teachers in universities are called 'academics' and traditionally are regarded as experts in their field; at the boundary of knowledge, engaged in creating new knowledge, who share some, if not all, of their expertise with the novice student: Bernstein's 'ultimate mystery'. They fulfill two functions: that of researcher and of teacher. There are numerous

accounts of the way in which these two functions have become polarised, particularly in recent years.

Before the reorganisation of universities in 1992 the distinction was most noticeable between types of institution with the highly prestigious academic universities such as Oxbridge and 'red brick' universities like Birmingham at one extreme and teaching-only institutions such as Colleges of Higher Education (HE) at the other. In the last fifteen years universities have come under increasing pressure to be financially viable which has, in many cases, translated into an emphasis on being research active and winning competitive tenders for funded research projects. Current government policy for HE emphasises this and furthermore promotes a division of labour between individuals with some focusing on teaching and others on research (2003). There is a division between those declared research active (according to assessment criteria), and who are therefore relieved of some teaching duties, and those who take an increased teaching load and who therefore have less and less opportunity to become research active because they are judged not 'research active'. This predicament has been recorded by numerous researchers (McNay 1997; Henkel 2000; Becher and Trowler 2001; Hartley 2002; Rowland 2002). As Hartley has said (Hartley 2002):

*“universities have become sites of contested identity, where, for example, research professors and the ‘research active’ become the other in relation to whom the less research active defend their previously constituted selves in terms of now devalued criteria.”* (page 203).

The tensions experienced by academics who teach first and second year medical students can be summarised as:

- Potential contempt for students who will never know as much as them about the subject.
- Potential resentment of students who are destined to be more highly valued by society than them.
- Potential frustration that by taking a teaching role they are hampering their potential career as a researcher.

McCrorie (McCrorie 2005) describes what he calls an old style medical course. He explains that traditionally medical courses consisted of two years pre-clinical study when students learnt the basic biological and behavioural sciences, focusing on the normal rather than the abnormal. This served as basic knowledge on which to build in the following three years of clinical study, during which students were presented with patients suffering from a range of complaints. This approach has its merits, in particular in giving the student a framework of how the normal body functions, against which he or she can compare the abnormal. However, the disadvantage of this approach was inherent in the way this type of course was usually taught. Students were taught by academics from a range of disciplines: e.g. physiology, anatomy, psychology, ethics. This led to the prevalence of repetition, factual overload, lack of relevance, lack of integration and an emphasis on teaching rather than learning. In Bernstein's terms this was a clear example of collection codes and strong framing. Each discipline aimed to teach the students

as much as possible about their own subject with virtually no knowledge of, or interest in, the contribution of the other disciplines.

In 1993 The General Medical Council (GMC) (GMC 1993) who validate UK medical courses, insisted on

*“a radical transformation of all medical school curricula”* (page 231).

As a consequence Medical Schools were required to implement an integrated curriculum. Amongst a range of recommendations the GMC emphasised the need for students to learn how to learn. For that reason they stipulated that at least a quarter of the curriculum should be determined by the students themselves. Some schools chose to take a Problem Based Learning (PBL) approach, but many, including Birmingham, retained a traditional curriculum. However, rather than teaching the discrete subjects of anatomy, biochemistry, pharmacology and physiology etc; the course was designed around body systems and included some modules in which students could determine the content.

This reflected the recommendations in the report Tomorrow’s Doctors (GMC 1993) which makes reference to learning theory and states the following principles:

*“a. The burden of factual information imposed on students in undergraduate medical curricula should be substantially reduced.  
b. Learning through curiosity, the exploration of knowledge, and the critical evaluation of evidence should be promoted and should ensure a capacity for self-education. The undergraduate course should be seen as the first stage in the continuum of medical education that extends through professional life ...*

- e. A 'core curriculum' should be defined, encompassing the essential knowledge and skills and the appropriate attitudes to be acquired at the time of graduation.*
- f. The 'core curriculum' should be augmented by a series of 'special study modules' which allow students to study in depth areas of particular interest to them, which provide them with insights into scientific methods and the discipline of research, and which engender an approach to medicine that is questioning and self-critical.*
- g. The 'core curriculum' should be system-based, its component parts being the combined responsibility of basic scientists and clinicians integrating their contributions to a common purpose – thus eliminating the rigid pre-clinical/clinical divide and the exclusive departmentally based course.*
- h. There should be emphasis throughout the course on communication skills and the other essentials of basic clinical method...*
- k. Learning systems should be informed by modern educational theory and should draw on the wide range of technological resources available. Medical schools should be prepared to share these resources to their mutual advantage.*
- l. Systems of assessment should be adapted to the new style curriculum, should encourage appropriate learning skills and should reduce emphasis on the uncritical acquisition of facts."*

McCrorie argues that the ideal approach is to design the curriculum around cases, such as e.g. 'shortness of breath' or 'heart pain'.

Some medical schools chose Problem Based Learning (PBL) to deliver their course. In Problem Based Learning students are given a problem, query or puzzle which acts as a trigger for their learning (Boud and Feletti 1997).

As Boud and Feletti describe it PBL has the following characteristics: students are given stimulus material which presents a 'real life' situation as a simulation of professional practice; they are guided by a facilitator to define and attempt to resolve the problem; they work co-operatively with other students; identify their own learning needs; seek to meet the needs by accessing appropriate resources;

then finally reapply the new knowledge to the original problem and evaluate the learning process.

Since this process embodies the characteristics both of active learning but also the professional doctor model, PBL has proved to be exceptionally popular with many medical educators.

The approach began in Canada at McMaster University in the 1960s, where the entire curriculum was based on PBL. Unusually for such a radically new educational innovation, the McMaster's model was quickly taken up by medical schools across the world: the University of Limburg at Maastricht in the Netherlands, the University of Newcastle in Australia, and the University of New Mexico in the United States. During the 70s and 80s there was a gradual increase in medical schools using the PBL model. Now we are at the stage where PBL is no longer regarded as a maverick idea, with most schools including an element of PBL in their curriculum, if not going the whole way with a pure PBL course. Harvard Medical School, in the 1980s, adopted a hybrid model which has also had extensive influence over traditional medical schools across the globe. This hybrid model uses a combination of PBL approaches but includes traditional methods such as lectures (Boud and Feletti 1997).

Boud and Feletti explain the popularity of PBL as arising from the following characteristics: it takes account of how students learn, it is impossible to teach

medical students everything they will need to know in their career as a doctor, therefore they need to be able to learn quickly and independently when they need to; doctors feel the context of learning is more relevant, it fits well with constraints in HE where there is a need to respond to changes in professional practice; it can be delivered in the context of large institutions.

Regardless of whether a PBL approach is used, McCrorie argues that the emphasis should be on ensuring that

*“students have a thorough grasp of concepts and principles; that they know how and where to fill gaps in their knowledge; that they appreciate that medicine is not a static discipline, and that keeping up to date with medical advances is a lifelong process; and that learning is interactive, exciting and above all, in context”* (McCrorie 2005, page 236).

McCrorie insists on keeping the ultimate needs of the student as doctor in the forefront. He argues that the disadvantage of the old subject based approach is that the subject specialists always want the students to learn the subject in far greater depth than they will need as doctors. This adds to the overburdening of the content and assessment. McCrorie’s view of a modern medical course is one where the students identify what they need to know in order to apply it in context. It may not be necessary for a ‘basic or clinical scientist’ to teach medical students the basic and clinical sciences, since with appropriate resources, motivation and possibly access to experts when needed, students can teach themselves. The key is to provide the appropriate context to trigger the learning.

Medical students learn most of their knowledge, particularly in the later years of the course, from their future colleagues, i.e. doctors. This involves more than the acquisition of facts, nor is it merely a matter of learning in context. As Bruner (Bruner 1966) argues

*“Mental growth is dependent upon growth from the outside in, a mastery of techniques that are embodied in the culture and that are passed on in a contingent dialogue by agents of the culture.”* (page 21)

The notion of learning in a professional context also links with Kolb’s influential work on experiential learning (Kolb 1984). This has had a marked effect on HE. His explanation of learning as a cycle of experience, observation, theorising and experimentation has an intuitive ‘fit’ for many when reflecting on the way learning happens. The cycle also ‘fits’ with a scientific or academic approach since this is a model that can be used equally well to describe the process of research. Kolb argues that whereas all four activities are necessary to fully make sense of a phenomenon, many of us have a tendency to emphasise one or two aspects at the neglect of the others. Furthermore teaching styles can have a similar emphasis. So, for example, a curriculum that makes heavy use of didactic lectures will not give learners the opportunity to experiment with a theory. Conversely, a highly prescriptive instructive approach whereby the learner is told step by step what to do, will not give much opportunity for the learner to observe and reflect on the experience. Kolb’s argument is that each stage is important. Like Knowles (Knowles 1980; Knowles 1990) Kolb (Kolb 1984) emphasises the need for students to be active participants in their learning, rather than passive observers. He emphasises the need for students to be actively involved in reflecting on their



learning to date then in the context of their needs, planning the next stage. In a curriculum which is highly prescriptive with most, if not all, of the learning time mapped out by the teachers in advance, students have virtually no opportunity or encouragement to plan their learning, and are consequently unlikely to learn to plan their own learning. Many trainee doctors are likely to be keen on the 'doing' in this cycle, and may find the demands of the teaching methods at odds with this as they are required to sit and listen passively to lectures.

Laurillard's (Laurillard 1993) description of how university students learn, builds on the notion of experiential learning. She, however, identifies five interdependent characteristics of the learning process. She argues that students need help with all five. They need to apprehend the structure; integrate parts; act on the world; receive feedback and reflect on their goals. Marton and Saljo's work (Marton and Saljo 1976) on deep and surface learning is repeatedly referred to in her argument. She shows how students may fail to grasp a concept as a result of a problem with one or more aspect, and while students who take a deep approach are most likely to be successful, simply taking such an approach is not a guarantee of success. A student who takes a deep approach regards the activity of learning as a connected whole, assumes that there is a binding logic or structure to the experience and will seek out the connections. A student who takes a superficial approach will focus on individual aspects such as isolated facts or disconnected concepts, and may not even be aware that there may be a unifying

structure. Learning is a much more baffling and mystifying experience for such a learner.

Laurillard (Laurillard 1993) distinguishes between academic knowledge and everyday knowledge. In a sense this distinction may be characterised as abstract knowledge and concrete experience or application. Hence in the context of medical education the basic sciences of the first two years is very much academic knowledge, while the clinical experience of the last three years may contain elements of everyday knowledge. Laurillard describes everyday knowledge as knowledge that arises from a person's direct interaction with their environment, an example in medical education could be learning what someone's skin looks like when they are suffering from severe eczema, for example. Academic knowledge arises from academics describing and interpreting the world, which by definition involves a separation from the direct interaction with the world, in the medical education this could be a description of how blood gasses interact in the process of breathing. At times 'academic' knowledge may be contradictory to the inferences that one may make based on 'every day' knowledge. For example in medical education everyday knowledge may lead one to conclude that the pain felt in the finger if it is cut is located in the finger, whereas academic knowledge of the central nervous system will explain that pain is a function of the brain interpreting messages received by the nerves in the finger: remove the connection with the brain and the pain is no longer felt.

Laurillard (Laurillard 1993) shows how academic knowledge involves an interpretation or description of the world which is necessarily mediated through signs and symbols such as words, pictures, diagrams or models. A student is required to interpret those signs correctly and express their understanding through their own use of the symbols. In the context of medical students this involves interpreting the basic science lecturers' language in order to be able to formulate knowledge which they will eventually refer back to when they apply their learning in the clinical setting.

Laurillard argues that the learner must be encouraged to see the whole picture, to actively seek to make meaning and connections. They must be actively involved in their learning since passive reception will not lead to understanding. Learners cannot learn without feedback, since this is how we make sense of the world, learning in the abstract context of academic learning is also dependent on a response, whether that is intrinsic to the student's action (e.g. assembling an anatomical model so that the pieces link together like a jigsaw) or extrinsic in the form of criticism about his or her performance in a group task. Finally, learning cannot take place in the absence of reflection. The learner may need help and guidance in order to focus the reflection appropriately.

John Sweet (Sweet, Huttley et al. 2003) describes how views of education have changed over time to take account of the 'hidden' as well as the 'planned curriculum'. He refers to the need to develop people who know how to learn

because much of what is taught will soon be out of date. Sweet refers to Kolb's work when he warns of the danger of overspecialising when what we need is a greater emphasis on the

*“development of more generic skills such as writing and communication”.*

(page 57)

*“In Kolb's learning terms, the aim is to produce self-directed persons who are highly developed in each of the learning modes: active, reflective, abstract and concrete. It is then that they may experience tension and conflict that leads to creativity.”* (pages 57-58)

Coles (Coles 1998) argues that medical educators should treat students as adults. They should create the optimum environment for students to learn, but recognise that the onus is on the students to identify what they need to learn, rather than be told what they will be taught. This echoes Gibbs (Gibbs 1992) who advocates methods that lead to a deep approach to learning.

Knowles (Knowles 1980; Knowles 1990) uses the term 'andragogy' to distinguish adult learning from pedagogy – the study of the teaching of children. He was one of the first to argue that the needs of adults are different from those of children. He argues that as students mature they need to take an increasingly active part in negotiating their learning needs and goals, reflecting on their own knowledge and experience and taking steps to fill gaps in their understanding through their own research supported by their tutor. He also advocates the provision of an environment of mutual trust and security where their experience is valued and they have a sense of ownership over the learning goals. Students require tutors to relinquish control to enable them to develop the skills to manage

their own learning through processes of scaffolding and facilitation. Thus they continue to complete the cycle of action, reflection, theorising and planning, as described by Kolb and elaborated by Laurillard. At an early stage in their education they need guidance and encouragement to complete the steps appropriately, but gradually they move to a position of independence where they can manage their learning effectively alone.

Angyris, Schon and Eraut (Angyris and Schon 1974; Schon 1991), share similar views in their respective work on professional education. Eraut, in particular, makes a distinction between personal and process knowledge. He argues that it is not enough to learn facts, the prototype professional has to learn to be reflective and to identify their own learning needs, as they learn how to put their knowledge into practice.

Heather Fry and Sharon Huttley (Fry and Huttley 2003) also recommend that we should use a range of methods and focus on the learner (not the teacher), but they also point out the need to support staff by providing appropriate resources including staff development.

The focus of this thesis is on the first year experience. While the arguments for active learning and a goal of independent life long learning are fundamental to the ultimate goal of a graduate from a medical school, students also need to learn the underlying principles and basic science. Learning covers three domains:

knowledge, skills and attitudes. Much of the first two years of the course at this Medical School focuses on the first of these: knowledge. Hence the curriculum is replete with facts, concepts and professional vocabulary. Some of these concepts are complex and stretch the academic ability of students who have, through the selection process proved themselves to be academically able. However, most of the content is not difficult to understand, the challenge is in the quantity. Doctors need more than just knowledge. They also need to acquire a range of clinical skills including physical motor skills, such as giving injections; interpersonal skills such as how to take an effective history; and must display appropriate attitudes in their behaviour towards patients and fellow professionals. The 'old course' model dealt almost exclusively with the one domain of knowledge, leaving skills and attitudes to the clinical years.

Bloom created a taxonomy (Bloom and Krathwohl 1956) which he applied to learning objectives. This classifies educational goals into a hierarchy that starts from a base of knowledge and peaks with the ability to evaluate. This is represented in figure 3.1.

He argues that while each is important for effective learning, there is a tendency to focus learning outcomes (as we would say now) on the lower levels of knowledge and comprehension, partly because it is easier to assess learning at this level than at the higher levels of synthesis or evaluation. If we are to produce independent adult learners it is vital that we enable them to become effective at

all levels. As already discussed in relation to shallow versus deep learning, a highly prescriptive, passive course with an emphasis on factual recall is unlikely to achieve that aim. However, without the underpinning knowledge, learners cannot progress further up the hierarchy.

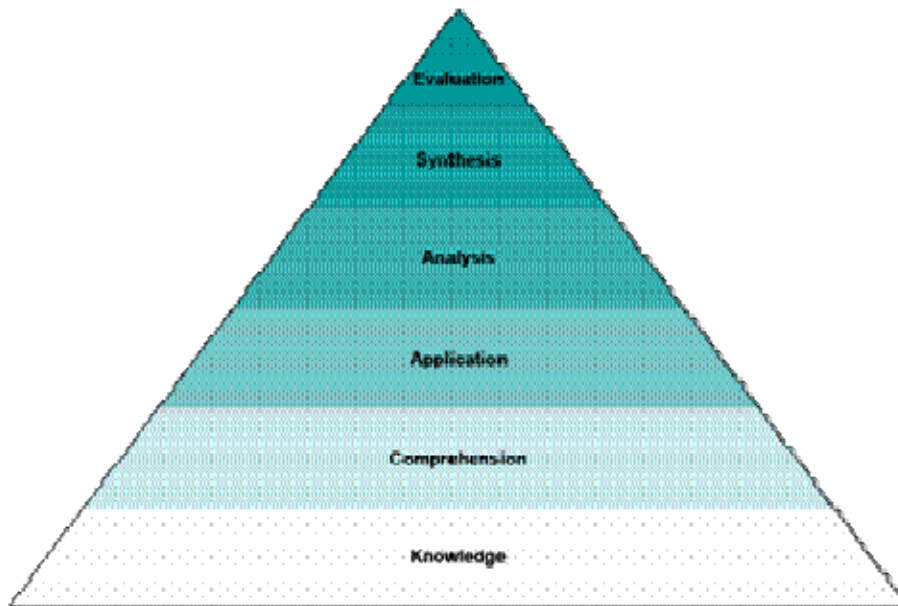


Figure 3.1 Bloom's Taxonomy (Bloom and Krathwohl 1956)

The challenge is how to provide the underpinning knowledge in a meaningful and effective way. Medical education traditionally makes extensive use of lectures; this method of teaching is not without its critics. Dent (Dent 2001) amongst others comments on the popularity of the lecture but says

*“A lengthy monologue promoting the memorisation of factual information with little emphasis on understanding or application is unlikely to be appropriate in the contemporary learning environment”* (page 63).

Lectures are seen by many traditional teachers as a compulsory element of a medical course. Wholly PBL courses, at the other extreme, do not have any. There are many who argue for their inclusion. Lectures can be extremely

effective in helping students to make relational connections, to empathise with particular patient cases or narratives, pose dilemmas and encourage students to vote on possible decisions. However, these all require the lecturer to wish to reduce the passive element of the lecture and to increase the interaction between lecturer, student and material. There are numerous texts which encourage the increase in interaction in lectures (Bligh 1971; Bligh, Jaques et al. 1981; Gibbs, Habeshaw et al. 1984; Taylor 1988; Brown and Manogue 2001) demonstrating that while lectures have a role to play in Higher Education, there is a recognition that students are more likely to learn if there is some form of interaction involved.

Gibbs et al (Gibbs, Habeshaw et al. 1984), for example, give advice regarding improving students' study skills, including how to take notes and the use of handouts, as well as techniques for the lecturer to use during the lecture, such as including activities which encourage active learning. Bligh (Bligh 1971) discusses the value of lectures, and concludes that while they are useful for conveying information they are less effective at promoting thought or changing attitudes and behaviour. However he also shows that there are wide variations in the skills and styles of lecturers, such that some lectures can be far more effective learning opportunities than others. Brown and Bakhtar (Brown and Bakhtar 1987) identified five distinct styles of lecturer. The five styles were defined according to a combination of factors such as use of media, learning outcomes, preparation style and level of confidence. Of the five styles, that of 'exemplary performer' is the style used by people who students identified as being most effective. This



group tends to consist of confident, well-structured and able presenters, who use a range of techniques, and tend to structure the lecture around questions. They formulate learning outcomes for the lecture and tell the students what they are, as well as telling the students in advance about the content of the lecture. The least effective is that of the ‘amorphous talker’. These people are confident, sometimes to point of being over-confident, but are ill-prepared and vague. They tend not to consider or convey learning outcomes or give advance notice of the content of the lecture. Brown and Bakhtar’s study included lecturers from a range of disciplines. They found that the ‘amorphous talker’ was more common in medicine than one would expect by chance.

While much of the literature focuses on the shortcomings of lectures in general or in the style of some lecturers, there is also evidence of the value of lectures. For example Murphy (Murphy 1998) interviewed lecturers and students regarding their views of the characteristics of an exemplary lecturer. Lecturers justified the method on the grounds that it can be exciting, enjoyable and worthwhile; the lecturer can use it to explain concepts and help students to make connections; it can be an opportunity to keep students up to date with the latest research; and it can be used to provide a model for professional practice.

Dolnicar (Dolnicar 2005) reported two distinct attitudes in students regarding their motivation for attending lectures. Those she calls ‘idealists’ who claim to genuinely enjoy lectures tend to be mature students with work experience, while

those she calls ‘pragmatics’ (sic) reported attending lectures to get the information they perceived they need to succeed in a subject. She claims that there has been a shift from the findings of studies in the 1970s towards pragmatism amongst current students.

There are many who will argue that a PBL (Problem Based Learning) approach, either in a pure form or hybrid, is the most likely to provide the environment where students must take responsibility for their learning and where they are able to integrate their learning around ‘real-life’ situations. Advocates of this approach, such as McCrorie (McCrorie 2005) claim that this leads to graduates who are far better equipped for life as a doctor because throughout their education they have been expected to identify what they need to know, how to get the information, and to know when they have met the current need, and therefore stop. Opponents of the method claim that the focus on process may be at the expense of content. They argue: How do you know that all students learnt all that they need to know? Again the question is whether PBL should be adopted to the exclusion of all other forms.

As discussed earlier, PBL has brought about a seismic change in medical education. It is not surprising, therefore that it has attracted research into the efficacy of the method. For example Moore et al (Moore, Block et al. 1994) conducted a research project in the model of the medical Randomised Control Trial. Students who entered the hybrid PBL course at Harvard Medical School

were randomly allocated to follow either the new Pathway curriculum or the existing traditional curriculum (despite all having applied for the new course). The students were tracked to compare their performance. The researchers claimed that the New Pathway students reported that they learnt in a more reflective way and memorised less than their counterparts on the other course, in the pre-clinical years. They preferred active learning and demonstrated greater psychosocial knowledge, better relational skills and more humanistic attitudes. They felt more challenged, had a closer relationship with faculty but were more anxious than the other group. No difference was found in problem solving skills or bio-medical knowledge. These results were presented as encouragement for other schools to follow suit.

Over the years many such research papers have been published which commonly use a medical model to measure success, and which are largely produced by proponents of the method. In 2000 Colliver (Colliver 2000) published a polemical article in which he reviewed the literature from the previous decade and concluded that the literature revealed no convincing evidence that PBL improves students' knowledge base or clinical performance, or at least not enough to justify the resources needed to deliver it. This paper provoked a robust response from PBL proponents. Albanese (Albanese 2000) responded that it is unrealistic to expect PBL to show a marked change in students' performance compared to those who follow a traditional curricula because up to entry point students are groomed for the traditional methods. He also argued that the review took a medical

approach in looking for excessive differences in performance between the two groups of students. He argues that

*“even if knowledge acquisition and clinical skills are not improved by PBL, the enhanced work environment for students and faculty that has consistently been found with PBL is a worthwhile goal.”*

Norman and Schmidt, who in 1992 (Norman and Schmidt 1992) had described a psychological basis of PBL, also responded with vigour to Colliver’s paper. As PBL practitioners at Maastricht (University of Limburg) they argued in favour of the method. Norman and Schmidt, like Albanese, argued for the need of a wider range of research designs than a reliance on random controlled trials. They argue that research into PBL must take account of the complex, sometimes intangible, factors in the learning environment. Although they do agree that early claims for the benefits of PBL were oversold, with a focus on the benefits to learning but little attention to the resource costs involved. However they also believe that the cards are stacked against research showing any differences, because of the myriad of variables involved, and instead claim that any effect should be taken as evidence of the effectiveness of the method.

Elsewhere there are many educational researchers who would agree with this position concerning the efficacy of Random Controlled Trials in education, as they discuss the difficulty inherent in controlling multiple variables in a learning context (Hammond, 1994; Joy and Garcia, 2000; Tolmie, 2001; and Pittard, 2004).

The debate has not ended. In 2006 Schmidt et al. published a paper (Schmidt, Vermeulen et al. 2006) comparing the long term effect of PBL and traditional curricula in terms of competencies acquired by graduates from the two methods. Participants were asked to rate themselves on 18 professional competencies. Graduates from PBL rated themselves as having much better interpersonal skills, better at problem solving, self directed learning and information gathering, and somewhat better at task-supporting skills such as ability to work and plan efficiently. There was no reported difference in terms of general academic competencies such as doing research or writing a paper. Conventional graduates rated themselves as having more medical knowledge. The authors conclude that PBL affects PBL-related competencies such as interpersonal and cognitive aspects, but also affects more general work-related skills considered important for success in professional practice.

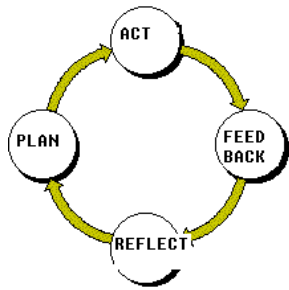
Pure PBL is not the only model for effective student-centred learning. As discussed above, Harvard developed a hybrid model whereby students are given lectures and traditional teaching sessions, but these are combined with encouragement of a reflective attitude by learners and gradual but increasing exposure to PBL sessions and opportunities for students to devise their own curriculum through what is known as Student Selected Components (SSCs). In 'Tomorrow's Doctors' the GMC (GMC 1993) argue strongly in favour of requiring medical students, regardless of whether the curriculum is PBL or not, to select a third of the course themselves (Student Selected Component). This is not

simply because they believe that such an approach leads to better motivation and more meaningful learning, but also because they see it as an intrinsic component in the skills set needed for future doctors.

To summarise, most educational theorists and researchers agree that in both general HE and Medical Education in particular, learning is most effective when students are enabled to take control of their own learning, where they take an active role in the process, and where they are encouraged to view learning as a path leading towards complexity. This is in contrast with a teacher-led, subject-determined approach in which the emphasis is on passive lectures and extensive block by block assessments which encourage a compartmentalised approach to learning. Problem-Based Learning is regarded by many medical educationalists as providing an effective way of meeting these aims. However, not all agree that a pure PBL curriculum is desirable. Several medical schools have chosen a hybrid model that combines problem-based learning sessions with traditional methods such as anatomy demonstrations and lectures. This suggests that teachers at those schools at least, believe that not everything that we need students to learn can be problematised or can be done so efficiently with regard to time and resource.

Table 3.1 summarises the learning theories discussed in this chapter, including what the advocates and critics say about these and potential implications for practice. I will refer back to this in later chapters to explore the findings of the research in the context of these theories. The cycle shown in figure 3.2 represents,

in a simplified way, the learning cycle described by several of these theorists. While this leans heavily on Kolb's Learning Cycle, I have focussed on the suggestion that students learn effectively when they are able to act, to receive feedback about their actions, which they can then reflect on and consequently use to plan their learning. This representation emphasises that not only is it important for students and staff to engage in each of these stages, but that the curriculum should be designed and delivered in such a way as to ensure that the students and staff are enabled to do so.



*Figure 3.2 A simplified learning cycle*

In the next chapter I will turn my attention to an examination of the literature concerning student selection, retention and the predictors of failure.

*Table 3.1 Summary of effective learning and learning theory*

<b>Theory</b>	<b>Advocate</b>	<b>Evidence it works</b>	<b>Advocates</b>	<b>Critics</b>	<b>Implications for Practice</b>
Adults' learning is not the same as children's learning: adults need to negotiate the curriculum in line with their needs and aspirations	Knowles Coles Marton and Saljo	Ellis, 2002; Bravata, Huot et al., 2003; Sedgwick and Hall, 2003	Recognises and taps into student motivation. Develops critical thinking and application skills	1 <sup>st</sup> year medics are 17+, not clear when a child becomes an adult. Some students may need more guidance than others	Give students choice over their curriculum, avoid an overly heavy timetable Encourage questions Structure learning to see it as a whole, and to be involved actively, to scaffold learners
Deep vs surface learning	Marton and Saljo	Gibbs, 1992	Longer term retention of learning leads to safer practitioner	Time consuming for student who does not know when to stop (need for strategic approach)	Structure learning to see it as a whole, and to involve learner actively Encourage and point out links and connections
Experiential learning: Students need to be active, reflective, to theorise and to plan related to their personal goals and styles Learn to learn	Angyris Kolb Schon Laurillard GMC	Gibbs, Morgan et al., 1998; McCrorie, 2005; Henderson and Johnson, 2002; Ellis, 2002	Learning is rooted in practice, it is meaningful. Student gains control of the process and learn how to learn	Time consuming Resource implications	Reduction in lectures, increase in tutorials and group work, encouragement to reflect and question Think about own learning
Social activity – situated learning	Vygotsky Lave and Wenger Bruner	White, 2003	Learners develop knowledge in natural context – humans are social beings, learn to relate to others and to be part of a team	Learners may not be aware of importance of experience, seek 'answers' to the exams. May resist collaborative learning	Emphasise relationships – learners and experts, facilitate entry to communities of practice, learning in professional context and active



Academic vs everyday knowledge, complexity of learning - communication mediated by language and other artifacts	Vygotsky Laurillard Lave and Wenger	Bleakley, 2006	Recognises the increasing complexity of learning. Potential for context to obfuscate and confuse. Help develop deeper and more abstract concepts and models	Emphasis on mediation may divert student from focus of learning	Group work Knowledge construction Awareness of what learners bring to the experience. Make mediators explicit, explain jargon, describe hierarchies, acknowledge power/political relationships
Structured learning covering all six levels of learning from knowledge acquisition to evaluation	Bloom	Edwards, 2005	Build up knowledge in manageable sections, to provide a basic foundation for future application	If blocks are too small students may not integrate the knowledge, but keep them as discrete elements	Teach underpinning concepts, but also higher levels of cognitive activity. Avoid exclusive use of MCQ type assessment. Provide opportunities to revise/recap as progress. Not assume that all students enter with same basic knowledge
Competence preferable to performance based education	Bernstein	Numerous PBL studies including: Norman and Schmidt, 2000	Leads to student ownership of learning and deeper approach	Teachers may resist due to fear learners will not know what they do not know	Reduction of assessment. Increase in SDL and encourage students to identify own learning needs

## **Chapter 4: Student Selection, Retention and Predictors of Failure**

4.1 Selection

4.2 Retention and Predictors of Failure

4.3 Summary

## **CHAPTER 4 – STUDENT SELECTION, RETENTION AND PREDICTORS OF FAILURE**

The purpose of this research is to investigate why some previously successful students fail one or more exams at the end of the first year. The focus of this chapter is on three aspects: how students are selected for medicine; factors that affect student retention; and thirdly what, if any, factors have been found to correlate with performance. As the case study is concerned with first year medics, I have explored the literature in these three areas as it relates to medicine in the UK, but I also look more widely for lessons that can be learnt from some other disciplines and other countries.

Medical students are different from most other students for several reasons. Firstly competition for places and the prestige associated with studying medicine means they have achieved the highest grades (the typical offer for admission is two As and a B grade at GCSE A-level). Secondly, there is an assumption by staff, parents and students, that once in medical school virtually all students will eventually become doctors. Thirdly, the medical course is content heavy. Despite having established their academic prowess by achieving entry to medical school, students do not generally find the course to be particularly challenging, intellectually, in the first two years. Comments made by both staff and students support this observation. Any difficulty is with the volume of work. The medical student's timetable is far heavier than that of other subjects, with less non-contact time and an expectation that they will study in the evenings and weekends. In

addition the medical course is longer (five years) than other undergraduate degrees which typically last three or four years. Fourthly, medical students typically socialise with other medical students. This is partly a result of the course structure, but also, in the case of Birmingham Medical School, because the buildings are physically separate from the rest of the University.

These four factors (high competition for places, vocational expectations, relatively high workload plus relatively low intellectual challenge, a geographically and culturally discrete community) are relevant to the examination of selection, retention and predictors of performance. In the following review I attempt to extract the significance of these four factors from previous research in the context of medical education.

#### **4.1 Selection**

Parry et al's (Parry, Mathers et al., 2006) review of selection processes in English medical schools shows that although there is a commonality between the stated selection criteria of all schools, the methods used to select students varies considerably. Parry found that some, but not all short-list students for interview. The short-listing in some cases is based on academic performance (or predicted performance), in others it is based on non-academic factors. Some schools consider personal statements and teacher references, others ignore them on the

basis of potential bias. Parry et al. conclude that there is a need to develop and test a range of admissions processes.

Concern about failure rate in end of year exams at Birmingham Medical School may be due to one or more of several factors. One of these contributory factors may be the characteristics of the cohort of students admitted onto the course. In Chapter Seven I describe the admissions process used to select students at Birmingham, and I analyse data comparing interview score and subsequent exam performance.

A review of the current literature regarding admissions suggests that not only is there a wide variation in the admissions process, but that there are issues in addition to academic ability that impact on an admissions policy.

Who should be selected into medical school? As I have already established, medicine is a highly prestigious career and consequently competition for places is fierce. Several studies have found that students from a privileged background are more likely to achieve entry than students from a less privileged background. The Council of Heads of Medical Schools (CHMS, 2006) state that:

*“The purpose of a medical education is to graduate individuals well fitted to meet the present and future needs of society for medical care.”*

Furthermore:

*“The social, cultural and ethnic backgrounds of medical graduates should reflect broadly the diversity of those they are called upon to serve.”*

As a result of a paper by McManus et al (McManus, Esmail et al., 1998) the Council (CHMS) devised an action plan requiring medical schools to draw up policies relating to equal opportunities as a matter of urgency.

Seyan, Greenhalgh et al (Seyan, Greenhalgh et al., 2004) compared the entry profile of medical students accepted into UK medical schools between 1996 and 2000. They found massive inequalities by social class, and some inequalities by ethnicity. The student profile most likely to achieve entry to medical school was Asian from social class I, who is 600 times more likely to enter medical school than those from the least represented group, Black students from social class IV (there were no admissions from Black students in social class V). White and black students from social class I were around 100 times more likely to gain a place than those from classes IV or V. Asian students seemed to compensate better for poor origins, but those from social class I were still 6 to 10 times more likely to gain a place than those from classes IV or V. Sex specific ratios did not vary significantly by socio economic status, but while Asians tended to have similar ratios for men and women, black and white men were significantly underrepresented compared with women.

McManus, Richards et al (McManus, Richards et al., 1995) looked particularly at whether ethnicity had a bearing on selection to medical school. They concluded that while A- levels were equally good at predicting future performance

regardless of ethnicity, higher estimates by teachers are more likely to result in an offer to study medicine for white students than for ethnic minority students. This suggests that admissions tutors give greater credence to teachers' predictions for white students than they do the predictions for non-white students. This is not a reflection on the actual performance of the students, since the study found that students with the same grade performed equally well regardless of ethnicity, rather that the judgement of the admissions tutor influenced access to the course before the qualifying exams were taken.

A report by the Higher Education Funding Council for England in 2005 (HEFCE, 2005) into the profile of young people (ie not mature students) in HE reflected the pattern in Medical Schools across the sector. The report commented that institutions and government need to recognise that students from poorer backgrounds are going to be less well prepared for HE than their peers from more affluent backgrounds, and that there will be a cost entailed if these students are to be supported appropriately. While participation in HE doubled between the late 1980s and early 1990s, there was an increase of only 2% in the period 1994 to 2000. Sex inequalities continue to rise, with young women more likely than young men both to attend, and once there to complete their degrees. Young men from the most disadvantaged areas have the lowest involvement levels. There are regional differences, with London having the highest participation and North East the lowest, but there are even more marked differences within regions at census

ward level as there are pockets of, for example, high involvement in an otherwise low participation area and vice versa.

*“These show that there are broad and deep divisions in the chances of going into HE according to where you live.” (p 10)*

Young people in the 20% most affluent areas are 5 or 6 times more likely to enter HE than young people in the 20% least affluent areas. Furthermore

*“most of the new places in HE have gone to those from already advantaged areas.”(p 11)*

I will discuss the effect of ethnicity further, in the next chapter, but the issue impacts on selection hence the inclusion here.

Since 1997 the Labour Government in the UK has followed a policy aimed at increasing the number of doctors and of widening access to Higher Education for young people, particularly those from social groups which have traditionally had a low uptake (HEFCE, 2001; HEFCE, 2005). These two policies have resulted in an increase in student numbers across the HE sector, and in the case of Birmingham Medical School, a doubling of student numbers in the last ten years.

Much of the research into the effect of widening participation (i.e. encouraging students to enter HE from traditionally under-represented sections of the community) is not specific to medicine. A recent paper by Do et al (Do, Parry et al., 2006) has examined this however, and found that

*“white applicants to medical school were more likely to be from professional/managerial classes (72%) than were Black (60%) or Asian (60%) applicants.” (page 750)*



The researchers compared information given by applicants about their parents' occupations with the Townsend score which is a socio-economic measure based on area of residence. They found an increasing number of students who declined to provide parental occupation information. Since this is the measure that many schools use to monitor the progress of widening participation initiatives they suggest that alternative measures may give a more accurate picture. They found that students who did not give the parental information were more likely to be non-White and to live in deprived areas, whereas White students who did not give parental occupation were equally distributed among affluent and deprived areas.

Widening participation or diversification is an issue in the US as well as in the UK. There is some literature exploring the impact of affirmative action in recruiting medical students from non-traditional social categories. Lakhan (Lakhan, 2003) for example, explores the implications of a recent ruling by the US Supreme Court that affirmative action is constitutional. He argues that

*“the need for diversification in medicine is fundamental to the health of the US medical system.”* (online publication).

As in the UK, medical school admission is based on

*“academic ability, work experience, extra-curricula activities and interests, personality, motivation and communication skills”.*

Lakhan argues that it should also include race in order to *“sustain a diverse student body”*.

Charatan's (Charatan, 2001) short account of two research projects in the US sparked off a debate about the apparent policy in US medical schools of admitting black and Hispanic students to Medical school with lower entry requirements than White or Asian students, and the subsequent finding that around a quarter of the preferred students went on to fail their end point exams while the majority group passed.

Greenhalgh et al's study (Greenhalgh, Seyan et al., 2004) in six London secondary schools explored the attitudes of able school pupils to the possibility of medicine as a career option. They found few differences in attitudes according to pupils' sex or ethnicity, but they did find significant differences according to socioeconomic status. Pupils from lower socioeconomic groups held stereotyped and superficial perceptions of doctors, viewed medical school as culturally alien and geared towards "posh" students. They also underestimated their own chances of gaining a place and completing the course. Although they saw medicine as having extrinsic rewards, i.e. money, they felt that such a career would require unacceptable personal sacrifices. Pupils from affluent backgrounds saw medicine as a viable alternative, and one that offered intrinsic rewards. All were concerned about the costs of study but only those from a poor background saw this as a constraint on their choices.

The expansion in student numbers has led to the creation of new medical schools. The selection method used at one of these: Peninsula Medical School (PMS) is

described by Searle and McHarg (Searle and McHarg, 2003) as a new school where they were able to start from scratch and learn the lessons of other schools. Their method involves looking at academic and personality characteristics; all who meet the academic threshold are offered an interview. They say that

*“It is also increasingly accepted that selection on the basis of academic performance alone is misguided ... Intellectual ability, however well or poorly it is measured, is only one desirable attribute.”* (page 460)

PMS identified desirable attributes based on psychological literature of what constitutes a ‘stable’ adult and on what patients expect. This includes aspects such as the ability to empathise and the ability to give appropriate and clear explanations. They use a structured interview consisting of ten items. A student has a choice of three scenarios, they then answer standard questions posed by the interviewers. They are graded not on their answers per se but against the ten items. PMS use this because they claim that references and personal statements have a poor predictive value.

*“part of the debate hinges around the deeper question of which qualities and attitudes can be learnt and therefore whether a personality assessment at the time of selection is needed.”* (page 462)

As competition for places in medical schools remains fierce while the numbers attaining the highest grades increases, A-level grades become an increasingly blunt measure of the ‘best’ students’. Some schools have embraced the introduction of a medical school entrance exam, and although Birmingham Medical School is not one of those involved in a pilot project, the outcome of this will be closely monitored.

Tutton and Price (Tutton and Price, 2002) discuss two interacting issues which may be in conflict with each other; the merit of the individual on the one hand and a desire to include students from under-represented groups. It is desirable to find a way of identifying people with merit who would not otherwise get in, but simply including more students from a particular group is likely to mean the loss of someone with more merit from another group. They argue that the traditional admission process has led to a loss of potential from under-represented groups. To address this we need more than an admission policy, we need a recruitment strategy which

*“includes changing the climate of an institution from one that is hostile and alienating for members of particular groups to one that is sensitive and welcoming...A selection policy alone will simply result in a revolving door syndrome – many disadvantaged students selected, but very high drop out rates.”* (page1171)

Hughes (Hughes, 2002) argues for a central selection board for medical students. She shows how the current practice of using exam results and interviews has valid reasons behind them, but with four schools considering each applicant and most of them interviewing them separately this is a wasteful process. She identifies qualities that schools should be looking for including academic ability in exams, honesty, integrity, helpfulness, willingness, interpersonal skills and empathy. She also shows that doctors who are psychologically well in middle age were well-adjusted and happy as students: had good self esteem, an open and flexible approach to life, warm relationships with their parents, little anxiety and depression and low anger when under stress. In contrast doctors at risk of substance abuse, suicide or burn-out were more likely to have had the

opposite characteristics as students. She suggests that there is evidence of

*“substantial continuity of personality disposition in adult-hood, suggesting a stable tendency to be either happy or unhappy, well or poorly adjusted.”* (page 18)

Angel and Johnson (Angel and Johnson, 2000) describe an outreach programme at one medical school aimed at increasing applicants from non-traditional groups. The writers emphasise the commitment given by CHMS to widening participation and the need for medical schools to implement equal opportunity strategies.

#### **4.2 Retention and Predictors of Failure**

Although there is concern about the need to retain medical students once in medical school, research suggests that drop-out by medical students may not be a significant issue. Parkhouse (Parkhouse, 2001) found an 89% conversion rate of medical students to doctors in the period of 1985 to 99. The 12% (produced by rounding) drop out rate is an issue, in his view, although it compares favourably with HE more generally where the average drop out rate for the same period was 18%.

Having said this Tinto's (Tinto, 1993) examination of student retention provides a helpful framework when examining the factors that lead to students leaving a course prematurely. Despite covering all disciplines and based on experience in the US, his conclusions are illuminating. He suggests that institutions that have

low student attrition are more willing to become engaged in students' social and intellectual development. He identifies four main causes of institutional departure: adjustment, difficulty, incongruence and isolation.

Adjustment involves separating from the past life that preceded the course, and adjusting to the new. Students who leave for this reason usually do so in the first few weeks of the course, and may well successfully join another course. Students who leave because of the intellectual difficulty of the work are relatively unusual. Incongruence is similar to isolation, but although the student interacts they feel that they do not fit in with the institution. Isolation, on the other hand, arises when students fail to form friendships or connections with others, be they students or faculty (the US term for academic staff).

The notion of incongruence is reflected in Chavous's (Chavous, 2002) consideration of the role of student background, perceptions of ethnic fit and racial identification for African American students at a predominantly white university. These observations may have transferable value in the context of British Asian students in a predominantly white UK university. Traditionally there has been a tendency to regard all African American students as being alike. Chavous found that African American students tend to be from less advantaged backgrounds than white students, and African American students tend to do worse academically than white students from the same background. The authors question whether non-cognitive factors such as

*“experience and belief systems related to race, may be important”* (page 257)

in adjusting to university life. In particular they conclude that students who have experience of being in a minority at school had fewer problems adjusting to university than ethnic minority students who had attended schools where they were in the majority. This gives a more sophisticated explanation of why poor African American students tend to perform worse than more affluent African American students - the more affluent African American students were more likely to have mixed socially and academically with white people before coming to university than their more disadvantaged African American peers who may have had very little previous experience of white culture, and had difficulty in settling into the new white dominated environment.

Wilcox et al’s study (Wilcox, Winn et al., 2005) into the role of social support in the first year experience of HE suggests that

*“the predominant reasons for non-completion are a lack of preparedness for higher education and incompatibility between the student and their chosen course and institution.”* (page 707)

Moxley et al. provide a similar analysis of the issues concerning student retention. They suggest a strategy to counter attrition. (Moxley, Najor-Durack et al., 2001) This strategy involves actively creating an institution-community-student partnership, rather than leaving this to chance. They give specific examples of programmes of student support.

*“The principle aim of proactive retention is to help each student to learn the role of the student and to master the expectations and requirements*

*that compose this role through a support system that is relevant to their needs and that helps them to achieve their aspirations.” (page 11)*

They describe a specific structure which actively encourages a partnership with students. Their approach is based on their perceived need to make the process explicit so that all students are encouraged to discuss and reflect on the student role, rather than leaving such reflection to chance.

Wilson and Sweet (Wilson and Sweet, 2003) claim that students' experience at school of mainly didactic teaching does not prepare them for the style of learning expected at medical school despite a recent shift towards course work and continual assessment. They argue that students should be supported adequately by the medical school; they suggest having a progress tutor as well as a personal tutor. While a personal tutor provides welfare related support, progress tutors take an active role in encouraging students to reflect on their academic progress, to discuss their learning approaches and to develop effective strategies. In most schools this meta-learning has largely been left to individual students to develop for themselves, if at all.

At Birmingham Medical School the personal tutor system has a largely, if not exclusively, welfare role. Although students are encouraged to talk to their personal tutor if they are experiencing problems with their studies, the tutors are not expected to provide academic advice. The academic role of tutor has been lost in the current course.



When discussing widening participation generally, Mary Stuart (Stuart, 2003) comments that the two significant factors adopted by institutions that are doing well are

*“the use of formative assessment, especially in the early stages of a student’s learning and staff development to improve and update faculty’s abilities to support students.”* (online publication)

Neither of these approaches has been adopted at Birmingham Medical School to date.

Zepke et al. (Zepke, Leach et al., 2006) claims that being learner centred may assist retention. Finn (Finn, 1989) gives a comprehensive overview of the literature up till the end of the 1980s in relation to school children and the reasons for dropout. Although the field is clearly different from UK medical students as it is concerned with children, largely in the US, the parallels are clear. He describes two models that are used to explain dropout: frustration self-esteem model, and participation-identification model. According to the first model students react to their experience of learning so that if they achieve high academic grades they perceive themselves as learners, if not they are likely to withdraw and seek areas where they can experience success. In the context of medical students in order to have gained entry to the course, they will have created a self image as a scholar, if they then experience frustration or even failure with their academic work this will have the potential to cause huge damage to their self image. According to the participation-identification model students who participate in school activities are more likely to identify with the school and to aspire to achieve school defined

goals, whereas the converse is true – those students who do not participate in school become increasingly alienated from it, and as a result are at higher risk of dropping out. Again, while this is described in the context of school children the same cycle can be seen as having possible application to medical students, particularly if combined with Tinto's notion of isolation and incongruence.

In an earlier application of learning theory to school children Newmann (Newmann, 1981) identified six guidelines to improve student engagement and therefore reduce drop out: voluntary participation, clear and consistent educational goals, small school size, student participation in policy decisions and management, extended and cooperative relations with teaching staff and work that is meaningful to the student. All of these aspects are reflected in the adult learning concepts explored in the previous chapter.

In their study of the entire cohort of students who entered UK Higher Education in 1989-90 Smith and Naylor (Smith and Naylor, 2001b) found a link between completion of degree course and prior academic preparedness, and, once at university, social integration. They found links between A-level grade, subject relevant to study, and single sex schools; and a lower incidence of dropout. Generally students from independent schools were more likely to drop out than those from LEA schools, except in subjects where there was a large proportion of other students from independent schools. The size of the department did not appear to have an effect suggesting that a larger group gave a student more of a

chance to find a group to fit in with. They indicate that HEFCE's view that 0% dropout is equal to 100% efficiency is not without critics. They argue that it is necessary to have some withdrawal to allow people to develop and change their minds.

Arulampalan et al. (Arulampalan, Naylor et al., 2004a; Arulampalan, Naylor et al., 2004b) conducted two studies, in one they examined the link between the characteristics of two cohorts of medical students and drop out rate, in the other they focused on first year attrition. They found that 'academic preparedness' was the most significant link in terms of grade and subject studied. They also found males and mature students were more likely than females and younger students to drop out. They explain the background to the study as a need for more doctors leading to a doubling in medical school places in the decade from 1997. They looked at quality and retention, widening participation and whether schools should insist on science subjects before entry. Regarding the type of school, they did not find a significant effect of A-level performance compared to school attended. They found that science subjects were very important. If a student took 3 science A-levels (ie Physics, Chemistry and Biology), they were much less likely to drop out than if they only took one or two of them. A small medical school with a high number of postgraduate research students also led to lower drop out rates. This work has implications for the widening participation agenda, suggesting that there is a need to combine targeted recruitment with student

support, for example to offer extra training to disadvantaged students to compensate for their previous educational experience.

When they focused on the first year experience they found a drop out rate of 3.8% across all medical students in the first year. They found that the subject and grade achieved at A-level was highly significant. One grade higher in Biology, Physics or Chemistry reduced the probability of drop out by 10%. 47% of students had 28 or more points at A-level (ie grade AAB) and these students had a drop out rate of 2.9%, which compared with 4.9% for those with 22 or 23 points. The average A-level grade rose over the time of the study from 41% in 1980 having AAB or higher, to 53% in 1992.

Smith and Naylor (Smith and Naylor, 2001a) analysed a whole cohort of students who entered HE in 1993. They found the following links between degree performance and the following characteristics: young age and single marital status, high A-level score and higher social class: all do better. Males and students from independent schools perform less well. This is except at Oxbridge where males do better and attendance at independent school is not a factor, which suggests these universities are better than the rest at identifying actual talent at admission. They also found that students from Independent schools with higher A-level scores were less likely to drop out than students from the same sector with weaker scores.

This may explain why in a medical school cohort where all the students have high A-level scores Independent schools are not associated with failure (c.f. Arulampalan above). Similarly they found that the performance gap due to social class is narrower the better the A-level grades.

In 2002 Ferguson (Ferguson, James et al., 2002) et al. published a systematic review of the literature on factors associated with success in UK medical schools. They conclude that

*“a strategic learning style, white ethnicity and female sex are associated with success in medical training.” (page 597)*

Several studies show that previous academic success over-predicts the performance of ethnic minority students and under-predicts that of white students. Ethnic minority students are more likely to fail exams than white students. However non-UK ethnic minority students often perform better than white UK students.

This contrasts with McManus et al’s (McManus, Richards et al., 1995) study discussed earlier, which found A-levels to be equally good predictors of success regardless of ethnicity.

A later prospective study by McManus et al (McManus, Smithers et al., 2003) looked at the predictive ability of A-levels for success in medical careers finds that while A-levels are not highly predictive in determining which doctors will become research active, they do indicate that those with higher grades are more

likely to complete their undergraduate course, do well in House Officer posts and tend to achieve membership to the relevant Royal College more quickly than those with lower grades.

In Yates and James' (Yates and James, 2006) attempt to predict undergraduate students who struggle during medical training they identify the following significant independent predictors: negative comments in academic references; lower mean exam score at A-level; a late offer of a place. Of less significance were the factors: male sex and lower GCSE science. In UK students whose ethnicity was known, not being white was a significant predictor. It is interesting that they found a correlation with negative academic references as most other researchers have not found this to be significant, including a pilot study at the same institution in 2003 (Ferguson, James et al., 2003).

Hamdy et al (Hamdy, Prasad et al., 2006) conducted a systematic review into the predictive value of assessment in medical school on future performance. This review of the literature between 1955 and 2004 found a moderate correlation between undergraduate examination performance and subsequent performance at internship and residency (stages in the development of junior doctors). However they found little data on longer-term effects. This review suggests that as there is a link between exam performance in medical school and subsequent performance in the professional development of doctors; medical school examinations have a function beyond their intrinsic role within the course itself. This suggests that if

we can identify factors that contribute to performance while at medical school, this may indirectly identify factors that affect eventual performance as doctors.

### **4.3 Summary**

**Selection:** There is a current debate over the best way to select medical students. Most medical schools use A-level grade, some also use GCSE performance, some interview students and select on various criteria pertaining to personality and / or perceived suitability to become a doctor. Some studies have shown correlations between ethnicity and success, others have shown potential bias against some ethnic groups. Bodies external to the Medical School such as HEFCE, CHMS and the GMC state a desire to widen access to all potential doctors rather than restrict the profession to the affluent and privileged. Individual medical schools may vary in their efforts and success to bring about such a widening of participation.

**Retention and Predictors of Failure:** Most of the research in this area concerns generic studies into HE. These have shown that students are more likely to complete their studies if they perceive a fit between themselves and the institution, if they have a sense of belonging, if they are intellectually capable to do the work, and if they feel a connection between themselves and their teachers. There are distinct links between these aspects and the circumstances described in the previous chapter, which lead to effective or ‘deep’ learning, i.e. an engagement with studies making relational connections between different aspects of the course, as opposed to seeing these as part of separate blocks of learning, and

interaction with staff, academically and socially in mentoring roles with formative feedback.

Some studies indicate a link between success and female gender, strategic learning style and white ethnicity, while previous performance is considered a predictor by some but not all.

At this medical school almost half of students fail one or more exams at the end of the first year. The vast majority go on to complete the course, either by passing at re-sit and therefore progressing with their cohort, or in some cases repeating the year. This study is confined to examining the first year experience. The concern here is to identify whether the knowledge that we already have concerning selection and retention can be more effectively applied to reduce the rate of exam failure at the end the first year.

In table 4.1 I summarise the relationship between emerging selection, retention and withdrawal issues, and the research questions posed in this thesis concerning effective support for all students including those from ethnic minority backgrounds.

In the next chapter I go on to explore the literature of advantage and disadvantage in relation to race in more detail.



Table 4.1 Summary of student selection, retention and predictors of failure; and implications for research

<b>Aspect</b>	<b>Implications for Research</b>
Range of selection methods in use	What, if anything, is the connection between selection criteria used in this medical school and students' subsequent exam performance?
Desirability of widening participation in medicine. The current profile of students across medical schools suggests strong inequalities in participation according to social class and, to a lesser extent, ethnicity and gender	What is the social and ethnic make up of our students? Is there any link between either factor and exam performance?
Students in HE in general – from poorer backgrounds need more support. Staff need training to be able to provide appropriate support	Are students in medical school from poorer backgrounds in need of and / or getting the appropriate support? Are staff provided with appropriate training to give support?
White students are more likely to be from more affluent backgrounds	Is this the case in this medical school?
Retention is more likely if students adjust to their new university life smoothly, are able to cope intellectually with the work, perceive a 'fit' between themselves and the institution, and feel a sense of belonging and connection	Are students encouraged to adjust to university life, are they helped with the transition to a new style of study, do they have encouragement to engage with the institution, to make friends and to form an identity as a medical student?
Retention is more likely if the curriculum is learner-centred, and makes use of concepts associated with adult learning. Students who show academic preparedness and a strategic learning style are less likely to drop out.	Does the curriculum show evidence of a learner-centred approach where students are supported in their development as learners?
High A-level grades, white ethnicity, and female gender have all been identified as predictors of success once in medical school.	Is it possible to identify links between these factors and exam performance at this medical school?

## **Chapter 5: Race and Education**

## **CHAPTER 5 – RACE AND EDUCATION**

In the previous chapter I reported that Ferguson (Ferguson, James et al., 2002) and others have identified a link between ethnicity and success in medical school. In 1995 the BMJ (Dillner, 1995) reported on the observation that male students with Asian surnames were more likely to fail their clinical (but not written) exams than other students. This has resonance with the concerns raised by some teaching staff, interviewed for this project, that ethnic minority males are more likely than other students to fail. If this is the case, we need to question why this might be. Is there a suggestion of overt or unintentional racism which is leading to the disadvantage of particular groups of students?

As Law et al. (Law, Phillips et al., 2004a) comment, there is a relative lack of research into racism in HE. They question why it has taken so long since the first Race Relations Act for HE to develop race equality strategies. They argue that this is only happening now because institutions have been forced to do so by law. They point to the apparent contradiction between academia with its tradition of liberalism, equality and fairness and the relative silence in terms of research into racial inequality.

The Stephen Lawrence Inquiry (Cluny, 1999) defined institutional racism as

*“the collective failure of an organisation to provide an appropriate and professional service to people because of their colour, culture or ethnic origin. It can be seen or detected in processes, attitudes and behaviour which amount to discrimination through unwitting prejudice, ignorance,*

*thoughtlessness, and racist stereotyping which disadvantage minority ethnic people.” (Section 6.34)*

Back (Back, 2004) discusses the issue of white liberal educators who are able to identify examples of racism, but do not recognise that they as white people personally benefit from a racist society.

*“To accuse educators of racism is - in their terms - tantamount to taking their education away from them. And this is why it is so difficult to have a measured and open debate about racism in the academy.” (page 4)*

He points out that in a society that privileges white people, those same white people would stand to lose their privileged position if non-white people could compete on an equal footing for their jobs. To put it another way, to acknowledge institutional racism in the university means those who enjoy positions of status within it must also acknowledge that they themselves are not necessarily there on merit alone.

In his discussion of institutional racism in a comparison between a police force and a university, Andrew Pilkington (Pilkington, 2004) used the phrase ‘institutional racism’ because

*“The term sensitises us above all to processes in organisations which, however unintentionally, disadvantage members of minority ethnic groups.” (page 15)*

In particular he finds it helpful as a way of depersonalising the issue, and enabling honest examination of institutional culture and routine practices. Racism can occur without the presence of openly racist people in positions of power. Critics of this approach, however, argue that the use of the term can deflect responsibility or blame from any individual, this can have the net effect of

ensuring that approaches and structures that operate counter to the interests of minority groups remain in place. If the racist approaches could be identified as being the ‘fault’ of specific groups or individuals then they would have a greater chance of being addressed and changed.

Shirin Housee (Housee, 2004) interviewed seven South Asian women students, in an attempt to explore the complexities of their situation and to break down the stereotypes that she had identified:

*“Qualitative research that explores the actual experience of higher education is rare.”* (page 61)

She emphasises the complexities of the various aspects involved in being a black, female student. She is clear that we cannot assume that all Asian women face the same constraints and motives.

*“Gendered relations within Asian families are as diverse and complex as in white English families.”* (page 62)

Modood and Acland (Modood and Acland, 1998) discuss the high participation of ethnic minority students in HE as evidence of the high value that this group give to education, especially as a means of achieving high social status. In 1993 Modood investigated the apparent inequalities in ethnic minorities participating in HE. He discovered that while Asian students were more likely to apply for high prestige courses such as medicine and law than white students, they also tended to outperform white students in A-level exams. Students from independent schools were more likely to also be from the dominant white group, but those students from an ethnic minority who went to an independent school tended to

have more success than white students from the same schools in terms of achieving a place at university (Modood, 1993). The possibility of A-levels over-predicting the future performance of non-white students compared with white students was discussed in the previous chapter.

Nirmal Purwar (Purwar, 2004) uses Bordieu's phrase "*Fish in or out of water*" (page 49) to explain how someone from a different culture (e.g. ethnic group or social class) from the dominant culture feels out of place and highly aware of their surroundings, whereas someone who has always existed in the dominant culture is unaware. This is likened to the way that a fish will not be aware of the water around them but take them out into the air and they will be gasping and unable to function in the alien surroundings, or, to use Bordieu's term 'habitus'. Purwar discusses the situation of ethnic minority academics arguing that for them the very process of functioning in white middle class academia involves being acutely aware of one's surroundings. Furthermore if there is an expectation that such a person is likely to fail i.e. to get their behaviour wrong, then the sensation of constant scrutiny is likely to make them ever more self-conscious and therefore more likely to make a mistake. And further still

*"Those brave enough to speak of racism among their colleagues risk being labelled as un-professional, uncollegiate whistle blowers."* (page 56-7)

This echoes the description in Chapter Four of what Tinto (Tinto, 1993) calls incongruence as a factor triggering student attrition.

The University of Leeds created an Antiracist Toolkit in response to the Macpherson report into the death of Stephen Lawrence. Law et al. describe the process that led to the creation of the Toolkit (Law, Phillips et al., 2004b). They quote Essed in their use of the term everyday racism:

*“Everyday racism refers to forms of discrimination that manifest themselves in ‘systematic, recurrent, familiar practices’.”* (page 95)

In a sense echoing Purwar’s description of the experience of the person from a different culture being overly visible, Law et al. claim that white people rarely notice the ‘whiteness’ of an institution. They tend to perceive that there are more people from a visible ethnic minority (Black or Asian rather than White European for instance) than there are. Further there is an assumption that equality policies only benefit minority groups.

*“The advantages accruing to white people in an institution are unrecognised or downplayed.”* (page 97)

This review of the literature suggests a claim by some that racism exists in HE and that it is a relatively under-investigated area. But is race a significant factor in the performance of medical students?

Connon, Tyers and Modood’s (Connor, Tyers et al., 2004) Research Report for the Institute for Employment Studies looked at the experience of ethnic minority students in HE compared with white students. Across the sector they found that ethnic minority students were more likely to participate in HE than the majority (compared with a working population of 9% ethnic minority, 16% of

undergraduates are from an ethnic minority). They also found huge variation between institutions and subjects with pre-92 universities in London having the most, and subjects such as medicine, law, business and IT attracting a disproportionate number. This reflects the observation at Birmingham medical school that compared with the population as a whole, Asian students are over-represented amongst those studying medicine.

They discovered that ethnic minority students were more likely than whites to be influenced by parents and families, both in their choice of course and their decision to continue once there, particularly young (i.e. under 26) Asian students.

They point out that some factors interact with each other:

*“In particular, it is likely that the strong positive ‘parental support / commitment to education’ effect is mitigating some negative aspects, such as being in a lower socio-economic class. This would explain why, despite having lower socio- economic class profiles on average, minority ethnic groups are more likely to enter full time degree courses.”* (page xvi)

They go on to say

*“there were several issues found to be of more concern to some minority ethnic than white students on the whole, which may contribute to early leaving. These related to staff support, feelings of isolation and cultural diversity”* (page xvii)

This again reinforces issues raised in Chapter Four, in particular Tinto’s (Tinto 1993) analysis of the reasons students leave. This study suggests that not only is isolation a factor in determining student retention, but that students from ethnic minorities may be more likely to experience it than whites, and /or it is of more significance to them than the majority group. The former explanation appears to be more likely, since by definition, as a member of a minority group one is more



likely to experience alienation. There is a danger of over-generalising however, as in some cases despite belonging to a minority group *vis-a-vis* the general population, ethnic groups have a tendency to live and go to school with people from the same group. It is wrong therefore to assume that minority equates with isolation, but it may be the case for some.

There is not a great deal of published research into racism in HE. Most research into racism is based on the premise that people from ethnic minorities are disadvantaged usually in economic terms. The proportion of ethnic minority students at Birmingham Medical School is and has been historically, high. It is not known whether these students are from economically underprivileged backgrounds. However, if students from a particular ethnic group are more likely to fail than other students it is important to attempt to find out why.

To return to the specific context of medical schools, Wass et al (Wass, Roberts et al., 2003) conducted a study into the comparative performance of students from different ethnic backgrounds in a final year OSCE (Objective Structured Clinical Exam). They looked, in particular, at communication skills and found that the mean performance of ethnic minorities was significantly lower than that of white students. The lower performance of non-white students was due to

*“a particularly poor communicative style that may have distanced some students from ethnic minorities from the simulated patient and instances where the examiner’s assumptions did not match the expectations of the simulated patients ... So, several complex factors, styles of communication, values, and ways of learning may all be important and may be related to*

*the ways in which students are socialised into medical school culture.”*  
(page 802)

They suggest that poorly performing students used a medical model rather than a social model and that students who lived at home were more likely to be in this group:

*“They may therefore have less opportunity to tune into current institutional norms about what counts as a good consultation.”* (pages 802-3)

This raises the question as to whether some students are disadvantaged because of their cultural expectations.

Lempp and Seale (Lempp and Seale, 2006) conducted a qualitative study into medical students' perceptions in relation to ethnicity and gender. The study involved students from all five years at one medical school. The choice of medicine as a career in the first place and their expectations about their future career seemed to be affected by gender (with women more likely than men to express a fascination with the human body, for example) than by ethnicity. The number of students involved in the study was fairly small (36) and although the proportion of white to non-white students was 20:16, the 16 'non-white' students came from a diverse range of ethnic groups. This may have made it difficult to make generalised statements about particular ethnic groups. However several 'non-white' students mentioned the issue of gaining independence from their family, and conflicting loyalties between family and medical school demands (both academic and social) in the interviews. None of the white students mentioned these issues.

While there may be relatively little research into the effect or incidence of overt racism in Medical Schools, this is not the case with racism in the NHS, as a BMJ article in 1997 (Esmail and Carnall, 1997) illustrates. This highlighted the issue of possible racism in the NHS as a whole, but included observations of the possible instances in medical school from the selection process through the exam system and then to the stage of making job applications. The authors refer to evidence of discrimination, but claim that there is (or has been) a lack of political will to deal with it.

### **Summary**

A review of the literature suggests that racism may be in operation in HE. However there is relatively little research, and recent surveys do not suggest that this is an overt experience for most students. However the literature does indicate differences in experience, expectation and performance of students from different ethnic groups. This supports the suggestion that gave rise to this study, that students from some ethnic groups may be more likely to perform poorly compared with the majority white group. This study will investigate whether this is indeed the case at Birmingham Medical School, and if so what, if anything, can or should be done about it.

Specifically I will investigate whether students from an ethnic minority perform less well than the majority group. I will go on to explore whether the socio-

economic background of students from ethnic minorities is consistently different to the socio-economic background of other students. If there are significant differences based on ethnicity I will explore the possible causes for such inequalities.

Table 5.1 summarises the arguments from the first five chapters in relation to the three research questions, what is known about the specific situation, and what can be gleaned from the literature. This leads to the focus for this study; and a brief description of the research tools I decided to use. Figure 5.1 presents a concept map illustrating the theoretical framework on which I have based the rest of this thesis. This includes the cycle of Act, Feedback, Reflect, Plan which I used to represent the synthesis of the learning theory explored in Chapter Three and which was shown as Figure 3.2.

Table 5.1 Research Plan

1. Is there a connection between student ethnicity and performance in the end of first year exams?	2. Is the experience of medical students at this medical school conducive to effective learning?	3. What, if anything, could be done to improve students' learning?
<b>What is known from the literature</b>		
This is an under-researched area, but there is agreement that race is a factor of importance affecting the student experience. However most studies imply that racial minority equates to economic disadvantage, which is not necessarily the case here.	Students are on a journey of lifelong learning, therefore they need to be equipped with skills needed to continue their learning. Generally this is best achieved if they take control of their learning, they are actively involved and have interaction with teachers and other students.	Failure is not commonly because the work is too difficult, more often it is to do with a mis-match of expectations, ability to fit in and a sense of belonging. Medical Schools, along with other HE institutions are coming under increasing scrutiny about the service that they provide to students.
<b>What is known about this case study</b>		
There is a higher proportion of ethnic minority students in the medical school than in the general population. It appears from names on lists that a disproportionate number of failing students are from an ethnic minority.	The number of students on the course has increased significantly in recent years, and the perception of staff is that the staff:student ratio has deteriorated.	There has been an increase in the failure rate but the majority of students pass all exams at first sit and most of those who fail pass the re-sit papers. This medical school, in common with virtually all institutions must operate within financial constraints. Any improvements in provision will have to fall within existing budgets.
<b>What remains to be explored</b>		
Are ethnic minority students more likely to fail? Are any particular racial groups at higher risk than others? Is race perceived as an issue by them or by others?	What is the actual student experience? What methods of teaching and assessment are used?	How does the school/university support students in terms of adjustment, difficulty, incongruence and isolation? Is there room for improvement?
<b>Research Tools intend to use</b>		
Student survey Student data from records Exam results	Shadow students Examine the timetable Interview staff Student survey	Student survey Interview staff Pilot study survey

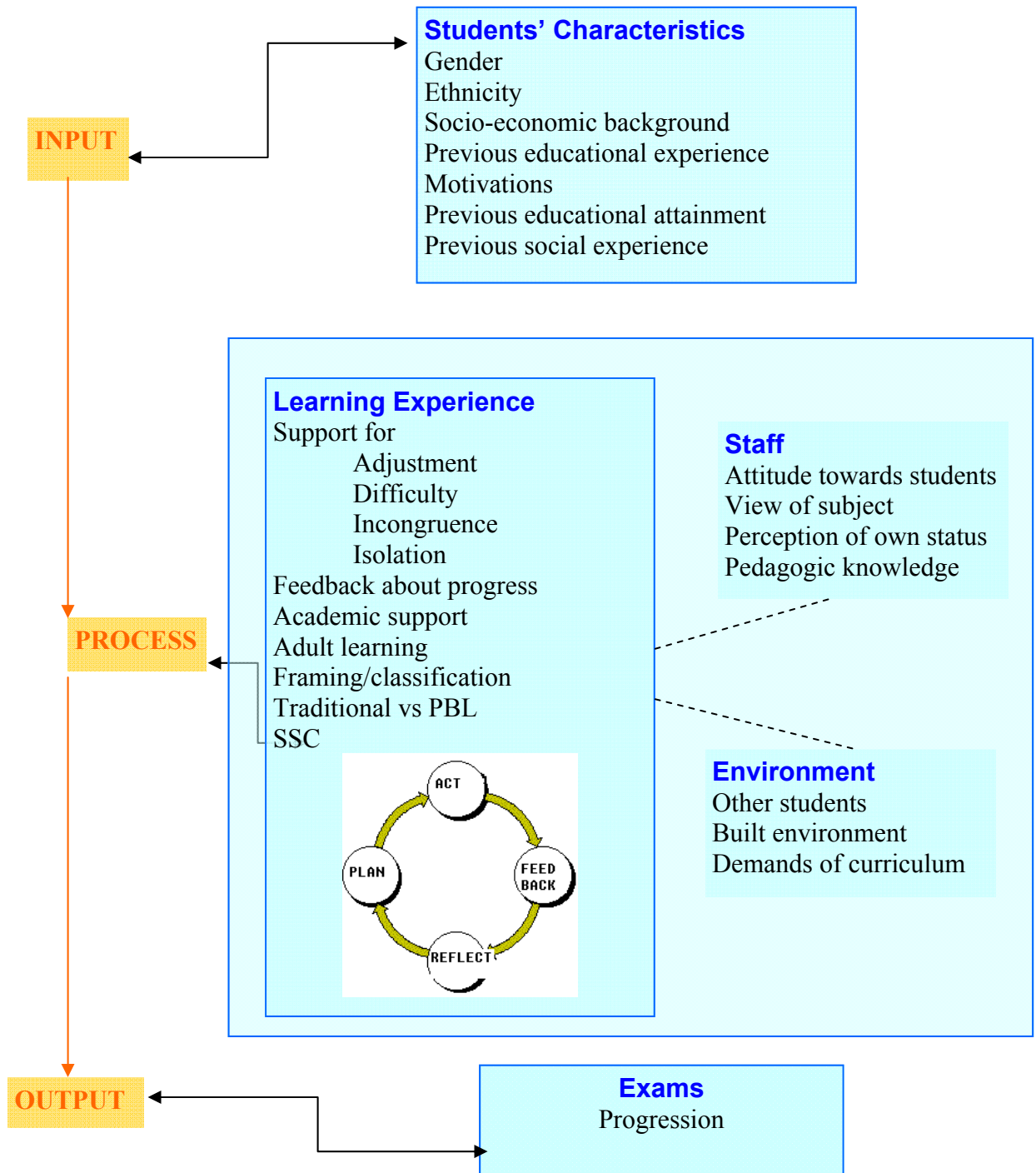


Figure 5.1 A Theoretical Framework

## **Chapter 6: The Pilot Study**

6.1 Introduction

6.2 Methodology

6.3 Findings

6.4 Discussion

## **CHAPTER 6 – THE PILOT STUDY**

### **6.1 Introduction**

A pilot study was carried out in the summer of 2003. The questionnaire design was influenced by observations and speculations by staff concerning the possible reasons why such a relatively high proportion of students failed one or more exams at first sit. At that time students had not been asked for their opinions about the causes of failure. Although all modules are evaluated by asking students to complete an evaluation survey, these surveys do not ask about the experience of the year as a whole.

### **6.2 Methodology**

I decided to use a combination of closed and open questions. I discussed the relative merits of this approach in Chapter Two. The closed questions comprised a series of statements with which respondents could indicate their agreement or disagreement on a five-point Likert scale, and space for them to record open text remarks. As Robson (Robson, 2002) claims:

*“items in a Likert scale can look interesting to respondents, and people often enjoy completing a scale of this kind.”* (page 293)

The five point scale allows respondents to give a non-committal answer. In most cases I used the scale SA – Strongly Agree, A – Agree, NO – No Opinion, D - Disagree, SD – Strongly Disagree.

Although there are limitations with this approach to questionnaire design, as I discussed in Chapter 2, a significant influence was the knowledge that the



students are accustomed to answering questions according to a Likert scale since each module is evaluated at the end of the course using this type of scale. Given the expected low rate of return I felt that students might be more inclined to answer the questions if they were presented in a way that was familiar to them.

*Table 6.1 Pilot Study Closed Questions*

1. More work was expected on the course than I anticipated would be necessary.
2. Other students were a source of support in my studying.
3. Teachers were approachable.
4. I felt at home at Birmingham Medical School.
5. I had a wide circle of friends on my course.
6. I had one or two close friends on the course.
7. I made no friends on the course.
8. I felt lonely at Birmingham Medical School.
9. Most of the time I had a clear idea of what my teachers expected of me.
10. The IT facilities were adequate.
11. The library facilities were adequate.
12. I had problems balancing my studies and my social life.
13. Pressures from outside the medical school interfered with my ability to study.
14. Ill health interfered with my ability to study.
15. Financial difficulties interfered with my ability to study.
16. Generally I felt I was out of my academic depth.
17. When I applied for the course I had a strong desire to be a doctor.
18. I became a medical student mainly to please other people.
19. I often felt overwhelmed by the workload.
20. The assessment process was a fair measure of the course work.

The students were invited to make comments at the end of the questionnaire.

These were transcribed into a Word document. The only classification made at this stage was into those who passed and those who failed. The full collation of comments was then classified according to over-arching themes. This was done manually, by reading through and identifying comments that had similar themes.

I explored this approach based on a typical qualitative approach to analysis, in

which I took a theme-based approach to analyse the data. However, as I discussed in Chapter Two, the respondents were directed to give information about specific aspects, since the questions tended to set the contested ground.

I decided to use a questionnaire, despite my espoused preference for a qualitative approach for two reasons. As I discussed in Chapter Two, I am acutely aware that my audience will expect to be presented with data that they will take to be reliable and replicable. I can not guarantee that the questionnaire has produced such data but there is a suggestion that such an approach is more likely to do so than, for example, a small number of unstructured interviews.

I did try to triangulate the findings with focus groups but it proved impossible to reach students who had failed and therefore left the University. Even amongst those students who had passed, either at first sit or subsequently in the August resits, and were therefore still on the course I met with a great deal of reluctance to take part in a focus group or to meet with me individually to discuss the issues.

The questionnaire was sent out to 227 students who took the 1<sup>st</sup> year MBChB exams in 2002. The selected students included the following categories:

15 Withdrew from the course

28 Required to repeat the year

18 External resits – ie did not repeat the year nor progressed into year 2

103 Internal resits – ie failed at least one module exam the first time but passed the resit paper

63 Passed all module exams the first time round.

The pass students were selected by gender and ethnic group as a control group to the withdrawn, repeats and external resit candidates.

83 questionnaires were returned (37%):

4/15 – 27% return rate - Withdrew

7/28 – 25% return rate - Repeat year

8/18 – 44% return rate - External resits

39/103 – 38% return rate - Internal resits

25/63 – 40% return rate - Passed.

As this was an exploratory study I hoped to acquire a range of views from those who passed as well as those who failed. However, I expected that it would be difficult to obtain responses from students who had withdrawn, partly because they may not have left a forwarding address and partly because they might not have wanted to contribute to the study. I was therefore pleased to receive over 25% response rate in every category.

The findings from this survey were then used to inform the design of the entry survey which will be discussed in Chapter Seven. While the findings are of

interest in their own right, they do not address the research questions concerning ethnicity. The students were not asked about their ethnicity, and therefore observations can only be made based on comparing those who passed with those who failed.

The questionnaire was sent to all students who had failed one or more modules in the previous year. Some of these students had proceeded through to the second year of the course, others had withdrawn altogether. Using a rather crude means of identifying ethnicity (surname) these students were matched, as far as possible, by ethnicity and gender with students who had been successful in all modules. The aim was to find out if there were any obvious differences between those who passed and those who failed their exams, or conversely if there were any obvious similarities between students in either group. The rationale for attempting to match pass and fail students by ethnicity and gender was to avoid bias in the groups selected. This follows the good practice described, amongst others, by Robson (Robson, 2002). However the lack of reliable data made this matching process problematic. Although I felt it was better to attempt to regulate for bias in the selection of students to contact, I did not feel that the method was sufficiently robust to use in any subsequent analysis. Therefore the results will not make reference to ethnicity as a factor.

It was difficult to reach some of the students who had left the course, but all were sent a reply-paid envelope. All non-responders were sent a follow up letter or, where the electronic address was known, an email version of the questionnaire.

Although I was pleased with the response rate, it was not high. 83 questionnaires were returned, which was 37% of the pool. Only 27% of students who had withdrawn, and 25% of those required to repeat the year replied. 38% of internal re-sits and 44% of the external re-sits replied, along with 40% of those who had passed. Internal re-sits are students who failed one or more exams but have been given permission to repeat the relevant module including attending the teaching. External re-sits are students who have failed one or more exams and have been given permission to sit the relevant paper(s) the following year, but who have not been allowed to repeat the teaching.

### 6.3 Findings

The responses from the pilot study generated five key themes of motivation, workload, isolation, external factors and resources. These themes help to answer the question – is the experience of medical students in this medical school conducive to effective learning?

Figures 6.1 to 6.20 give a summary of the responses to the pilot study questionnaire. The graphs are presented in the relevant theme, and have been numbered sequentially, with a cross reference to the original question.

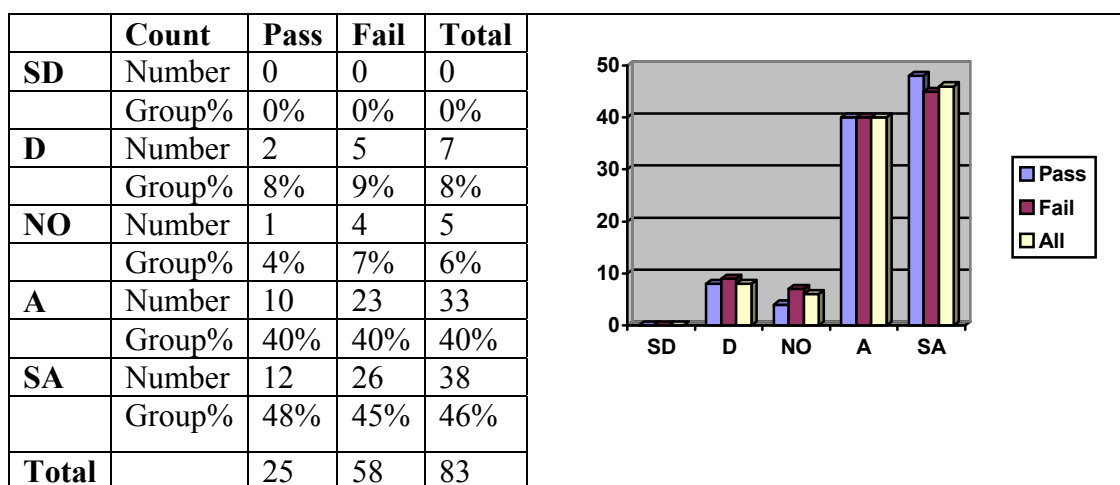


Figure 6.1 When I applied for the course I had a strong desire to be a doctor.Q17.

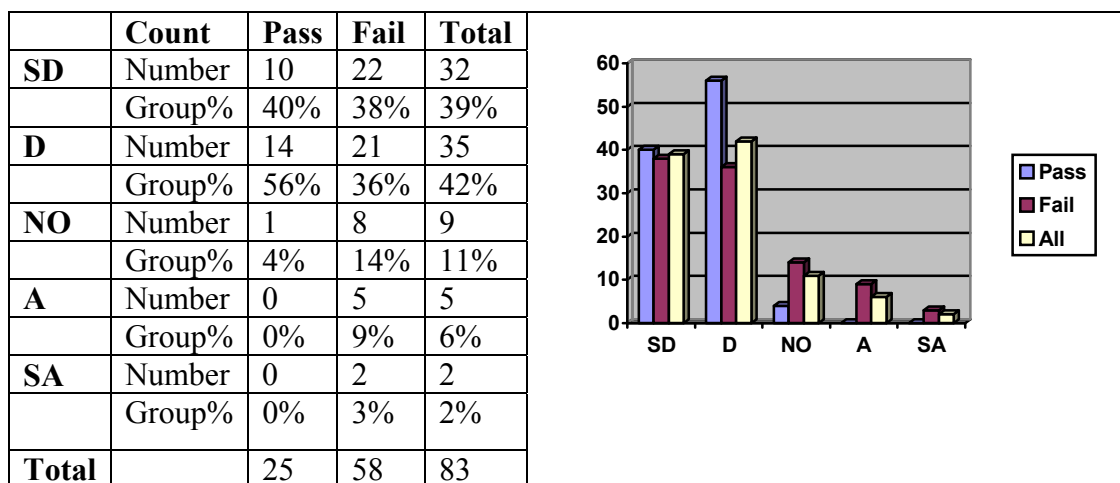


Figure 6.2 I became a medical student mainly to please other people.Q18.

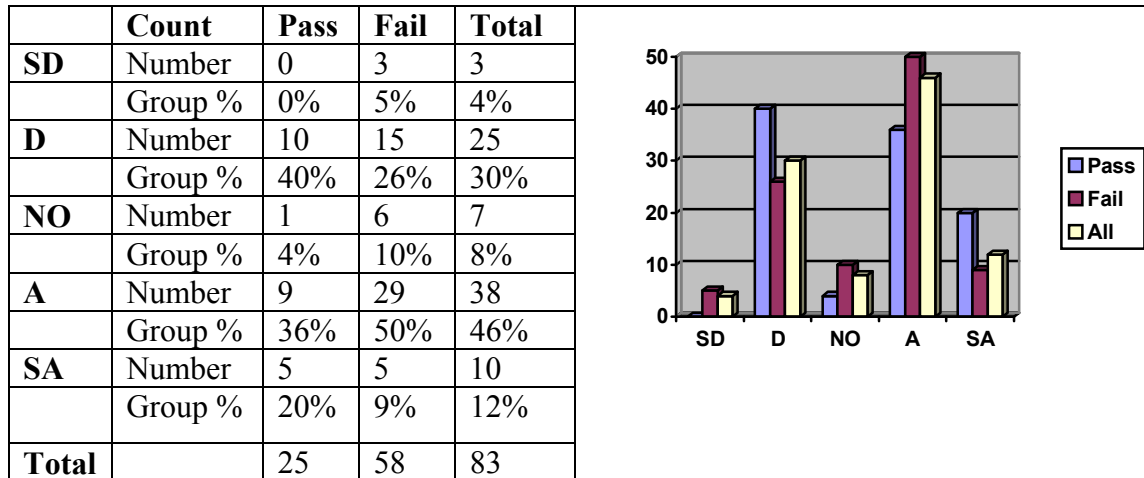


Figure 6.3 More work was expected on the course than I anticipated would be necessary. Q1

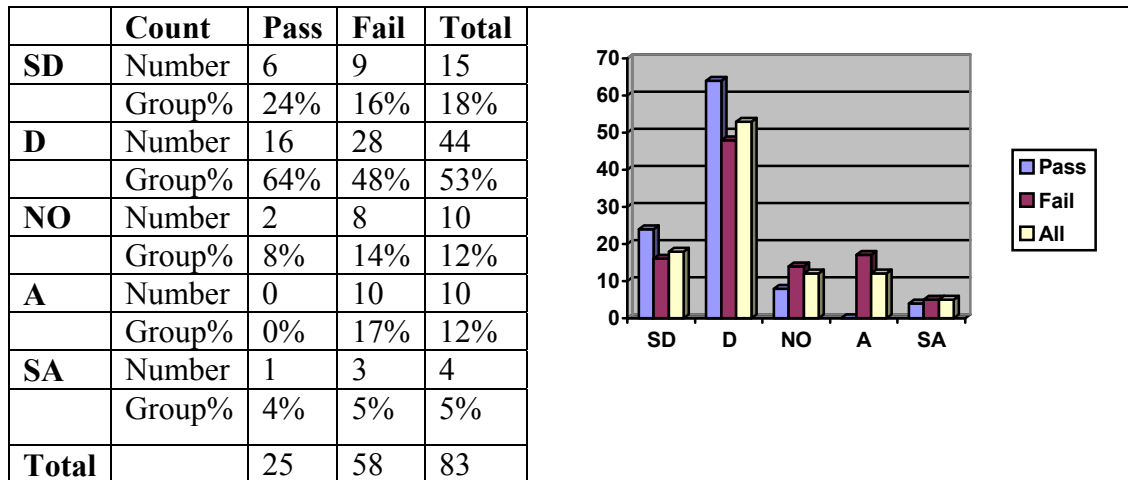


Figure 6.4 Generally I felt I was out of my academic depth. Q16

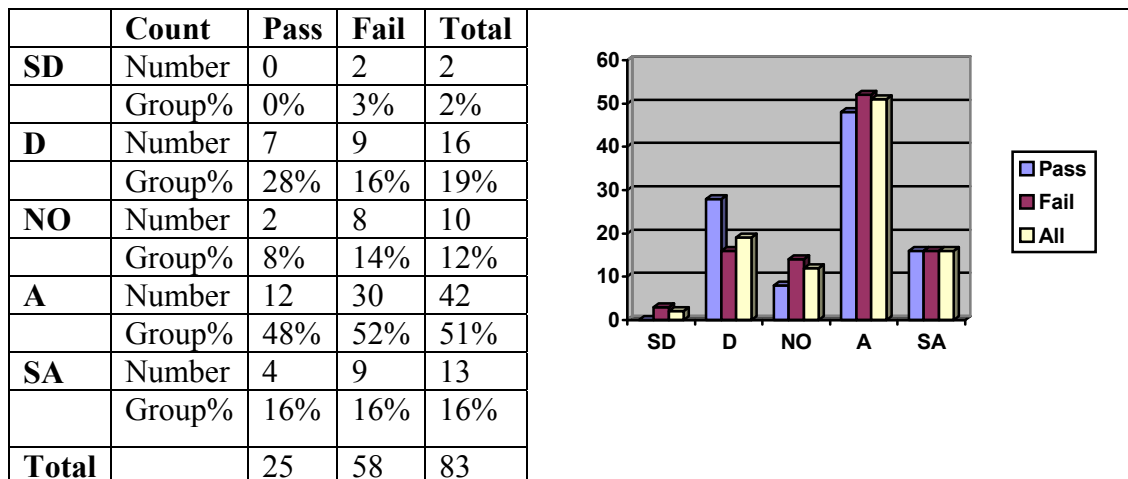


Figure 6.5 I often felt overwhelmed by the workload. Q19

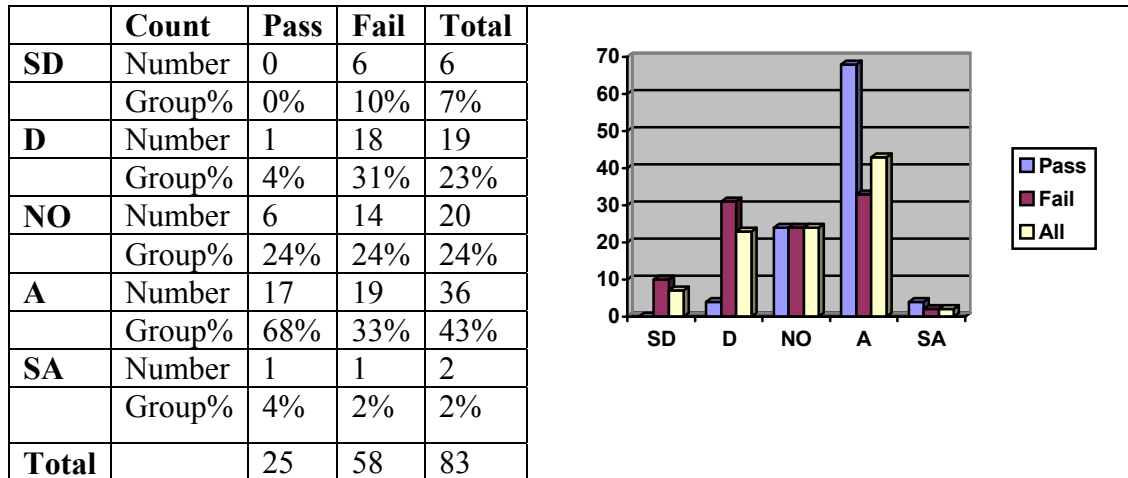


Figure 6.6 The assessment process was a fair measure of the coursework. Q20

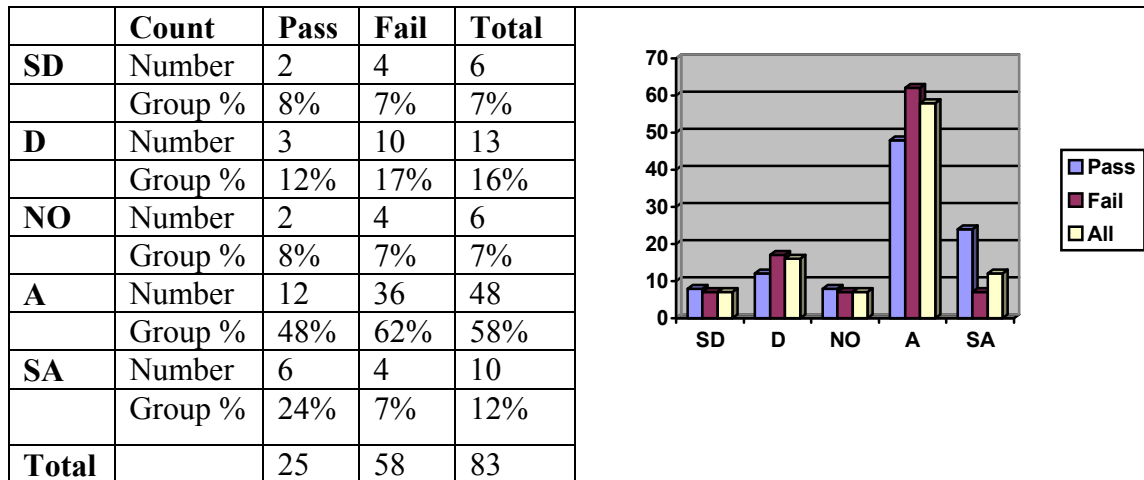


Figure 6.7 Other students were a source of support in my studying Q2

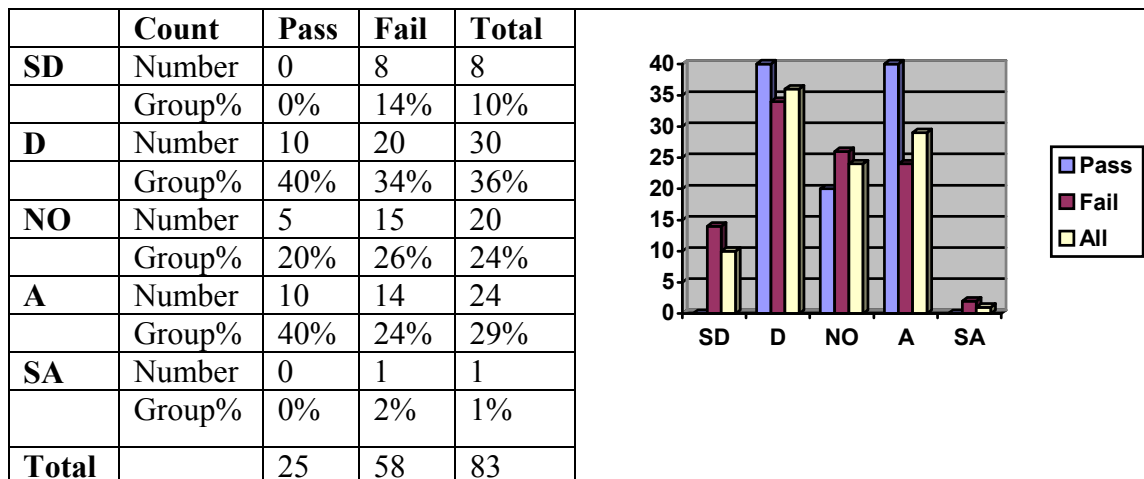


Figure 6.8 Teachers were approachable Q3



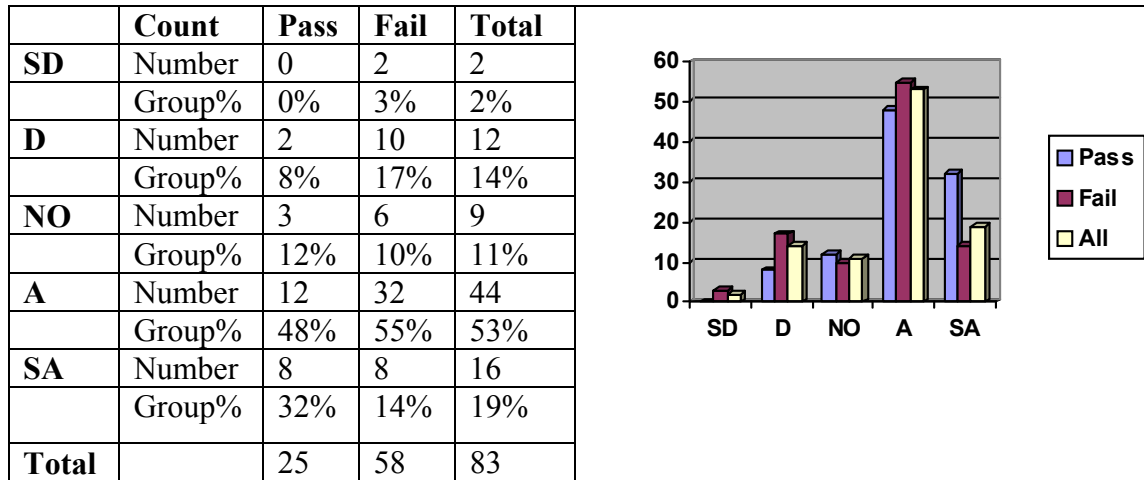


Figure 6.9 I felt at home at Birmingham Medical School Q4

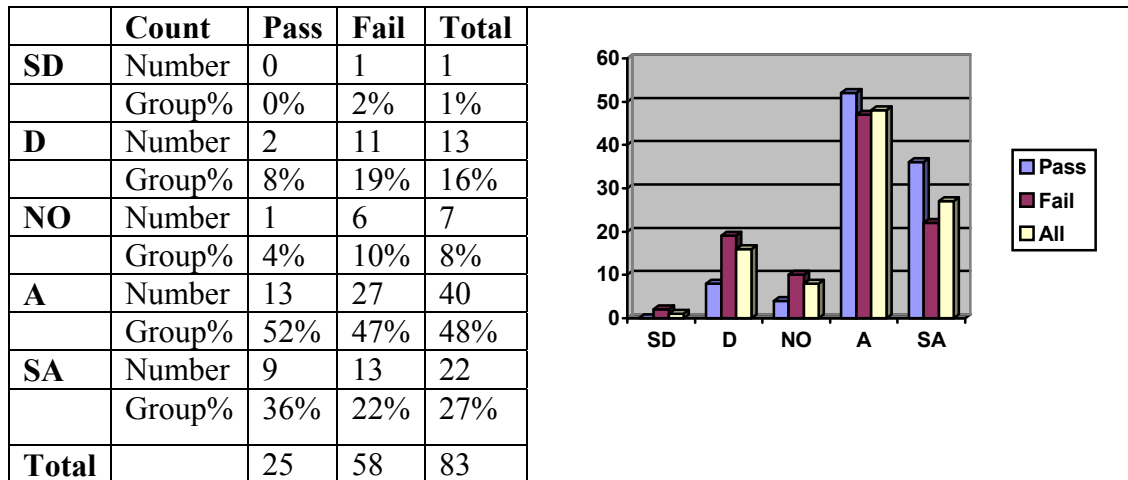


Figure 6.10 I had a wide circle of friends on my course Q5

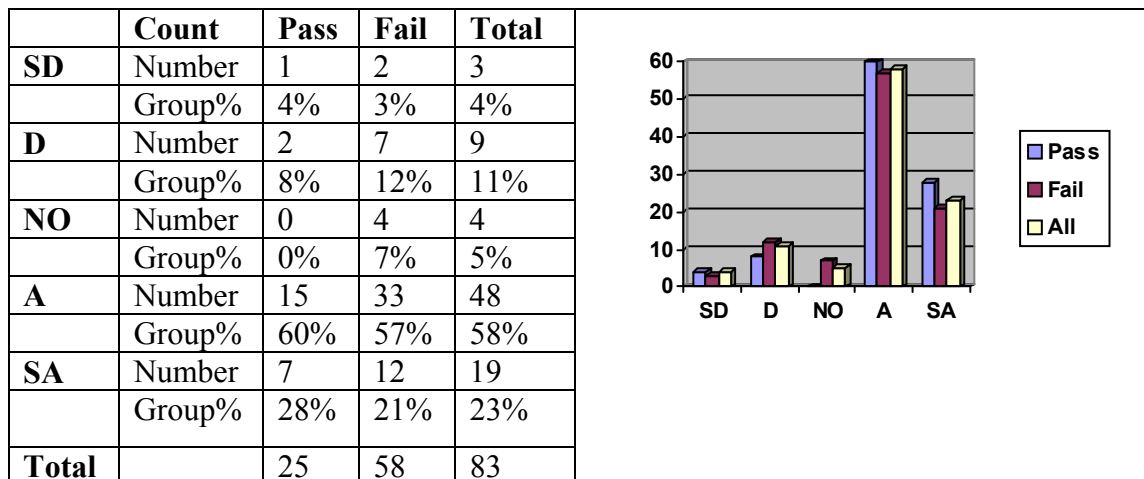


Figure 6.11 I had one or two close friends on the course. Q6

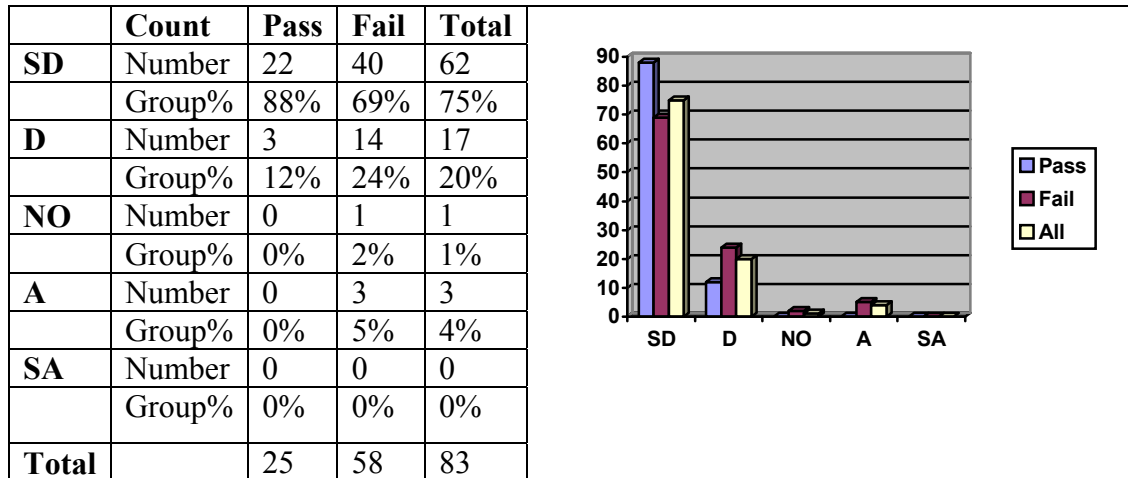


Figure 6.12 I made no friends on the course. Q7

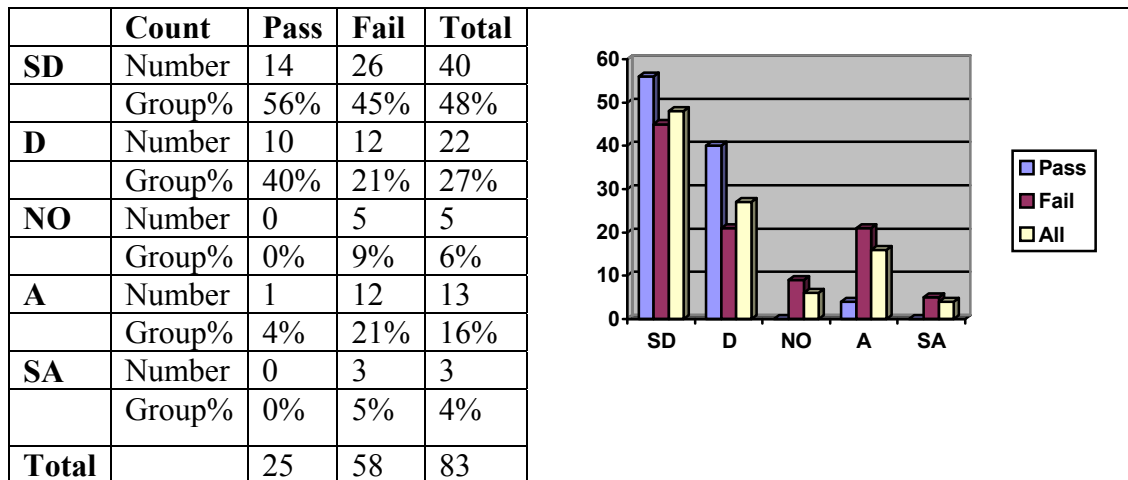


Figure 6.13 I felt lonely at Birmingham Medical School Q8

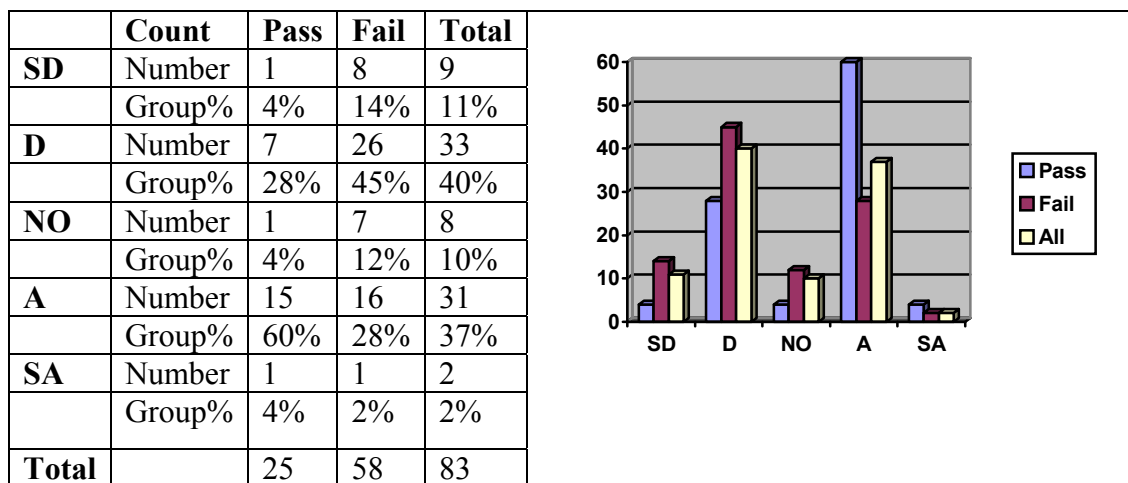


Figure 6.14 Most of the time I had a clear idea of what my teachers expected of me. Q9

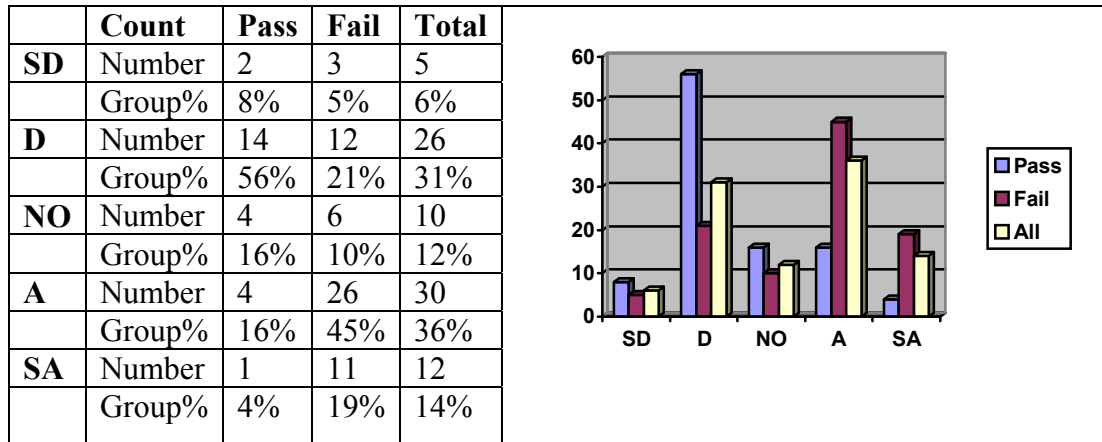


Figure 6.15 I had problems balancing my studies and my social life Q12

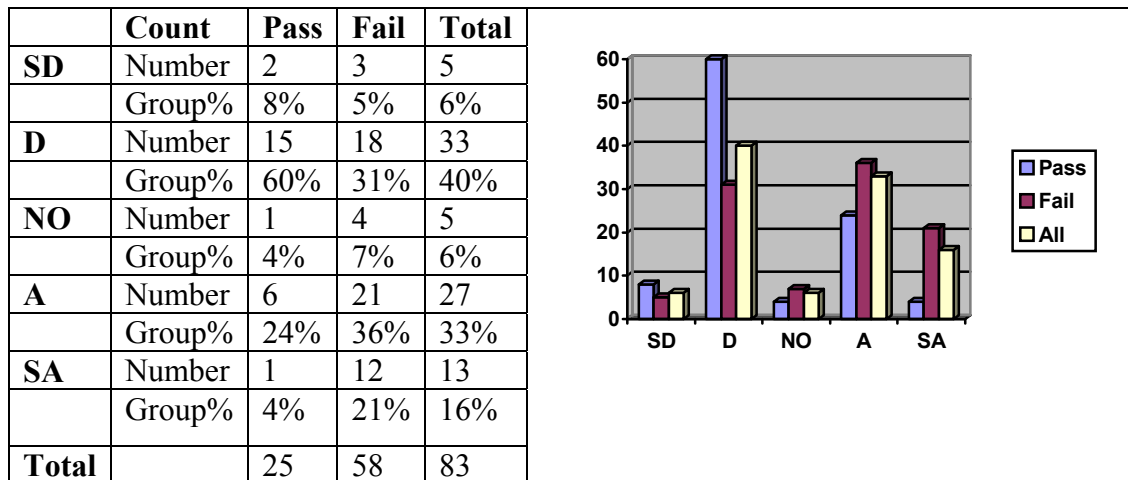


Figure 6.16 Pressures from outside the Medical School interfered with my ability to study. Q13

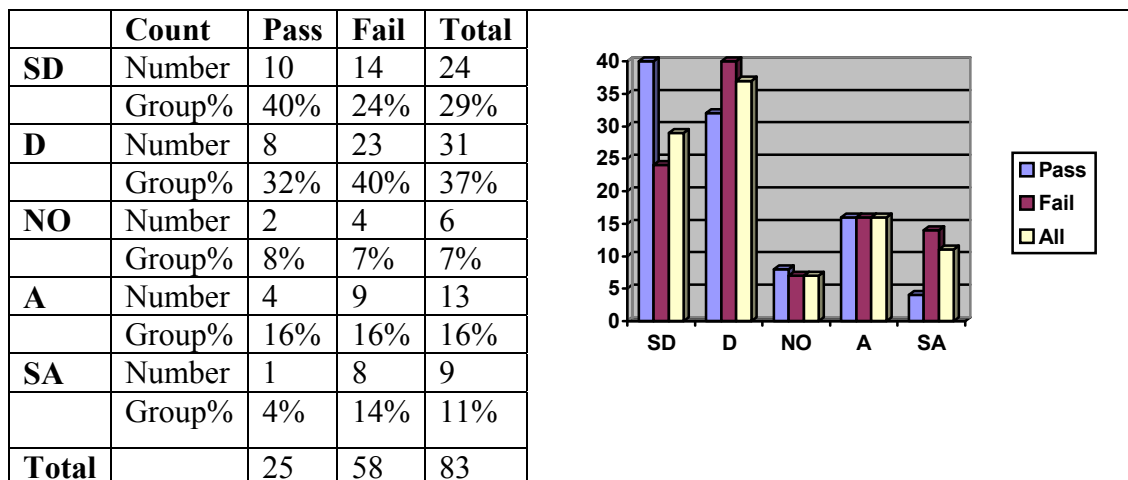


Figure 6.17 Ill health interfered with my ability to study Q14

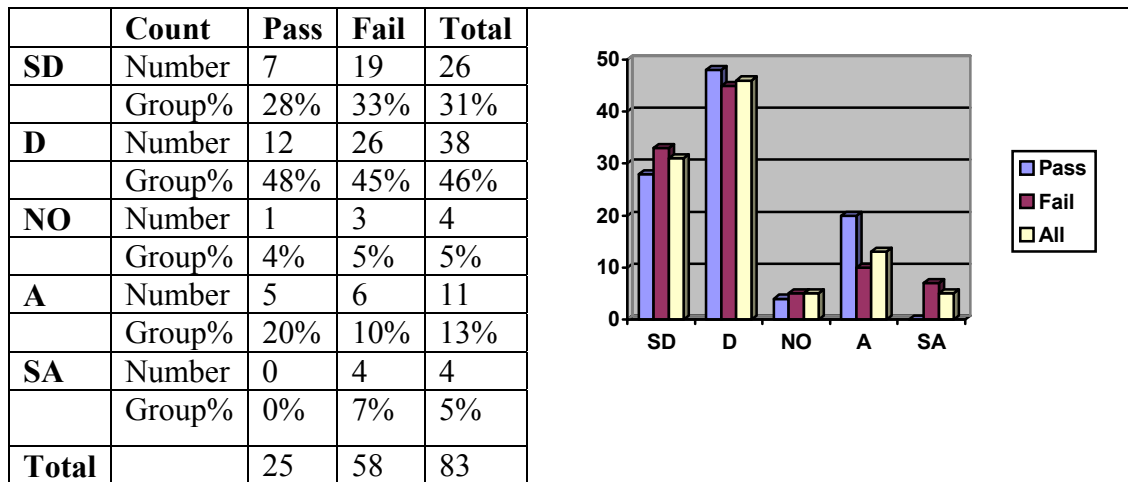


Figure 6.18 Financial difficulties interfered with my ability to study.Q15

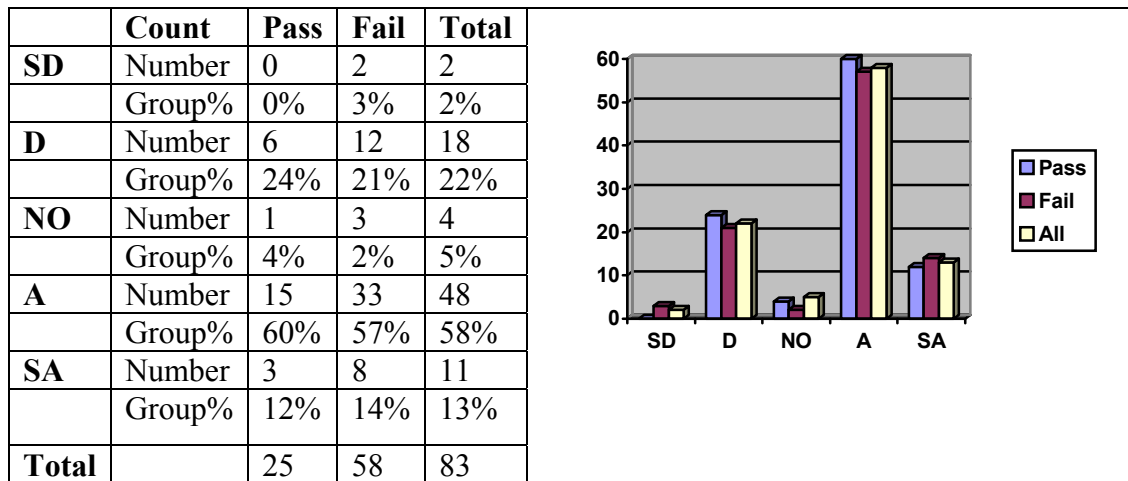


Fig 6.19 The IT facilities were adequate.Q10

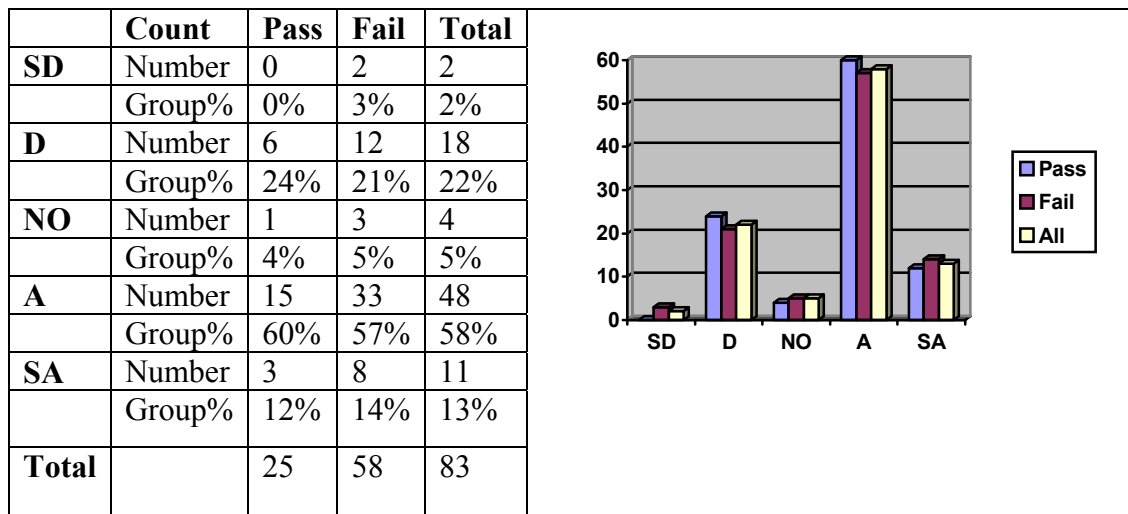


Fig 6.20 The library facilities were adequate. Q11

## **Motivation**

Questions 17 and 18 relate to this first category. These questions explored students' reasons for wanting to study medicine, with a view to finding out if, for example, students who chose the subject because of their own desires were more likely to pass than those who felt that they chose the subject in order to please other people.

Students showed broad agreement with the statement: Q17 *When I applied for the course I had a strong desire to be a doctor* (figure 6.1). Only 8% disagreed, 86% agreed or strongly agreed. However, in response to the statement Q18 *I became a medical student mainly to please other people* (figure 6.2) those who failed were more likely to agree. None of those who passed agreed or strongly agreed, whereas 9% of those who failed agreed and a further 3% strongly agreed.

Comments such as the one below help to illustrate this:

*'I left the med school because I realised that I didn't want to be a doctor, and didn't really enjoy the course. I wanted to change to something I found more interesting and would be motivated to pass!'* (F1)

NB the coding after each quotation indicates gender (F – female, M – male) and respondent number.

At face value this supports the hypothesis that students who are persuaded by others to study medicine are more likely to fail. However, it is possible that having failed, a person is more likely to blame others for having encouraged them

to study medicine in the first place. This can not be ruled out as an explanation given that the questionnaire was administered after students knew they had failed.

### **Workload**

The second category: workload contains the four questions which explore whether students who failed differed from those who had passed in their expectation of the workload on the course, whether they felt out of their depth academically or overwhelmed by the workload, and finally, their attitudes regarding the fairness of the assessment methods.

Question 1: ‘*More work was expected on the course than I anticipated would be necessary.*’ (See figure 6.3).

The graph suggests that students who failed were slightly more likely to agree with this statement than those who passed. Although 58% of all students agreed or strongly agreed with the statement, 59% of those who failed agreed or strongly agreed, compared with 56% of those who passed.

However one student said:

*‘I found the course quite dull and it felt like a production line with little individual effort required.’* (F3)

Another said

*‘I feel one of the main reasons I failed the first year [first time around] is I didn’t realise what was expected of me.’* (P4)

*Question 19: 'I often felt overwhelmed by the workload'* (See figure 6.5)

There was virtually no difference between those who passed and those who failed in the percentage that agreed or strongly agreed, and several from both groups commented on the volume of work. They also commented on the assessment process.

*Question 20: 'The assessment process was a fair measure of the coursework'* (See figure 6.6)

This statement elicited a response in agreement of only 35% of those who failed compared with 72% of those who passed. This is possibly not surprising since it may be natural to blame the assessment process (rather than yourself) if you fail, but consider it fair if you pass. However some of the comments illustrate a more sophisticated attitude amongst some:

*'It is very difficult to judge the level expected in an exam as the exams are very different to A levels.'*(F11)

*'Quite a few students didn't actually know how much each assessment was worth and what the assessments would be assessing.'*(F6)

*'we don't get enough feedback on our progress and often don't get basic test results.'*(P2)

*'Any academic problems I had last year were mainly based on the assessments. Although I think that the methods of assessment were fair, the timing of them was bad.'*(P6)

This more sophisticated response may help explain the mixed feelings evident in the graph.

## **Isolation**

The third category of isolation explored the theories suggested by Tinto (Tinto 1993) and others, that student retention is linked to students adapting to their environment and developing a sense of identity. As I was particularly interested in aspects that might have an impact on this aspect I asked a number of questions, 8 in total, from number 2 to number 8 on the original questionnaire.

The findings suggest that all students, both successful and unsuccessful feel that they could and should have been given more information about what was required in the exam and course work in general, and also feedback about their performance. For example, those who failed were far more likely than those who passed to disagree with the statement: ‘Question 9: *Most of the time I had a clear idea of what my teachers expected of me*’ (see figure 6.14).

(64% of those who passed agreed or strongly agreed, while only 30% of those who failed did so).

*Question 4: ‘I felt at home at Birmingham Medical School’* (see figure 6.9).

Although more students who failed (20%) disagreed or strongly disagreed than those who passed (8% disagreed), 80% of those who passed agreed or strongly agreed compared with 69% of those who failed. This compares with the response to the statement:

*Question 8: ‘I felt lonely at Birmingham Medical School’* (see figure 6.13).



96% of those who passed disagreed or strongly disagreed, whereas 26% of those who failed agreed or strongly agreed. A student who failed commented that:

*'Feeling at home in the med school is a strange concept because you pretty much don't spend anytime anywhere else at uni except at med school. I don't like how it is so isolated from everywhere else like university centre and the guild. No wonder other people have issues with medics and how they don't make an effort to socialise with anyone else.'* (F22)

This helps to explain the apparent contradiction that students could feel at home and simultaneously lonely. Tinto's classification of isolation and possibly incongruence may explain this reaction.

*Question 2: 'Other students were a source of support in my studying'* (see figure 6.7).

There was no great difference between those who passed and those who failed with 23% of all students disagreeing or strongly disagreeing and 70% agreeing or strongly agreeing. However the other questions (questions 5 to 7, figures 6.10, 6.11 and 6.12) relating to friends gave the following results:

Those students who passed were highly likely to agree that they had a wide circle of friends, and had one or two close friends (88% agreed or strongly agreed) and 100% disagreed or strongly disagreed that they made no friends. Of those who failed, the vast majority shared the opinion of those who passed, however only 69% agreed or strongly agreed that they had a wide circle of friends, 78% that they had one or two close friends and 5% agreed that they made no friends at all.

*Question 3: 'Teachers were approachable'* (see figure 6.8).

Students who passed were more likely to agree or strongly agree with this than those who failed: 40% of those who passed disagreed, none strongly, whereas 34% of those who failed disagreed and a further 14% strongly disagreed. This raises the question as to whether those who failed had more need of teachers and did not get the help they needed, or if because they considered the teachers to be unapproachable they did not seek out the help that they needed. Students who failed were more likely than those who passed to give no opinion (26% of those who failed, 20% of those who passed), but in both cases this is a large proportion, which may suggest that they have no opinion because they did not try to approach a teacher. These comments give some light:

*'I feel that other factors, not mentioned in the questionnaire contributed to my failure, such as a lack of support from the medical school.'*(F2)

*'I found the teachers were approachable but they refused to acknowledge that I had problems and so little help was given.'*(F5)

*'I don't feel the teachers provide enough opportunity for us to contact them by email or appointment.'*(F16)

*'Teachers are approachable but are not always accessible. Because of the large number in the year, teaching often feels impersonal.'*(P1)

*'If things go wrong people (teachers) don't seem to be much help and are reluctant to discuss our results.'*(P2)

### **External Factors**

The fourth category of external factors includes two questions (questions 12 and 13) which were chosen to explore the claim by some staff that some students fail because they are expected to take on external responsibilities such as childcare or helping with family businesses. Two further questions (questions 14 and 15) were included to explore whether personal reasons of health or finance were more of a factor for those who failed than for those who passed.

The questions in this survey were influenced by discussions with teaching staff, in particular there was a suggestion that some students might be more likely to fail than others because of external commitments. There was a suggestion that some students, such as female Asians for instance, might be expected to meet non-medical school demands such as helping to support an extended family. However the findings seem to suggest that where external factors were significant to the student, they were more likely to be caused by an imbalance between study and social life or the need to earn money.

*Question 12: 'I had problems balancing my studies and my social life'* (see figure 6.15).

Far more of those who failed (64%) agreed or strongly agreed with this statement compared with those who passed (20%).

*Question 13: 'Pressures from outside the Medical School interfered with my ability to study'* (see figure 6.16).

Only 28% of those who passed agreed or strongly agreed with this, compared with 57% of those who failed.

*Question 14: 'Ill-health interfered with my ability to study'* (see figure 6.17).

While the same proportion in each group agreed (16%) a further 14% of those who failed strongly agreed compared with only 4% of those who passed.

*Question 15: 'Financial difficulties interfered with my ability to study'* (see figure 6.18).

Slightly fewer of those who failed agreed with this compared with those who passed. However the difference is slight with 20% of those who passed agreeing and none strongly agreeing, 10% of those who failed agreed and a further 7% agreed strongly. Overall, considering all four statements together, it does seem that students who fail are slightly more likely than those who pass to experience external factors. Some of the open comments give further insight:

*'Like many others I have to work full time in all my holidays, and so find it hard to try and revise as well. This is particularly bad at Xmas, as some of my better off friends spent the whole holidays revising, given them an advantage.'* (P6)

*'However in order to support myself I worked a full time job which affected my ability to revise more than I anticipated.'* (F4)

*'My mother became extremely ill ... so all of her day to day responsibilities of being a housewife were referred to me.'* (F7)

*'I had no problem with the course itself. I just had some problems at home which interfered with my work and attitude to work.'* (F8)

## **Resources**

Finally, the category of resources (questions 10 and 11, see figures 6.19 and 6.20) was included to explore the suggestion made by some staff that despite an increase in student numbers, and therefore income to the school, the resources available to the students were inadequate.

Those who passed and those who failed agreed or strongly agreed with these statements in similar proportions (72% of those who passed and 71% of those who failed) in both cases.

However the open comments elicited a far more negative picture:

*'The computer cluster is always overcrowded on the PC side, and is impossible to get a computer when a deadline is close by.'* (P12)

*'The library facilities are substandard.'* (F22)

*'The library is a disgrace for a Medical School. Not enough copies of recommended books and only available for one day.'* (F20)

### **Summary**

**Motivation:** Students were more likely to agree that they chose to read medicine to please others if they failed than if they passed, but since this question was asked after they knew they had failed there is a question of whether their exam performance affected their answer to the question.

**Workload:** Although the majority of students agreed that more work was required than they had anticipated, the findings also suggest that some of them found the work dull and were unsure what was expected from them. Those who failed were more likely to regard the assessment as unfair, but again perhaps this is not surprising since people often seek to blame factors other than themselves for disappointing outcomes. The open comments further support the sense that students were unsure what was expected from them.

**Isolation:** The findings in this category emphasise the impression that students are unsure what is expected from them and a sense of detachment from their teachers. Although the students who failed were more likely to feel lonely than those who passed, there is a sense of students feeling isolated *in* the Medical

School, and separated from the rest of the University. An overwhelming majority of students agreed that they found support in other students. While the majority of all students claimed to have made friends, those who failed were more likely than those who passed to claim that they did not make friends.

Around 40% of all students said they did not find teachers approachable. The open comments suggest a level of complexity and raises the question of whether students felt staff were unapproachable because of their manner or physically because of the staff:student ratio.

**External Factors:** although staff had suggested that some students, in particular female Asians, were likely to fail because external factors such as the demand to help with their family, the findings suggest that the most significant factors were an imbalance between study and social life or the need to earn money. However, as I do not have access to ethnicity data it is not possible to tell from these findings whether there is a relationship between the response to this or any other question and a student's ethnic group.

## **6.4 Discussion**

The findings from the pilot study motivated me to extend the research project for several reasons. I felt that while some of the expectations of staff had been supported, we did not have sufficient data to answer the research questions, and that where we did have data, there could be more to find out or that the issue could be more complex than appeared at first glance.

The closed questions produced results which supported staff views regarding, for example, motivation. At this stage in the research the casual conversations amongst staff gave an impression that some students failed because they were not sufficiently motivated. The findings from the pilot study appear to support this as those who failed were more likely than those who passed to claim they studied the subject to please others. This could be a more complex issue, however. It could be the case that those who fail are more likely to claim they did not really want to study, but also staff may gain comfort from the idea that failure is due to low motivation since that could absolve them from responsibility, since, if that were the case failure would be due to the student's attitude, not the teacher's actions.

The questions regarding workload develop this theme. It does appear that those who failed had a less realistic expectation of the demands of the course than those who passed. But this seems to be an aspect that would benefit from more detailed study. In considering whether the method of teaching is conducive to learning it is significant to note that most students, regardless of whether they passed or failed, agreed that they often felt overwhelmed by the workload. While the dissatisfaction with the assessment process expressed by those who failed contrasts with the views of those who passed, the comments indicate that several students had difficulty in knowing what was expected of them. The findings in Chapters Three and Four suggested that students are more likely to succeed if

they have regular feedback about their progress and have a clear notion of what is expected. These comments suggest that these conditions are sometimes lacking.

The findings regarding isolation suggest that most medical students feel at home in the Medical School. It supports the suggestion that most are sociable people who have friends, although those who failed were more likely to be lonely than those who passed. The suggestion made by some staff is that a successful strategy for medical students is to work with friends and to learn from students in other years. This seems to be accepted as a cultural norm in the medical school.

Therefore it would be expected that those who failed to connect into this social grouping would be more vulnerable to failure.

I asked questions about external factors because some staff suggested that a cause for failure was sometimes the pressure put on some students, particularly Asian students, to contribute to their family while studying. This could be through helping with a family business, for example, or in the case of women in particular, helping with housework and childcare in an extended family. Although I was not able to analyse the data by ethnicity the findings do show that those who failed were more likely to have difficulty balancing their studies and social life, or to experience pressure from outside the Medical School. These findings therefore may raise more questions than they answer, but are sufficient to warrant further investigation in the next stage of the research.



Finally, library and IT resources were largely regarded as adequate. Consequently this was not an aspect that I planned to investigate in any detail in the subsequent research. However it should be noted that several students indicated that they did not meet the demands at peak times and that this was an issue.

The pilot study was conducted retrospectively, students were contacted after they had completed the first year and after they knew the outcome of their exams. This was advantageous because it meant that students were able to reflect on the experience, but it is equally possible that results are tainted in that students' success or failure may have influenced some of their responses.



## **Chapter 7: The Student Perspective**

### 7.1 Introduction

### 7.2 Methodology

#### 7.2.1 Student Survey

#### 7.2.2 Exam Results

#### 7.2.3 Deprivation Score

#### 7.2.4 Interview Score

#### 7.2.5 Statistical Analysis

### 7.3 Findings

#### 7.3.1 Closed questions

#### 7.3.2 Open Text questions

### 7.4 Discussion

## ***CHAPTER 7 – THE STUDENT PERSPECTIVE***

### **7.1 Introduction**

The pilot project produced data which was helpful as a starting point in identifying the possible reasons for the relatively high incidence of exam failure in end of first year exams. However there were some limitations. The most pressing of these was that data was collated after the students had completed the year, and therefore their subsequent exam performance may have had an influence e.g. a ‘cognitive dissonance’ effect. Cognitive dissonance was first described by Leon Festinger fifty years ago (Festinger, 1957), to explain how people manage to maintain two conflicting beliefs. In this case students may believe that they are able students, but in order to also acknowledge that they have failed to pass their exams they attribute their failure to something other than their inadequacy as students.

The next stage in the research project was to attempt to elicit student views prospectively. To this end I devised a student survey which was administered in the first semester. I also identified a range of sources of data that was available concerning students but which had not previously been examined in the context of exam performance.

## **7.2 Methodology**

### **7.2.1 Student Survey**

The relatively low response rate from students in the pilot study, particularly those who had left, motivated me to devise a way of obtaining data from students before they were identified as successful or otherwise. I therefore decided to design a survey which would elicit significant data prospectively, i.e. at or near the start of the first year.

At the beginning of the academic year 03-04 1<sup>st</sup> year MBChB students were invited to complete a survey. This was repeated at the start of the academic year 04-05. The selection of questions was made based on the findings from the pilot study. The questionnaire took the form of 30 questions which included a number of factual and attitudinal questions (see Table 7.1). The purpose of this was to gather data about students such as ethnicity, living arrangements, type of education, as well as their expectations as to the amount of work required and how difficult they anticipated the course would be. This data was then compared with their exam results. My aim was to reduce the threat of what Robson calls 'respondent bias' (Robson, 2002).

As I discussed in general terms in Chapter Two, and explained in more detail in the previous chapter, this reliance on quantitative survey methods runs counter to my epistemological preference for qualitative data. However, as I conducted this research within the context of Birmingham Medical School and medical education in general, I felt compelled to explore the issues from the perspective of both paradigms. In my role as Medical Education Developer I had a duty to seek to improve the student experience. However, the culture prevalent in the Medical School was such that those perceived as ‘educationalists’ (i.e. part of the Medical School Education Unit) were not generally welcomed as part of the group of those involved in teaching. As I discussed in Chapter 2 the lecturers with greatest responsibility for teaching tended to regard their professional identity as that of their subject discipline rather than as ‘educationalists’. This is despite the fact that most of these ‘educationalists’ did indeed teach or were involved in the course as personal tutors. It was partly in an attempt to align myself more closely to these teachers that I chose a methodology that I felt they would value.

As with the pilot study, a 5 point Likert scale was used for the statements. To identify ethnicity, I used a standard 13 band classification from the human resource department at the University. I interrogated the responses using SPSS software for the closed questions. SPSS is a commercial software package which is designed to simplify the process of performing statistical analysis of data. In this study it has been used to compare the responses of various groups of students according to a range of criteria to see if there are significant similarities or

differences between or within groups. I used a manual process to analyse the free text, which I described in Chapter Two. The use of SPSS and my developing awareness of techniques enabled me to analyse the data more rigorously than was the case with the pilot study. In particular not only was I able to make comparisons between different groups of students and variables such as living arrangements, for example, but I could also calculate whether any differences were statistically significant.

However, it is important to note that my knowledge of statistical analysis was, and remains, rudimentary. My aim in this exercise was to explore some of the ‘truths’ claimed by staff to explain the high rate of exam failure, and the possible relationship between ethnicity and performance. As with the pilot study (Chapter Six) I felt compelled by the expectations of my audience to use quantitative methods while simultaneously being drawn to record the voices of individual students and staff.

Towards the end of the project I attempted to publish some of the findings. I submitted a paper based on the quantitative findings of this chapter to ‘Medical Education’. The article was rejected mainly on the basis that the statistical analysis was insufficiently robust. The reviewers indicated that it would be desirable to perform multivariate analysis on the data. However, it was not possible for me to meet this requirement because this level of statistical analysis was not within my training. Furthermore I was not able to obtain support or

guidance within the School of Education to perform this level of analysis. This is both an indication of a limitation of this study, but also of the harsh reality of taking a research degree in an area where two discrete disciplines collide. I studied within the discipline of 'education' but my work was judged according to the criteria appropriate for 'medicine'.

There were ethical issues to consider regarding the survey. Students were not compelled to complete the survey. The response rate in the second cohort was lower than in the first. A limitation of the findings is that only the voices of those who responded have been heard. A reason for the lower response rate is that when the survey was administered the second time I had been seconded to a different department in the University. This meant that I had less influence over sending reminders to students to complete the survey than had been the case the first time it was administered.

The issue of compulsion is complex. Early on in discussions within the Medical School it was agreed that all students would be required to complete the survey. However at a later date this decision was reversed by the school management. If subjects are compelled to complete questionnaires people who do not want to provide the information may not be totally truthful in their response. Conversely, if data are missing it is difficult to make generalisations. Thus two of the threats to validity discussed in Chapter Two of description and respondent bias come into conflict. A full description of a situation requires as much data as possible,



but the means of acquiring such data may affect the veracity of the data that is produced.

Students were assured that their responses would be kept anonymous. However, in order to be able to make any connections between responses on the survey and subsequent performance it was vital to know the identity of the respondees.

Consequently I kept all data by student registration number, and although I could identify the students by their number, neither number nor name will appear in any work arising from this research. This does raise a question regarding data protection and issues of storage. All data generated by the School, e.g. interview score or exam results, remains the property of the School, however data provided by the students may only be used for the purpose for which it was originally given. At the time of writing this final draft I have erased the file which links individual records with specific student numbers.

Students were asked to complete the survey using an on-line web-based form, the questions are shown in table 7.1. The first six questions were designed to gather biographical detail. I then went on to ask students to respond to various attitudinal questions, several of which had been included in the pilot study. I omitted some questions that had appeared in the pilot study because I had identified the broad direction of my enquiry. This does not suggest that other issues are insignificant, but that I decided to focus my enquiry in a particular direction. The provision of IT and library resources, for example, may well be a significant factor affecting

students' learning, but I have not pursued it in this study. I chose to use a Likert scale for most of the questions despite the limitations described in Chapter Two. As with the pilot study in Chapter Six, the reason for this was that I felt that since the students were accustomed to completing surveys designed with Likert scales that they may be more likely to respond than if I presented them with an unfamiliar scale.

*Table 7.1 Entry survey questions and options*

<b>Question</b>	<b>Options</b>
1. What is your sex?	Male or Female
2. Currently what is your highest educational qualification?	1 A levels or equivalent; 2 First degree; 3 Higher degree
3. What is the nearest description of your living arrangements during term time?	1 University accommodation; 2 Non-university rented accommodation (e.g. private landlord); 3 Own home – permanent address
4. Which of the following most closely describes your ethnic background?	1 White British; 2 White Irish; 3 Any Other White; 4 Mixed: White/Black Caribbean; 5 Mixed: White/Black African; 6 Mixed: White/Asian; 7 Any Other Mixed Background; 8 Asian or Asian British: Indian 9 Asian or Asian British: Pakistani; 10 Asian or Asian British: Bangladeshi; 11 Asian or Asian British: Any Other Asian Background; 12 Black or Black British: Caribbean; 13 Black or Black British: African; 14 Black or Black British: Any Other Black Background; 15 Chinese; 16 Any Other Ethnic Group
5. What are your term time family arrangements?	1 Live alone without any dependents; 2 Live with parents and or siblings; 3 Live with partner, without children or other dependents; 4 Live with partner and child or children, and or other dependents; 5 Live as single parent with child or children, and or other dependents; 6 Other
6. Which age category do you fall into?	1 1 – 21; 2 22 – 25; 3 26 – 30; 4 31 – 35; 5 36 – 40; 6 41 – 45 (NB students over 35 are rarely offered a place and none over 40)
7. I have no doubt that I would like to become a doctor	1 Strongly agree; 2 Agree; 3 No opinion; 4 Disagree; 5 Strongly disagree
8. Other people have persuaded me to study medicine	1 Strongly agree; 2 Agree; 3 No opinion; 4 Disagree; 5 Strongly disagree
9. I am more of a social scientist than a pure scientist	1 Strongly agree; 2 Agree; 3 No opinion; 4 Disagree; 5 Strongly disagree
10. Compared to A levels/Scottish Highers/ International Baccalaureate	1 A lot more studying time; 2 More studying time; 3 About the same studying time; 4 Less studying

or equivalent, I expect this course to require	time; 5 A lot less studying time
11. Compared to A levels/Scottish Highers/ International Baccalaureate or equivalent, I anticipate that the style and or application of study will be different	1 Strongly agree; 2 Agree; 3 No opinion; 4 Disagree; 5 Strongly disagree
12. I anticipate that I will socialise mainly with other medical students	1 Strongly agree; 2 Agree; 3 No opinion; 4 Disagree; 5 Strongly disagree
13. I anticipate that I will socialise mainly with other non-medical students	1 Strongly agree; 2 Agree; 3 No opinion; 4 Disagree; 5 Strongly disagree
14. I anticipate that I will not socialise very much because I will be studying most of the time	1 Strongly agree; 2 Agree; 3 No opinion; 4 Disagree; 5 Strongly disagree
15. I have chosen to study medicine because I want a career helping other people	1 Strongly agree; 2 Agree; 3 No opinion; 4 Disagree; 5 Strongly disagree
16. I have chosen to study medicine because I am attracted by the lifestyle of a doctor	1 Strongly agree; 2 Agree; 3 No opinion; 4 Disagree; 5 Strongly disagree
17. I have chosen to study medicine because I want to be respected and being a doctor will bring this respect	1 Strongly agree; 2 Agree; 3 No opinion; 4 Disagree; 5 Strongly disagree
18. I have a good idea of what to expect in the medical course and later as a doctor because I have close friends and/or relatives who are doctors	1 Strongly agree; 2 Agree; 3 No opinion; 4 Disagree; 5 Strongly disagree
19. I am anxious about failing	1 Strongly agree; 2 Agree; 3 No opinion; 4 Disagree; 5 Strongly disagree
20. I have no doubt that I will eventually become a doctor	1 Strongly agree; 2 Agree; 3 No opinion; 4 Disagree; 5 Strongly disagree
21. Compared to A levels/ Scottish Highers / International Baccalaureate or equivalent, I expect the medical course to be:	1 Much more academically challenging; 2 More academically challenging; 3 About the same challenge academically; 4 Less challenging; 5 Much less challenging
22. I anticipate that it will be necessary to find out more things for myself through self-directed study, and asking for help on an individual basis than it was at A-level	1 Strongly agree; 2 Agree; 3 No opinion; 4 Disagree; 5 Strongly disagree
23. I expect to work mainly on my own	1 Strongly agree; 2 Agree; 3 No opinion; 4 Disagree; 5 Strongly disagree
24. I expect that working with other students will be a significant characteristic of this course	1 Strongly agree; 2 Agree; 3 No opinion; 4 Disagree; 5 Strongly disagree
25. Compared with A levels / SH/IB I anticipate that I will find the end of year exams:	1 Much harder; 2 Harder; 3 About the same challenge; 4 Easier; 5 Much easier

26. When I applied for this course I was aware that some medical schools use mainly problem based learning for their course and others use traditional methods	1 Strongly agree; 2 Agree; 3 No opinion; 4 Disagree; 5 Strongly disagree
27. How important was the method of teaching at Birmingham Medical School in your decision to apply for this course?	1 Highly significant; 2 Of some significance; 3 No opinion; 4 Unimportant; 5 Highly unimportant
28. I anticipate that I will have to take paid employment during the holidays whilst on this course	1 Highly likely; 2 Likely; 3 I don't know yet; 4 Unlikely; 5 Highly unlikely
29. I anticipate that I will have to take paid employment during the term-time whilst on this course	1 Highly likely; 2 Likely; 3 I don't know yet; 4 Unlikely; 5 Highly unlikely
30. I anticipate that I will have to balance my studies with external commitments that might not be a factor for other students (such as supporting an extended family helping with a family business etc.)	1 Strongly agree; 2 Agree; 3 No opinion; 4 Disagree; 5 Strongly disagree

I wanted to explore the possible link between motivation and success which appeared to be a factor from the pilot study. I therefore asked a similar question about why they chose the course. However I went further by also asking whether they doubted that they would become a doctor eventually. In part this was to explore a suggestion that some students regard getting into medical school as the key hurdle, once there they do not need to expend undue effort. Later in the survey I revisited motivation, asking if they chose medicine because of a desire to help others, because of the lifestyle, or in order to gain respect. These are all aspects suggested by staff as cultural attitudes that are exhibited by different ethnic groups. I felt that the survey was a good opportunity to explore whether the staff views were justified.

The course consists of mainly Biological Science modules (pure science) and some Medicine in Society modules (Social Science). There was a suggestion that some students attached more importance to one aspect than to the other, or that one was more rigorous or intellectually demanding than the other. I included the question about whether they considered themselves to be a pure or a social scientist to see if students expressed a view about themselves. However I did have reservations about this as I was not sure that they would interpret the question as I had intended.

In order to explore the pilot study findings about students' views of the volume and intellectual level of the course, I asked a couple of questions exploring their expectations of these aspects. In the pilot study most students indicated that they made friends and felt at home in the Medical School. I attempted to elaborate on that by asking whether they expected to socialize at all, and if so whether that would be largely with other medical students or students from other courses. I then asked questions aimed at exploring the students' expectations regarding the course, compared with their previous experience at A-level or equivalent. This was motivated by the observations by some staff that the style of teaching at A-level is different from that on a medical degree but that students seem to expect that the A-level style of teaching will continue. I also wanted to identify whether the largely traditional teaching method (as opposed to Problem Based Learning) was a factor that influenced their choice of Medical School.

Finally I asked questions about external factors such as the need to get paid work or external commitments. This was to elaborate on the findings from the pilot study which suggested that students who failed were more likely than those who passed to have to contend with external pressures.

### **7.2.2 End of First Year Exam Results**

Students sit nine exams in the first year. If a student fails an exam they are given a chance to resit the paper. If they fail a second time they are not normally permitted to continue. However if there are any mitigating factors which might have affected the student's performance in either exam, these may be taken into consideration when deciding on whether or not to allow a student to progress. The appeals and mitigation process are outside the remit of this study which is solely concerned with the performance of students in their first attempt at the end of first year exams.

To ensure that students were not included in the data twice only those who were taking the exams for the first time were included. This involved excluding any who re-sat the year (for example initially entered in 03-04 and re-sat in 04 -05 – they were only included in 03-04 not 04-05 analysis, or initially entered in 02-03 but re-sat in 03-04 they were excluded) or who left the course before the exam period.

The initial concern that gave rise to this study was with the large number of students re-sitting one or more exams and within that figure the suggestion that a disproportionate number of students were from ethnic minorities. For this reason students who did not take the exams at all were not included. This highlights an obvious limitation of the study, whereby I made a conscious decision to exclude students who left before sitting the end of year exams. These students represent a small proportion of the cohorts, but warrant future investigation.

The starting point for the data collection was the list of exam results produced by the school office for the exam board which meets in June of each year. Students who re-sat the year or just the exams were excluded. It was possible to identify these students from their student number and reference to a School Office database.

### **Exam results**

Data was provided by the MBChB 1<sup>st</sup> year exam board for each cohort in the study. I allocated a code of 1 if a student achieved over 50% in all the exams, and 2 if they achieved less than 50% in any exam. I did this for both cohorts. This enables a fair comparison between cohorts. In 2005 a new rule was introduced. Students who got between 45 and 49% but over 50% in the rest of the strand (a group of modules) could pass one exam by compensation. This had the effect of reducing the failure rate compared with the previous year. In order to make a fair

comparison between the scores of students from each cohort, I ignored the compensation rule when I analysed the results for the 2004-05 cohort.

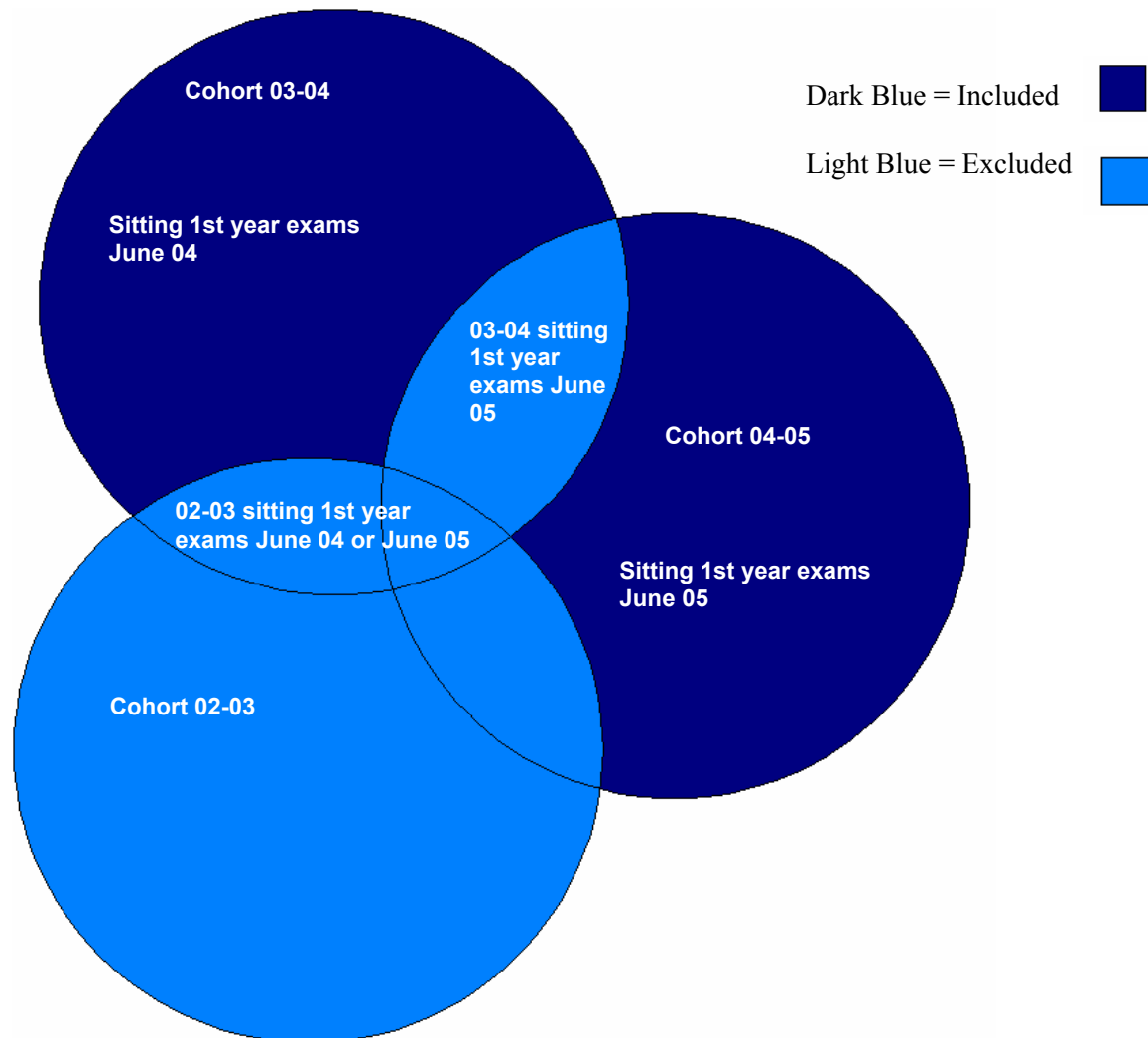


Figure 7.1 Venn diagram illustrating the subjects included and excluded from analysis

### Z-scores

In addition to identifying which students passed or failed exams I wanted to identify students' relative performance in the exams overall. I calculated a z-score for each exam, which in turn meant that I was able to calculate an average z-score



across all exams, and therefore the performance of students in relation to the rest of their peers in either cohort.

The z-score is a standard statistical process used to compare continuous data such as exam scores. The method involves calculating the mean and the standard deviation for each exam. The formula  $z = \frac{x_i - \bar{x}}{SD}$ , produces an average z-score across all exams.

The scores ranged from -6.49 to 7.62 where 0 is the mid-point. Students with a minus score performed less well than the average, the higher the figure the worse they performed (-6.49 being the worst) and those with a positive score performed above average (7.62 did the best). I went on to reclassify the records into 25% bands, i.e. 0 to 25%, 26 to 50% etc. Depending on what was most appropriate, I used either the continuous z-score or the classifications of z-score banding when I analysed the data.

### **7.2.3 Deprivation Score**

The University makes an electronic record of the postcode of virtually all applicants to the Medical School. I used this to identify each student's social background. I used the Indices of Multiple Deprivation (IMD) data provided by the Office of the Deputy Prime Minister. The Indices of Deprivation Report (Office of the Deputy Prime Minister, 2004) uses data from the National Census to rate geographical areas in terms of several factors. The framework

underpinning the IMD is that there are numerous factors which can lead to deprivation. The authors make a distinction between poverty and deprivation. Deprivation is taken to occur when individuals lack the resources necessary to access social conditions such as housing, health, clothes etc, that are taken to be customary by the wider community. Poverty is seen as being the lack of resources to avoid that deprivation. People can experience social and material deprivation. Material deprivation (lack of clothing, food etc) is easier to measure than social deprivation (inability to experience family relationships, for example).

The IMD uses several factors to identify the relative deprivation in a particular area. It is, however, important to realise that this does not indicate that a particular individual is deprived if they live in a particular area, since within even a small geographical range it is possible to find people with very different levels of relative deprivation. Since the report uses more than one aspect of deprivation it could be argued that a high score in one aspect could cancel out the effect of a low score in another.

The analysis is based on the measurement of seven domains of deprivation: Income; employment; health and disability; education (including skills and training); barriers to housing and services; living environment; and crime; and uses data from the 2000 National Census. A calculation based on a value for each domain produces a ranking for the 32,482 Super Output Areas (SOA). The SOA is a geographical grouping of around 1,500 people. The most deprived is given a

ranking of 1, the least deprived has a ranking of 32,482. Because of the way that the data is classified, it is not correct to say that an area with a score of 50 is twice as deprived as one with 100.

The postcode for each student resident in England at the time of their application was used to obtain the IMD for the SOA in which their postcode fell. Records were then grouped into bands of 10%. For example, students living in the 10% most deprived IMDs, those in the 11 to 20% most deprived and so on. As with z-score, depending on the nature of the analysis I used either the IMD score, or the classification based on banding to compare groups of students according to various characteristics.

This methodology gave rise to an ethical dilemma. Students provided their postcodes so that the University could correspond with them, and did not give their express permission for this to be used for research purposes. It will not be possible to identify a student from the research analysis since I do not show specific postcodes, I group them firstly into IMD according to the Super Output Area. There are 32,000 SOA so a classification of, for instance, the top 10% would include 3,200 SOAs, each of which contains 1,500 people, so a banding of the top 10% would apply to 480,000 people. If results were shown at an identified postcode level, then it could be possible to identify a particular medical student, since postcodes sometimes apply to as few as three or four residences. However,

the use of SOAs and particularly when these are further grouped into 10% bands makes such identification impossible.

While it is the case that students did not give their express permission for their postcode to be used for this research, it is common practice for medical schools to use applicants' postcode information to identify social background. Although this Medical School has not used the data for this purpose in the past, it would be acceptable for them to do so in the future. Since the outcome of this research may help to identify the School's performance in terms of the Widening Participation agenda, the Medical School management felt that this was an acceptable use to make of the data.

The University Database Manager was consulted about this issue, and confirmed that such use of the data was appropriate and would not be considered unethical.

#### **7.2.4 Interview Score**

The admissions procedure involves identifying students who meet set academic criteria. At interview prospective students are given a score by the three interviewers, this is collated by the Chair of admissions into an overall score. This is recorded in students' personal files.

Applicants are invited to interview if they have the following combination of previous and predicted academic achievement: at least 5 A\* GCSEs, including

Maths and English, predictions of at least 2 As and 1 B at A level including Chemistry and another Science, and Biology at least at 'AS' level if not 'A' level. The equivalent for students taking the International Baccalaureate is 36 points including Chemistry at HL and either Biology or Physics at HL, if not at HL Biology must be at least at SL. Applicants who meet the academic requirements are invited to interview. The interview process involves a 15-minute interview with a panel of three people. The interviewers grade the applicant's performance, and the totals are averaged to give a maximum score of 15. The students who achieve at least 10 points are then offered a place, which is usually conditional on the achievement of at least 2A grades and a 1B at 'A' level. Occasionally students with a score of 9 may be offered a place, for example if a low score may be attributable to a non English speaker who has not been in the country long and can be expected to improve their language skills, but who otherwise seems to be a strong candidate (based on their academic achievement). The Admissions Tutor states that the two reasons for interviewing are firstly to 'weed out' the 20 or so undesirable applicants each year who would otherwise meet the admission criteria, and secondly to market the Medical School to applicants who might otherwise choose to go to a competitor institution. The process involves sifting through around 2700 application forms, and selecting those predicted to achieve 3 A grades at A' level and who already have 8 or 9 A\* grades at GCSE. Depending on the number that meet this criteria the tutor then decides on a cut off point for the year. In 03-04 the cut off was 4 A\* at GCSE, in 04-05 it was 5 A\* grades. These students are then invited to an interview, this is usually around 900

applicants. All of the students who attend interview and who score at least 10 points are given the same conditional offer. At this point if the student achieves the grades the School is legally bound to honour the offer. The tutor's experience is that it is necessary to offer around double the number of places available (approximately 800 offers). About a quarter (approximately 200) will then decline the offer, about 50 will fail to make the grades, and 3/8 (approximately 150) will put Birmingham as their 'insurance' offer. These students are unlikely to come as only Oxford and Cambridge make higher conditional offers of 3 A grades, all other medical schools offer the same or slightly less.

Those who are selected are invited to attend a 15 minute interview. All successful applicants will have been interviewed. The admissions prospectus (University of Birmingham, 2006) states

*“Through discussion on general and academic topics an impression is sought of the candidate's suitability, both intellectual and personal, to embark on a career in medicine.”* (page 220)

The maximum that a student can score is 15, this is the result of all three interviewers giving top marks in every aspect. All other grades are shown as an average of the scores to 2 decimal points. In some of the subsequent analysis the raw score was used, however in some instances this resulted in too many sub categories to get a meaningful picture. The scores were therefore put into categories of 15, 14 to 14.9, 13 to 13.9, 12 to 12.9, 11 to 11.9, 10 to 10.9, 9.9 to 9, and less than 9. In some of the subsequent analysis the raw score was used rather than the categories.

The interview score is used to decide whether or not to offer a place to a student, but the student is not made aware of the score. The interview score is held in the student's personal file, but is not recorded anywhere else. This means that in a few cases of students who had left the course and whose personal file had gone missing, it was not possible to obtain this data.

There is an ethical consideration regarding the use of this data. It may be argued that the data is owned by the Medical School, and it was they who requested that the research be carried out. Furthermore, it is not possible to identify an individual student's interview code from the subsequent analysis, indeed individual students have no reason to know that such data existed. This is the view taken by the management of the Medical School when asked if it was acceptable to use the data for the purposes of this research. This does not, however, indicate that the ethical dimension of using such data has been fully explored. I believe that I have maintained my own ethical code since it is not possible from the results of the research to connect individual students to their interview code, and furthermore, no direct use has been made of the research in relation to the individuals concerned.

### **7.2.5 Statistical Analysis**

I used the software package SPSS to interrogate the quantitative data described in this section. This enabled me to collate the responses to the questions, but it also allowed me to explore whether apparent connections between data were likely to

be the result of chance or likely to be statistically significant. Where there could be a connection between categories such as ethnic group, for example and another factor, I used a one way independent sample ANOVA. A statistically significant result from this test would suggest that there is a tendency for subjects in one category to be linked with another factor. So for example I was able to investigate whether students from one ethnic group were more likely than students from other ethnic groups to achieve lower than average exam scores. A statistically non-significant result would indicate that any apparent connection could be due to the random affect of chance.

I used a Pearson's correlation co-efficient, on the other hand, when I looked for a relationship between variables, such as two scales. So for example, to investigate whether there is a correlation between IMD and A-level score. A statistically significant result would indicate that there is a correlation between the two, this could be positive or negative, for example that the higher the IMD score the higher the A-level score (a positive correlation), or if there was a correlation in the opposite direction such that the higher the IMD score the lower the A-level score, a negative correlation would be suggested. A non-significant result would indicate that within this study there was no apparent relationship between the two scales. Note that from correlation it is not possible to say if the relationship is causal, for example to conclude that IMD causes good or bad A-level scores.



In the case of this data I have used the tests to explore if there is a connection between the ethnic groups of the students in the study and their exam performance. I have also explored a number of other possible connections, such as links between IMD, interview score and A-level results.

## 7.3 Findings

### 7.3.1 Closed Questions

The student survey generated a wealth of data, which has proved invaluable in identifying specific characteristics of separate groups of students. I have sought to ascertain whether there is a link between exam performance and ethnicity and other factors. I begin by exploring the quantitative data such as A-level score and exam performance; I go on to explore the responses of the students to questions such as ‘I anticipate I will socialise with non-medical students’ to see if it is possible to build a picture of students who are at most risk of failure.

#### 1. Summary of data

Table 7.2 Summary of Data

	<b>03 - 04</b>	<b>04 - 05</b>	<b>Total</b>
Total sitting exams the first time	339	370	709
Total failed any exam	187 (55%)	172 (46%) [*96 – 25.9%]	359 (51%)
Total number of females	217 (64%)	200 (54.1%)	417 (59%)
Total number of males	122 (36%)	170 (45.9%)	292 (41%)
Females failed any exam	119 (55%)	95 (47.5%)	214 (51%)
Males failed any exam	68 (56%)	77 (45%)	145 (50%)

\* Figure supplied to the exam board where some students passed by compensation rule

Once re-sit students are excluded from the data, it emerges that only 49.4% of all students (from both cohorts) achieved over 50% in all exams. As I discussed earlier, this gives a way of comparing similar data since in 04-05 the official data was changed, such that students could be deemed to have ‘passed on

compensation' if they failed one exam by less than 5% and had achieved an average of over 50% for the rest of that subject area.

*Table 7.3 Summary of Data from Student Survey*

	<b>03 - 04</b>	<b>04 - 05</b>	<b>Total</b>
Survey completion	301 (89%)	135 (36%)	436 (61%)
IMD available	265 (88%)	115 (85%)	380 (87%)
Ethnicity: White	195 (65%)	93 (67%)	288 (66%)
Asian British: Indian	40 (13%)	16 (12%)	56 (13%)
Asian British: Pakistani	25 (8%)	10 (7%)	35 (8%)
Other	41 (14%)	16 (12%)	57 (13%)
Ethnicity: White failed any exam	95 (49%)	37 (40%)	132 (46%)
Asian British: Indian failed any exam	22 (55%)	9 (56%)	31 (55%)
Asian British: Pakistani failed any exam	21 (84%)	3 (30%)	24 (69%)
Other	24 (59%)	6 (38%)	30 (53%)
Females	195 (65%)	87 (64%)	282 (65%)
Males	106 (35%)	48 (35%)	154 (35%)
Females failed any exam (% of female responses)	93 (48%)	49 (56%)	142 (50%)
Males failed any exam (% of male responses)	46 (43%)	31 (65%)	77 (50%)

*Table 7.4: Summary of IMD and exam performance analysis by ethnic group*

<b>Ethnicity</b>	<b>IMD N</b>	<b>IMD Mean</b>	<b>IMD SD</b>	<b>z-score N</b>	<b>z-score Mean</b>	<b>z-score SD</b>
<b>White</b>	267	23,713	7024	288	0.109	0.661
<b>Asian British: Indian</b>	49	16,481	9335	56	0.013	0.652
<b>Asian British: Pakistani</b>	30	7,722	7736	35	-0.213	1.283
<b>Other</b>	34	16,848	9806	57	0.014	0.768
<b>Total</b>	380	20,904	9052	436	0.058	0.036

## 2. Exam results by ethnicity

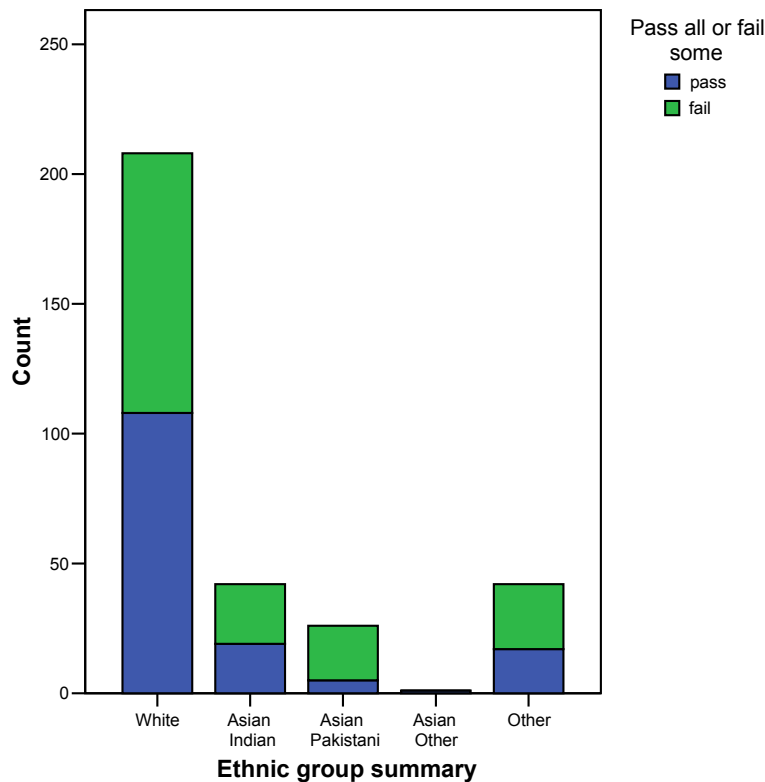


Figure 7.2: Ethnicity for 03-04 and 04-05 cohorts, indicating exam success or failure.

436 students provided data on their ethnicity and attended the end of first year exams which made it possible to produce an average z-score. A one-way independent-samples ANOVA on the effect of ethnicity on mean z-score (exam performance) showed no significant differences between the White British, Asian British: Indian, Asian British: Pakistani or Other groups entered into the analysis. [F(3, 432)=2.145; p=ns]. Although the highest average z-scores were achieved by the White group (Mean = 0.11, range 0.014 to 0.206) and the lowest by the Asian British Pakistani (Mean = -0.21, range -0.451 to 0.048); (see figure 7.2) these were not at a statistically significant level.

At face value, then, we can answer the first research question: no, there is not a statistically significant connection between ethnicity and exam performance, but there is an observable pattern which may explain the belief by some staff that students from some ethnic groups are more likely to fail than others.

### **3) Overall Indices of Multiple Deprivation**

As I wish to explore whether the social background of students has any bearing on exam performance, I have analysed the exam data according to students' IMD. 623 students attended the end of year exams and could be given an IMD score. Of these 36.4% lived in the 20% most affluent areas. 12.7% of students lived in the 20% most deprived. The largest single grouping (18.7%) lived in the 10% most affluent areas (see figure 7.3).

### **4) IMD by Examination Performance**

A Pearson's correlation co-efficient was calculated to investigate the relationship between IMD and overall exam performance measured by average z-score as described above. The results showed that IMD was significantly correlated with exam performance such that average z-score increased with increasing IMD score, that is, exam performance increased with rising affluence [ $r(620)=0.09$ ;  $p<0.05$ ].

I repeated the Pearson's correlation co-efficient with the group that completed the survey, and obtained a similar result. Amongst those students who completed the entry survey, (and for whom I have data regarding ethnic group) IMD was again significantly correlated with exam performance such that average z score increased with rising IMD score [ $r(380)=0.117$ ;  $p<0.05$ ].

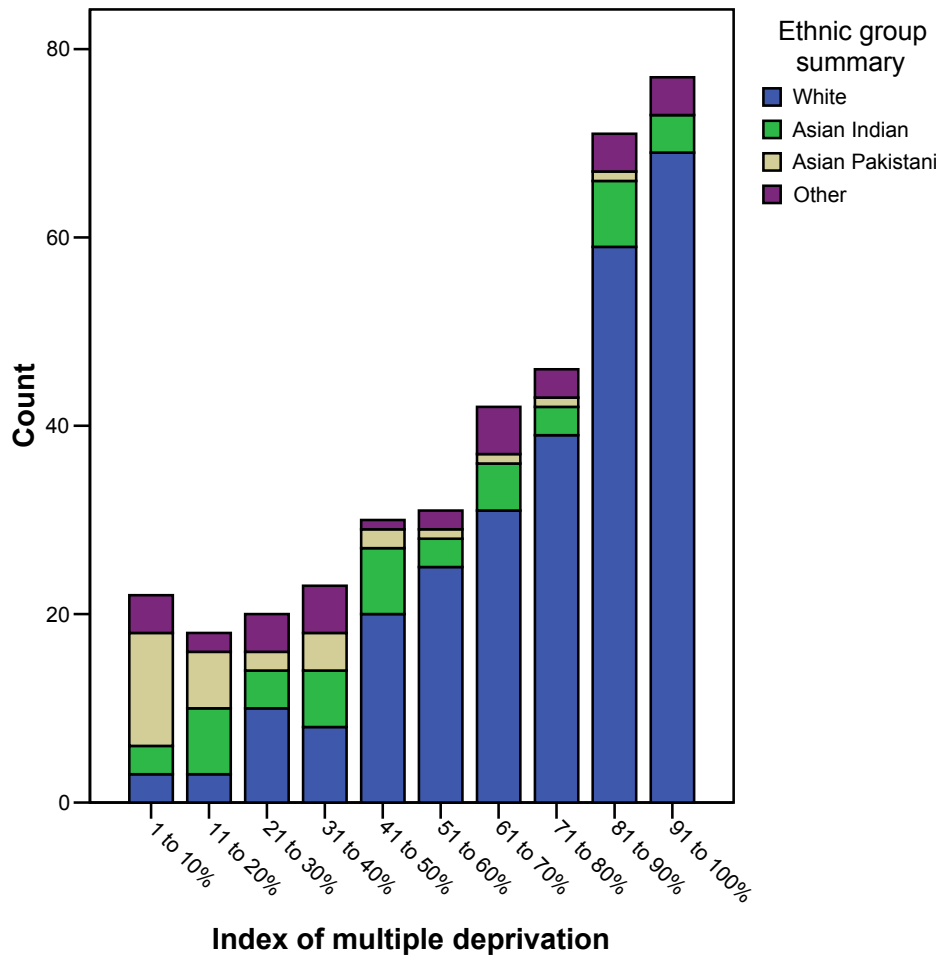


Figure 7.3: Distribution of students by IMD and ethnic group

### 5) IMD by Ethnic Group

A one-way independent-samples ANOVA was carried out to investigate differences in IMD by ethnic group. Here, there was a strong, statistically significant, difference in IMD between ethnic groups [ $F(3, 376) = 49.87$ ;  $p < 0.001$ ].

Figure 7.4 shows that White students live in the most affluent areas on application (IMD=23713, range 22854 to 24790), followed by Other groups and Asian British: Indian (IMD=16848, range 13359 to 21481 and 16481, range

12415 to 18479 respectively). Asian British: Pakistani students live in the most deprived areas (IMD7722).

As figure 7.3 illustrates, more Asian British: Pakistani students live in the 10% most deprived areas than any other group and Asian British: Pakistani students are more likely to live in the more deprived rather than the more affluent areas.

### 6) Gender by Exam Performance

Data on gender was available for 436 students who also attended end of year exams to produce an average z-score.

*Table 7.5: Gender distribution by ethnic group*

<b>Ethnic group</b>	<b>Male</b>	<b>Female</b>
White	80 (28%)	208 (72%)
Asian British: Indian	29 (52%)	27 (48%)
Asian British: Pakistani	20 (57%)	15 (43%)
Other	25 (43%)	32 (57%)
Total	154 (35%)	282 (65%)

There was a difference in gender ratio between ethnic groups with White students predominantly female, slightly more females than males for Other, and slightly more males than females for both Asian British groups (see table 7.5).

The mean z-scores appear to suggest that White males and females achieved similar scores, that females scored slightly above males for Other groups, and that males scored higher than females for the two Asian groups (figure 7.5). A two-way between-subjects ANOVA was carried out to investigate differences in average z-score for the factors of Ethnic Group, and Gender. Neither of the main effects of Ethnic Group [ $F(3,428)=1.941$ ;  $p=ns$ ] or Gender [ $F(1,428)=0.033$ ;

p=ns], nor the interaction between Ethnic Group and Gender [ $F(3,428)=0.969$ ; p=ns] were found to be significant. This suggests that any ethnic group and gender differences are too small to be meaningful, in other words there are no significant differences between the groups of students.

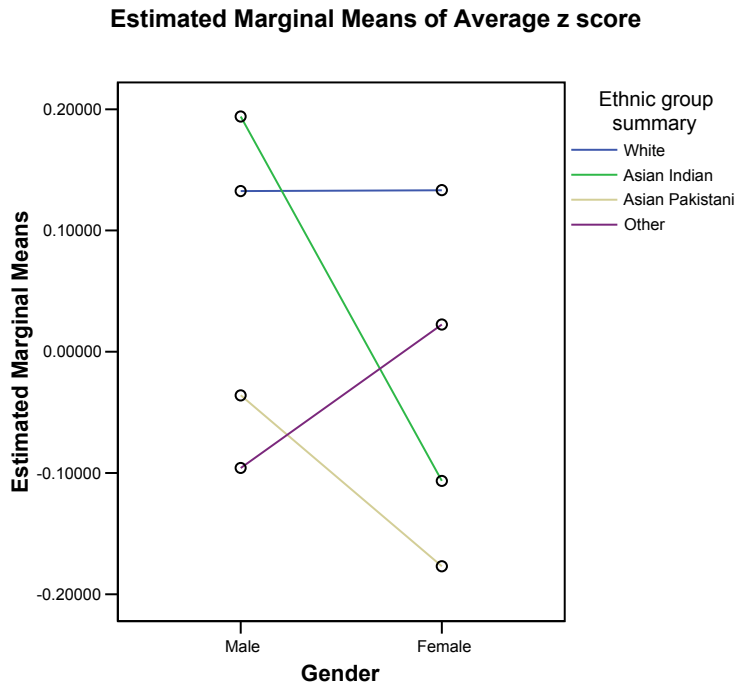


Figure 7.4: Comparison of male and female exam performance by ethnic group

In addition, the raw data does not support the claim of some staff that Asian British: Pakistani males are the weakest students, since Other males and Asian British: Indian and Asian British: Pakistani females all achieved a lower average z score, as can be seen in figure 7.4.



### **7) Exam Performance by Interview Scores**

Data for interview scores is available for most of the students, and exam results for all of them. Therefore these figures are shown for the cohort as a whole, not just those who completed the student survey.

A Pearson's correlation co-efficient was calculated to investigate the relationship between z-score (exam performance) and interview score. The results showed that z-score (exam performance) was highly significantly correlated with interview score, such that exam performance increased with increasing interview score [ $r(697)=0.174;p<0.01$ ].

### **8) Ethnic Background by A-level scores**

Ethnic background is only known for those students who completed the survey. Students who took other qualifications such as International Baccalaureate or Scottish Highers or whose A-level grades are not known, were all excluded from this analysis. Overall the difference in A-level points is small since only the students with the highest grades tend to achieve admission. Of the whole cohort very few (N=5) achieved less than 26 points, 7% have 26 points (where A = 10, B = 9, C = 8), 27% have 28 points, and 60% have 30 points. Only the best three results were included in this analysis, although several students have as many as 5 A grades at A-level. Very few students had Scottish Highers (N=1) or International Baccalaureate (N=8).

A one-way independent samples ANOVA on the effect of ethnicity on A-level grade showed no significant differences between the White British, Asian British: Indian, Asian British: Pakistani or Other groups entered into the analysis [ $F(2,307)=1.098$ ;  $p=ns$ ].

#### **9) A-level scores by Exam Performance**

A-level results are available for most of the cohort, and exam results for all, therefore the analysis applies to the whole cohort, not just to those who completed the survey.

A Pearson's correlation co-efficient was calculated to investigate the relationship between A-level scores and z-score (exam performance). The results showed that z-score (exam performance) was highly significantly correlated with A-level score such that the higher the A-level score the greater the z-score [ $r(659)=0.263$ ;  $p<0.01$ ].

#### **10) A-level scores by Interview Scores**

As in the previous section only those students for whom A-level score is known were included in this analysis. A Pearson's correlation co-efficient was calculated to investigate the relationship between A-level score and interview score. The results showed that interview score was significantly correlated with A-level score, as interview score increased, so did A-level score. [ $r(651)=0.084$ ;  $p<0.05$ ]. In most cases A-level score was not known at the time of interview but students'

predicted grades were known. This suggests that students who went on to get the highest A-level grades, also achieved a higher interview score. However this does not necessarily imply that one causes the other, merely that there is a correlation between the two factors.

#### **11) IMD by A-level scores**

Once again, the analysis was applied only to those cases where A-level grades were available, and to students resident in England at the time of their application to medical school. A Pearson's correlation co-efficient was calculated to investigate the relationship between A-level score and IMD. The results showed no significant correlation between the two [ $r(591)=0.02$ ;  $p=ns$ ].

Since students are pre-selected according to their previous academic performance at GCSE and all are expected to obtain at least 2 As and 1 B grade at A-level, there is little difference between students in terms of A-level points. This small difference was enough to produce a statistically significant correlation between A-level score and interview score, but not between A-level score and IMD. This suggests that regardless of background, students are required to attain similar A-level scores to be successful in gaining admittance to this Medical School.

#### **12) IMD by Interview Scores**

Since IMD is only applicable to students resident in England at the time of application, only those cases were included in the following calculation. A Pearson's co-efficient correlation was calculated to investigate the relationship

between IMD and interview score. The results showed that IMD was significantly correlated with interview score, that is the more privileged the background the higher the applicant scores [ $r(615)=0.240$ ;  $p<0.01$ ].

### **Other Factors**

The analysis for the rest of this chapter concerns data provided by students who completed the survey and therefore does not include the whole student population. In each case I have explored the responses from three perspectives. Whether there is a link between response and future exam performance, according to ethnic background and according to socio-economic status as defined by IMD score. The questions were selected on the basis of staff claims about the possible reasons for exam failure by students. Some were based on racial stereotypes, for example: female Muslims often have to take on the childcare and housework for their extended families.

### **13) Living arrangements**

A one-way independent samples ANOVA was carried out to investigate differences in term-time living arrangements by exam performance. There was no significant difference between exam performance according to living arrangements [ $F(3,434)=2.065$ ;  $p=ns$ ].

Overall, 82% of all students live in University accommodation, 12% in non-University rented, 17% in their own home permanent address, and 2% in 'other'. A one-way independent samples ANOVA was carried out to investigate differences in term-time living arrangements by ethnic background. This showed a statistically significant difference between ethnic groups [ $F(3,318)=27.731$ ;  $p<0.01$ ]. Figure 7.5 shows that White students are more likely to live in university accommodation, while British Asian: Pakistani students are more likely to live in non-university rented accommodation or at home.

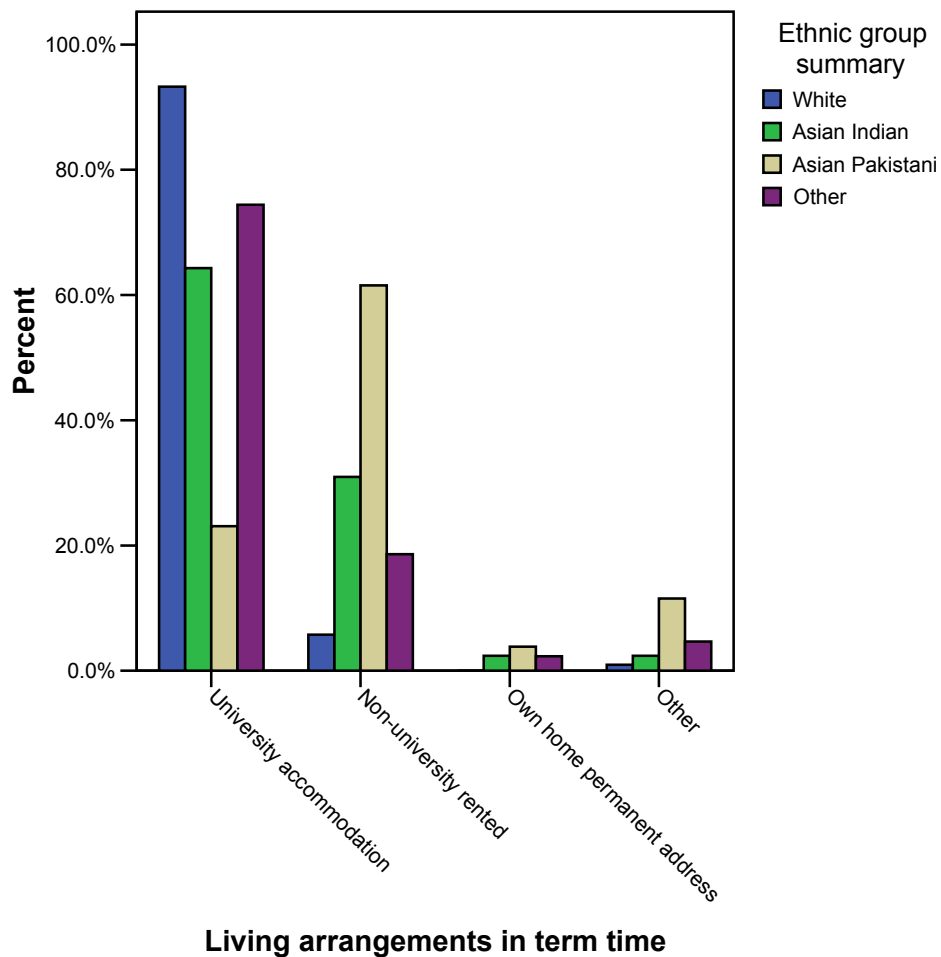
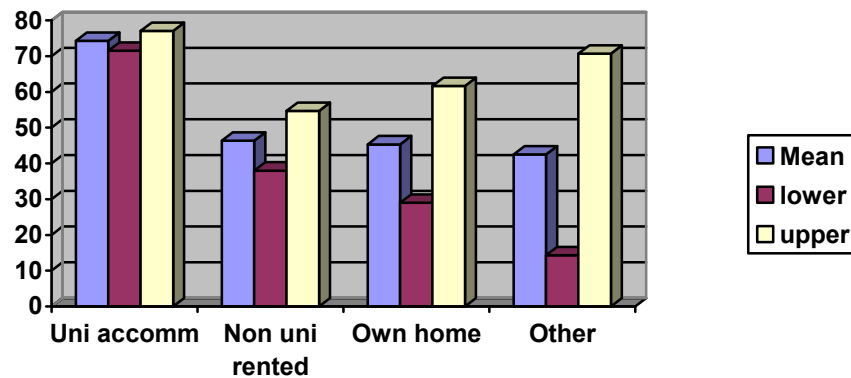


Figure 7.5 Term-time living arrangements by ethnic group

A one-way independent samples ANOVA was carried out to investigate differences in term-time living arrangements by social background. This showed that there is a statistically significant difference between IMD (relative social affluence) and living arrangements [ $F(3,379)=24.357$ ;  $p<0.01$ ]. As can be seen in Figure 7.6, students from the more affluent backgrounds are most likely to live in university rented accommodation (mean 74.29, range 71.53 to 77.04), while those in non-university rented (mean 46.33, range 37.98 to 54.67), own permanent home (mean 45.33, range 29 to 61.66) or 'other' (mean 42.5, range 14.33 to 70.67) come from less affluent backgrounds.



*Figure 7.6 Term-time living arrangements by mean IMD*

To conclude: the results show that there is no significant correlation by exam performance with living arrangements, but there is a link by ethnic background and by IMD. As I have already established a link between ethnic background and IMD, it is perhaps not surprising to find that a third factor, living arrangements correlates with these two.

#### 14) 'Other people have persuaded me to study medicine'

Overall 77% of students disagreed or strongly disagreed (36% SD, 42% D) with the statement, 10% had no opinion, 11% agreed and only 1% strongly agreed.

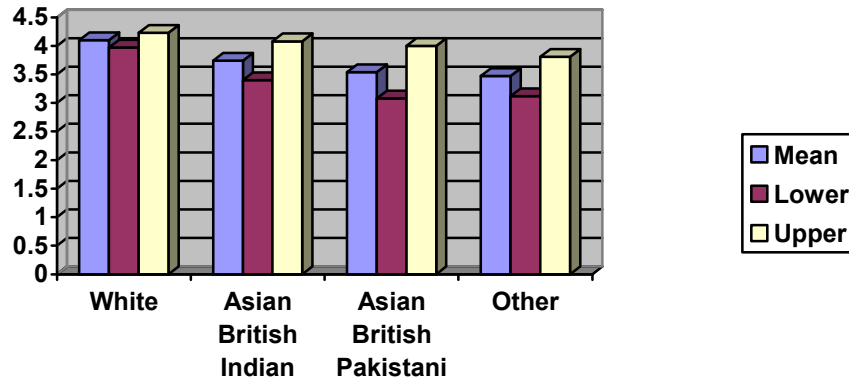


Figure 7.7 Persuaded to study medicine by ethnic group

A Pearson's correlation co-efficient was calculated to investigate the relationship between the statement 'Other people have persuaded me to study medicine' and exam performance. The results showed that there is not a statistically significant correlation between the two factors [ $r(435)=0.025$ ;  $p=ns$ ]. However a one-way independent samples ANOVA did show a strong statistically significant difference in response to this statement by ethnic group [ $F(3,318)=6.749$ ;  $p<0.01$ ]. The figures were calculated by giving a score of 1 to Strongly Agree through to 5 for Strongly Disagree. Figure 7.7 illustrates how White students are more likely to disagree or strongly disagree with the statement (average = 4.1, range 3.97 to 4.23) while Asian British: Indian students scored 3.75 (range 3.4 to 4.08), Asian British: Pakistani scored 3.52 (range 3.08 to 4) and Other scored 3.48 (range 3.12 to 3.81).

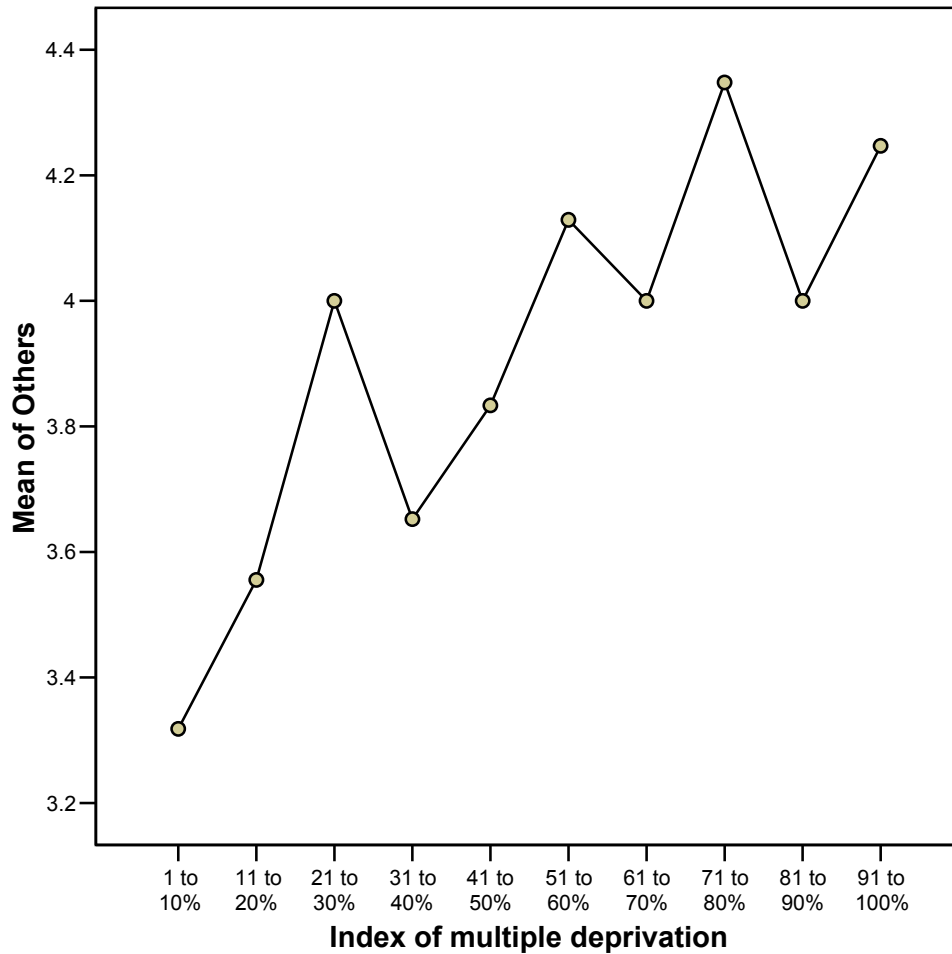


Figure 7.8 Persuaded to study medicine by IMD

A Pearson's correlation co-efficient also indicated a correlation between response to this statement and IMD, such that the higher the IMD (ie the more affluent the student's background) the more they disagree with the statement. In figure 7.8 this is not represented as a straight line, but there is a difference between the responses of those from the most deprived backgrounds compared with those from the most affluent [ $r(380)=0.218$ ;  $p<0.01$ ].

To conclude: there is not a statistically significant correlation between responses to this statement and exam performance, but there is with ethnicity and with IMD.



This may support the anecdotal claims made by staff that students from ethnic minorities are more likely to study medicine because of external pressure from families and community (possibly including teachers) than their white peers. It is not possible to speculate on where the pressure came from, however, as the question simply asked students whether they were persuaded to study medicine, not who did the persuading. Furthermore it is not possible to tell if students' responses are a true reflection of their views, or what they consider an appropriate response. While this is speculation it may be argued that there could be cultural differences between groups in so far that some groups consider it acceptable to follow a course of action in deference to elders, while others put a higher value on independent choice. The lack of correlation with exam performance questions the suggestion raised in the pilot study that motivation of this kind might adversely affect exam success. Although in the pilot study those who failed were more likely to say they chose medicine to please others, than those who passed, this may have been as a result of knowing that they had failed and using this as a justification for their failure.

#### **15) Expectations of Study**

I found no significant correlations between students' expectations regarding the amount of time they will have to study and exam performance, ethnic background or IMD. Most students regardless of background or performance expect to spend more time studying at medical school than they did for A-levels. I did not, however, ask whether they actually spent more time studying, merely what they

expected to happen. However, students who expected the style of study as well as the workload to be different were more likely to be successful.

Overall 50% of students strongly agreed with the statement, 46% agreed, 2% had no opinion and only 2% disagreed (none strongly).

A Pearson's correlation co-efficient was calculated to investigate the relationship between students' exam performance and their response to the statement:

'Compared to A levels or equivalent, I anticipate that the style of study will be different'. The results showed a statistically significant correlation between those who expected the style of study to be different and high exam performance [ $r(435)=-.185$ ;  $p<0.01$ ].

A one-way independent samples ANOVA was carried out to investigate differences in agreement with the statement by ethnic background. The results do not show a statistically significant correlation, although the result is on the cusp of significance at the 95% confidence interval [ $F(3,318)=2.557$ ;  $p<0.055$ ]. Figure 7.9 illustrates that White students were more likely to expect a difference in style of study compared with A-levels, than Asian British: Indian, Asian British: Pakistani, or Other students.

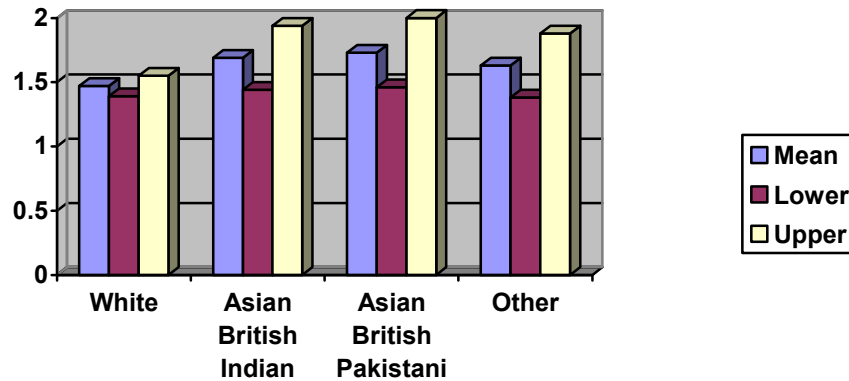


Figure 7.9 Style of study by ethnic group

### 16) Anticipated patterns of socialising with other students

Although expectations of socializing with other medical students was not significantly correlated with exam performance a one-way independent samples ANOVA showed a statistically significant connection between agreement with the statement: ‘I anticipate that I will socialise mainly with other medical students’ and ethnic background [ $F(3,318)=12.973$ ;  $p<0.01$ ].

This suggests that there is an association between ethnicity and expected social behavior. As can be seen in figure 7.10, White students (mean 2.88, range 2.73 to 3.03) are less likely to expect to socialize mainly with other medical students than Asian British Indian (mean 2.29, range 1.99 to 2.58) or Other students (mean 2.23, range 1.95 to 2.52), particularly Asian British: Pakistani students (mean 1.85, range 1.46 to 2.24). In addition, there was a correlation between IMD and expectations of socializing with other students such that the more affluent the

student's background, the more likely they were to agree with the statement [r(380)=0.162;p<0.01].

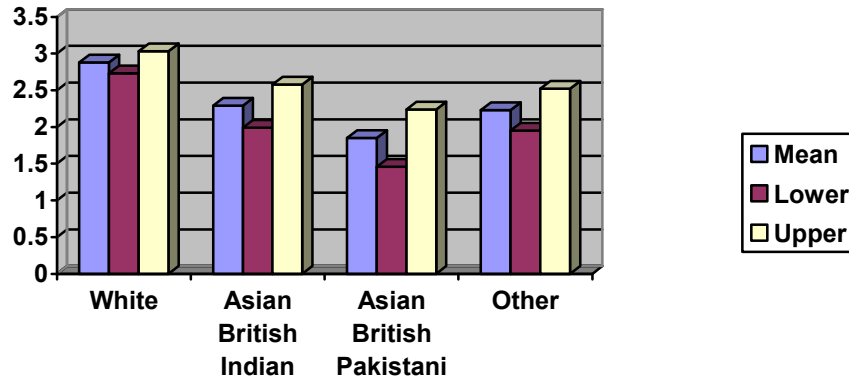


Figure 7.10 Socialise with medical students by ethnic group

Overall therefore, it seems Asian British: Pakistani and the least affluent students are most likely to agree that they will socialize mainly with other medical students. There was no correlation between IMD or ethnic group and intention to socialize with non-medical students. Overall 3% of students strongly agreed, 21% agreed, 27% had no opinion, 46% disagreed and 3% strongly disagreed that they would socialize with non-medical students.

#### 17) Wish to be respected

A Pearson's correlation co-efficient was calculated to investigate the relationship between students' exam performance and their agreement with the statement: 'I have chosen to study medicine because I want to be respected'. The results showed that overall 4% strongly agreed, 29% agreed, 26% had no opinion, 33% disagreed and 8% strongly disagreed, but there was no statistically significant correlation between the two factors [r(435)=-0.058; p=ns]. However, a one-way

independent samples ANOVA on agreement with this statement by ethnic background showed a statistically significant correlation between these two factors [ $F(3,318)=3.417$ ;  $p<0.05$ ]. White students (mean 3.26, range 3.12 to 3.4) disagree with this more than the rest, particularly Asian British: Indian (mean 2.86, range 2.56 to 3.15) and, by a greater margin, Asian British: Pakistani students (mean 2.73, range 2.36 to 3.10) as can be seen in figure 7.11.

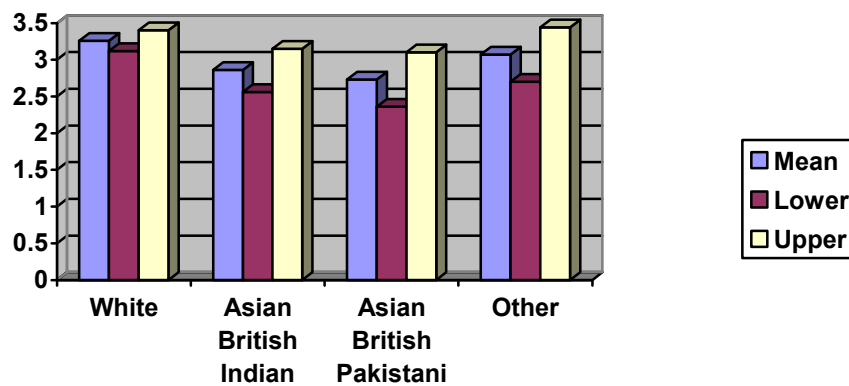
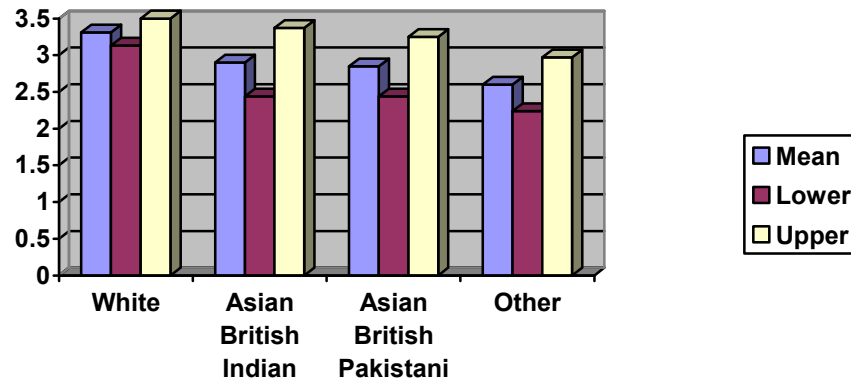


Figure 7.11 Respect by ethnic group

Students were asked several other questions about their motives for studying medicine including: because I want a career helping people, and because I am attracted by the lifestyle. Only a wish to be respected shows a statistically significant association between response and ethnicity. This would not seem to be explained by social background alone since a Pearson's correlation co-efficient between IMD and agreement with the statement: 'I have chosen to study medicine because I want to be respected' did not produce a statistically significant result.

This suggests that Asian students in particular are motivated by a desire to be respected, a tendency that is shared to a lesser extent by Other students, but one which is not a significant motivator for White students.

**18) Friends and relatives who are doctors**



*Figure 7.12 Doctors as friends by ethnic group*

The overall response to the statement ‘I have a good idea of what to expect in the medical course and later as a doctor because I have close friends and/or relatives who are doctors’ was that 15% strongly agreed with the statement, 23% agreed, 13% had no opinion, 30% disagreed and 20% strongly disagreed. Results showed that while there is no correlation between this factor and exam performance, there is a connection between this and both social and ethnic background. A one-way independent samples ANOVA showed a highly statistically significant correlation between response to the statement and ethnicity such that more Asian students (Asian British Indian, mean 2.9, range 2.44 to 3.37, and Asian British Pakistani, mean 2.85, range 2.44 to 3.25) and Other (mean 2.6, range 2.24 to

2.97) ethnic groups agreed with this statement than White students (mean 3.31, range 3.13 to 3.5), [F(3,318)=4.346; p<0.01], as can be seen in figure 7.12.

This would appear not to be entirely explained by social background alone since a Pearson's correlation co-efficient was calculated to investigate the relationship between students' social background and agreement with this statement. The results showed a significant correlation between these two factors but with reduced significance [r(380)=0.118; p<0.05]. Surprisingly therefore, students in medical school from less affluent social backgrounds are *more* likely to have friends and relatives who are doctors than students from more affluent backgrounds. We can speculate as to why this might be but it may be that below a certain level of affluence having friends who are doctors is a much more important factor in shaping choice to apply.

There is a suggestion amongst some staff that students who come from medical families are more likely to be successful than those who do not. These findings do not support this since there is not a link between this factor and exam performance. However, it is interesting to note the differences by ethnic group and IMD.

#### **19) Doubts about eventual success**

On the statement ' I have no doubt that I will eventually become a doctor' the results showed that although there are differences between groups, there is no

statistically significant correlation between this factor and exam performance, social or ethnic background.

## **20) Teaching Method**

On the statement ‘When I applied I was aware that some Medical Schools use PBL and others use traditional methods’ and the statement concerning the importance of teaching method in the decision to apply, the results show that there is not a statistically significant correlation between these statements and either exam performance [ $r(435)=-0.027$ ;  $p=ns$ ] or ethnic background [ $F(3,318)=3.412$ ;  $p=ns$ ]. However, there is a correlation between this factor and social background such that the greater a student’s affluence, the more likely they are to agree that they were aware of the method of teaching employed at this medical school [ $r(380)=-0.152$ ;  $p<0.01$ ].

Overall the vast majority of students regarded the teaching method as important: 42% said it was highly significant, 49% that it was of some significance, and only 4% had no opinion with another 4% saying it was unimportant in their decision to apply.

Overall these results suggest that students are concerned about whether they will study using PBL (problem based learning) or traditional methods, and the greater the student’s affluence the greater their awareness.



## 21) Holiday employment

A Pearson's correlation co-efficient was calculated to investigate the relationship between students' social background and their agreement with the statement: 'I anticipate that I will have to take paid employment during holidays' by social background [ $r(435)=0.05$ ;  $p=ns$ ].

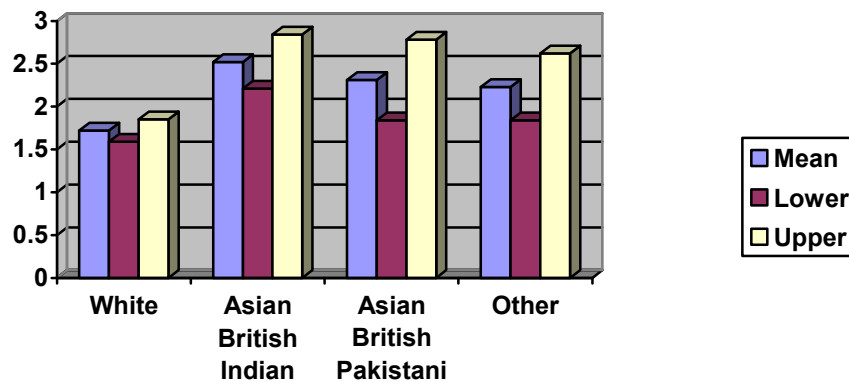


Table 7.13: Holiday employment by ethnic group.

The results showed that there is not a statistically significant correlation between holiday employment and exam performance, but there is a connection between holiday employment and both ethnic and social background. White students (mean 1.72, range 1.59 to 1.85) are more likely to expect to work in the holidays than non-white students [ $F(3,318)=9.732$ ;  $p<0.001$ ]. As figure 7.13 illustrates, Asian British: Indian students (mean 2.52, range 2.21 to 2.84) are the least likely to seek holiday employment, followed by Asian British: Pakistani (mean 2.31, range 1.84 to 2.78) then Other (mean 2.23, range 1.84 to 2.62), with White students the most likely to do so, but the most affluent students are also the least likely to expect to work [ $r(380)=-0.136$ ;  $p<0.01$ ]. The results show a correlation

between these two factors such that the greater the affluence the less the student agrees with the statement [ $r(380)=-0.136$ ;  $p<0.01$ ].

The analysis of most of the previous questions has shown a relationship between affluence and ethnicity which is counter to the findings for this factor. The effect of ethnicity seems to have outweighed that of social background in the case of British Asian: Indian and British Asian: Pakistani in particular. Similarly White students appear to be more likely to expect to work in the holidays than other ethnic groups regardless of social background.

## **22) External Commitments**

A Pearson's correlation co-efficient was calculated to investigate the relationship between students' social background and their agreement with the statement: 'I anticipate that I will have to balance studies with external commitments'. The results showed a statistically significant correlation between this factor and exam performance [ $r(436)=0.162$ ;  $p<0.01$ ] such that the stronger the disagreement with the statement the higher the average z-score, as can be seen in figure 7.14.

Overall 7% of students strongly agreed with the statement, 17% agreed, 14% had no opinion, 37% disagreed and 25% strongly disagreed.

A one-way independent samples ANOVA did not show a statistically significant association between ethnic group and response to this statement [ $F(3,318)=3.534$ ;  $p=ns$ ].

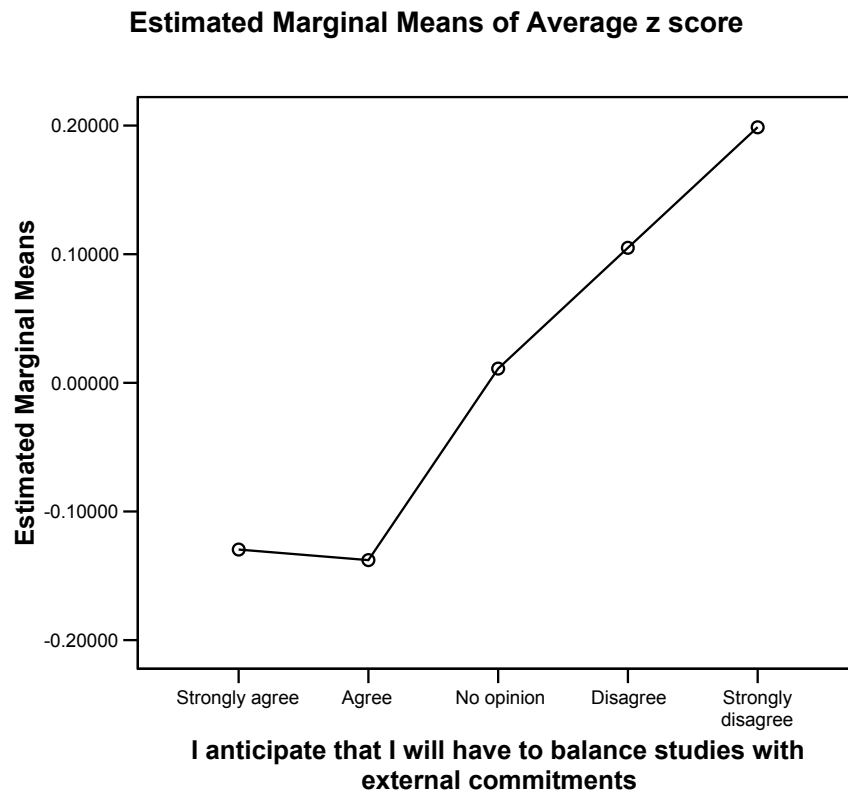


Figure 7.14 External commitment by exam performance

The results did however show a statistically significant correlation with IMD such that the greater the affluence of the student's social background the less they agreed that they had to balance study and other commitments [ $r(380)=0.111$ ;  $p<0.05$ ].

Thus results showed that there is a statistically significant correlation between this factor and both exam performance and social background, but not with ethnicity. This seems to question the anecdotal claims made by staff that students from minority ethnic groups are more likely to have external commitments than others, but this may be another example where IMD is the significant connecting factor rather than ethnicity.

## Summary

Table 7.6 Summary of Closed Questions

<b>Exam Performance:</b>	<b>Link</b>	<b>No Link</b>
	IMD A-level score Interview score Style of study External commitments	Ethnicity Living arrangements Persuaded by others to study medicine Amount of work Social life expectations Doctor as friend or relative Respect as a motivator Awareness of teaching methods Gender Holiday work
<b>IMD:</b>	<b>Link</b>	<b>No Link</b>
	Ethnicity Exam performance Interview score Living arrangements Persuaded to study medicine Social life expectations Doctor as friend or relative Awareness of teaching method Holiday work External commitments	A-level score Amount of work Respect as a motivator Style of study
<b>Ethnic Group:</b>	<b>Link</b>	<b>No Link</b>
	IMD Living arrangements Persuaded to study medicine Social life expectations Respect as a motivator Doctor as friend or relative Holiday work	Exam performance Interview score A-level score Amount of work Style of study Awareness of teaching method External commitments

I shall discuss these findings later in this chapter, but I have summarised the results at this stage. In many respects the findings support the research conducted elsewhere, however there are some surprises.

Despite the observations and anecdotal claims of staff I did not find a statistically significant connection between ethnicity and exam performance. I did find a link between exam performance and five factors: IMD, A-level score, interview score, style of study and external commitments. A-level score has been shown to be a predictor of future success (McManus, Richards et al., 1995) I am not aware of other studies that have shown a connection between students' anticipation of the need to adapt their style of study from A-level to Medical School and exam success. I included a question about external commitments because of attitudes expressed by teaching staff. It is interesting to note that while this does appear to be a factor affecting exam performance it is not connected with ethnic group, but is connected with IMD, affecting students from deprived backgrounds more than those from affluent backgrounds.

I did not find a statistically significant link between exam performance and the other factors. However I did find links between IMD and some other factors, including ethnic group. The students' response to whether or not the desire for respect influenced their choice of medicine, showed a link between this and ethnic group but not with IMD nor with exam performance. Conversely students' expectations regarding the effect of external commitments on their study showed

a link with IMD but not with ethnic group. We can only speculate concerning the reason for differences in the way desire for respect motivates some groups more than others. It is possible that this is an indication of the possible effect of racism within wider society, that students from ethnic minority groups may be motivated by a desire to gain respect while students from the ethnic majority group do not consider this as a factor. It is interesting that the effect of external commitments is linked to IMD rather than to ethnic group, since observations by staff suggested that students from some groups, particularly Asian British females are most likely to be expected to take on duties that support their extended family. The results suggest that socio-economic affluence is a more significant factor.

### 7.3.2 Open Questions

Of the 436 students who completed the survey at the start of the academic year 95 chose to respond to an invitation to make a free text comment. The students were free to comment on any aspect. The full text is given in Appendix 3. Students in the 03-04 cohort were far more likely to respond (82) than those in the second cohort (13). Responses included both positive and negative aspects and covered a range of topics. After reviewing the comments for similar themes, I sorted them into the following categories:

- Support from staff
- Pressure
- Type of activity
- Isolation
- General Comments

As is common in surveys (Robson, 2002) students were more likely to say what they disliked or to criticize than to say what they liked. However 26 did choose to make positive comments. The notation following each quotation below indicates the student's gender and cohort (e.g. M1 – male cohort 03-04, F2 – female cohort 04-05), and then the individual record. These included non specific comments, such as:

*'excellent course'* (M1 – 27)

that convey an overall satisfaction with the course. The other more specific comments are included in the relevant section below. I have reproduced the

comments as they were entered, leaving typographical errors or slang, for example, unchanged.

Some of the students made comments which fall into more than one category. In each case I give the number of comments in each section.

## **Support from Staff**

Of the 95 students who chose to make comments, 25 are in this category.

Students commented on a lack of support in a number of areas including the following (an example comment is given for each):

- Lack of personal contact with tutors

*'I have felt that the support from the medical school staff - is very different from what i was used to at my last school. I have felt that i wouldn't know who to ask about the course if i was having problems with understanding anything and i feel that communicating through the e-mail all the time doesn't really suit me.'* (F1-38)

- Lack of study skills

*'I feel that there was not enough supporting the early stages which had caused me to feel depressed...I started badly in making notes and going to lectures... I feel we must have more time in understand the anatomy – they should also hand out past papers for exams. I would suggest that the medical school should set up seminars for taking notes and studying at this level.'* (M1- 15)

- Doubt over what is expected, due to lack of feedback, or availability of past papers

*'really enjoying the course and how it is taught - however - i do find it hard sometimes to know what is expected of us - for example - some of the PBLs have demanded much less than i anticipated and the final presentation seemed to expect much more than i would have expected.'* (F1 -30)



There were also positive comments, in particular about specific lecturers:

*'I would like to take this opportunity to praise [Dr N] for putting up an exceptional amount of support material on the web site for the IBS module. This has helped me enormously during revision and I think other module coordinators should do the same. It is disappointing to find very little in the musculoskeletal and neuroscience sections on the electronic curriculum.'* (M1 - 17)

N.B. IBS is the abbreviation for Integrated Biological Sciences.

## **Pressure**

Of the 95 students who chose to make comments, 22 are in this category.

Students commented on the amount of work, in terms of the quantity, for example:

*'Sometimes - there are a lot of lectures in a day from morning till evening ie too much input per day. So – I might get tired and have no time to revise as there's still work to follow up for the next day'.* (M1 - 14)

*'did not realise how little work other subjects had in comparrison was sure I wanted to be a doctor before I came but now not so sure as beginning of term put me off'* (F2 - 5)

Others mentioned the pressure caused by messages from staff and poor communication, for example:

*'The staff spend a lot of time telling you how many people are kicked out/fail/etc –which makes you feel negative about your work'* (F1 - 4)

*'Rumours about the course and about assessment need to be suppressed by better communication between the medical school and the students'.* (F1 - 15)

In some cases pressure comes from external sources such as finance, for example:

*'I choose to work in the holidays for extra income for things my allowance is not for'* (M2 - 4)

*'Dont have enough money to pay for accomodation let alone eat and socialize'* (F2 - 6)

Some students responded positively to the pressure:

*'I think the course has given me a lot more than I have expected. Both the social and academic life is really good. The actual work – while there is a lot – is really interesting and I enjoy it a lot.'* (F1 – 12)

## **Type of Activity**

This category accounted for the largest proportion of comments (46 of the 95 responses). Students were critical of the style of teaching. The most frequent criticism was of the sheer volume of work and of the number and nature of lectures, for example:

*'I am amazed by the amount of work I have to do – which has meant I have had to make sacrifices regarding social interests – but I think that it will be worth it in the end.'* (F1 - 29)

*'The biggest problem I have is the amount that we have to just sit down and learn - e.g. all the muscles etc'.* (F1 - 40)

However, some see this more positively, for example:

*'The workload is heavy and if you were to do absolutely everything - there would be no time for anything else. That said - I expected a lot of work - and I am here because I want to work hard - I enjoy the subject...'* (M1 - 30)

The two aspects that received most criticism is the anatomy teaching, as in:

*'I feel the way anatomy is taught is ineffective. I cannot see the benefits of making students teach themselves this vast topic by filling in a huge workbook and often not even being given the answers.'* (M1 - 32)

*'I would like anatomy to be taught in a more practical way.'* (F1 - 13)

and some of the lectures, for example:

*'Each lecture should have a handout or if not should have a web link...'*(M2 - 5)

Some students express disappointment or surprise about the teaching methods, for example:

*'... i am however disappointed at how we are currently learning pharmacology ...'* (F2 - 3)

Or the content

*'... I would rather concentrate on strengthening my basic clinical. pre-clinical skills and knowledge before learning how to give a presentation.'* (M1 - 16)

Several students commented on the assessment strategy

*'Too much assessment!'* (M1 - 18)

*'I feel I was unaware when applying to Birmingham and when starting the course on number of assessments in the medical school compared with other medical schools'* (F1 - 26)

However others were positive about the frequency of assessment in some modules but even so, comment on lack of feedback, for example:

*'The constant assessments are a good idea as they encourage me to wrk (sic) as I go along – rather than trying to cram at the end of the course. However I feel that it is not very encouraging having no feedback on our progress...'* (F1 - 20)

Some were positive about the variety of approach, such as:

*'I think the best thing about the course is the variety of ways in which teaching is delivered....'* (F1 - 37)

N.B. SGT is Small Group Teaching, PBL is Problem Based Learning.

But others reflected on the lack of support as they were expected to adapt to a learning climate which was quite different to their previous experience, for example:

*'I think students should be guided more in their learning'* (M2 - 2)

## **Isolation**

10 comments fell into this category. Students tended to comment on the isolation of the medical school. For example:

*'I don't feel I do enough outside the medical school – because most of the medical school freshers events were during the sports and societies fairs – making it difficult to find out about extra medical school clubs etc.'* (M1 - 25)

They also noted the need to cope with a huge workload while getting used to being away from home, for example:

*'First three months very difficult as you are trying to fit in and make here your home – and learn to do your own washing!! Then at the same time work load is more than you are used to and the work is different ...'* (F1 - 21)

Some saw the tutor group as a positive help, for example:

*'I am pleased that I have a tutor group consisting of all the years of medics – I find this very helpful for finding out more about what is expected of me within the course and also for advice about housing/socialising.'* (F1 - 22)

While several compared their experience as medical students with that of students on other courses, for example

*'the only thing i feel difficult is living with non-medics in halls. it is sometimes hard when i come in at 5.30 or 6.30pm and they have been at home all day socialising and i then have to go and work'* (F1 - 47)

Others made positive comments, such as:

*'being honest birmingham was actually my third choice but as it has turned out i fell so lunky that i ended up here because i think i'm most suited to this kind of course... At this point in the term i am very happy being here.'* (F1 - 41)

## General Comments

The 19 comments in this category made reference to the survey itself, or general observations such as:

*'I hope that one day i will become a doctor but i don't doubt that the route there will be hard work. Having said that there is without a doubt much fun to be had along the way...'* (M1 – 4)

## 7.4 Discussion

### What does this tell us?

The findings show that there is not a significant link between exam performance and ethnicity. However, exam performance is positively correlated with high IMD, high interview score and high A-level score. Exam performance is not linked with gender, either overall or within ethnic groups. At the same time, interview score is positively correlated with high IMD and high A-level score. There is no correlation with high IMD and high A-level score. There is no correlation between A-level score and either ethnic group or social background.

This suggests that in the case of Birmingham Medical School, ethnicity is not the key factor in determining exam success. However, social background (IMD) is a key factor. Furthermore, White students are more likely to come from affluent backgrounds compared, in particular, with Asian British: Pakistani students who are most likely to come from relatively deprived backgrounds, and that where students come from deprived backgrounds, they are more likely to be from Asian British: Pakistani than from any other ethnic group.

Although there is not a link between A-level scores and either ethnicity or social background; IMD, interview score, A-level score and exam performance are all mutually correlated. This suggests that the admissions interview identifies those students who will go on to get the highest grades and in turn that those with higher A-level grades will perform best in end of year exams. This may suggest that students from a more deprived background are likely to perform less well in end of year exams than other students. However it may also suggest that the interview favours students from a privileged social backgrounds who, because of their privileged background, also tend to achieve higher A-level results. Those few students from a deprived social background who manage to gain admission find it more difficult to achieve in Medical School than their more socially privileged peers. These findings are in keeping with those of Seyan et al (Seyan, Greenhalgh et al., 2004) in that the inequalities of social class of the students at Birmingham Medical School is not unusual compared with other medical schools. However it does suggest that the school has ignored the advice given by HEFCE (HEFCE, 2005) that students from poorer backgrounds are likely to be less well prepared for study at this level than their more privileged peers and that they will therefore require more support.

The data from section 13 onwards tells us that living arrangements in term time have no effect on exam performance. However, students from particular ethnic groups and social backgrounds tend to live in particular circumstances. This may have a bearing on Tinto's (Tinto, 1993) findings, for example, regarding isolation

and incongruence. In most cases a correlation or lack of correlation between a factor and ethnic grouping was mirrored in a similar correlation between the factors and IMD. Since ethnic grouping correlates with IMD, this is not surprising. However, in three instances this was not the case.

When asked if they aspired to become doctors because of a desire to be respected, students of White ethnicity were far less likely to agree than students from the other ethnic groups. However the same factor did not correlate by IMD suggesting that an affluent or disadvantaged background is not connected with that particular motivator. Greenhalgh's (Greenhalgh, Seyan et al., 2004) study with school children revealed that students from deprived areas regarded medicine as requiring unacceptable personal sacrifices, and saw medical school as geared towards 'posh' students. These findings suggest that the differences in attitudes amongst these medical students relate more to ethnic group than social background. A significant difference between these two studies is that Greenhalgh was talking to school children, some of whom may have gone on to study medicine, while this study by definition is solely concerned with medical students who have made that choice. The effect of a desire for respect may begin to explain why some Asian British: Pakistani students aspire to medical school in contrast with students from other ethnic groups but a similar socio-economic background.

Whether students knew about different teaching methods at medical schools was correlated by IMD with more affluent students being more aware than disadvantaged students, but there was no connection by ethnicity or with exam performance. This could be because students from more affluent backgrounds attend schools which are more likely to be informed about the requirements of medical schools than the schools attended by those from less affluent backgrounds.

Finally, when asked about external commitments having an effect on studies, ethnicity was not a correlating factor, but IMD was. This is not surprising, perhaps, indicating that regardless of ethnicity students from the most deprived backgrounds were most likely to have external demands on their time.

The factors that showed correlations with both IMD and ethnicity include motivation to study, patterns of socialising and whether or not a person had a doctor as a relative or friend. White students are less likely than others to agree that other people persuaded them to study medicine. Similarly, those from affluent backgrounds show the same correlation. White students are more likely to disagree that they will socialise mainly with other medical students, than other groups, again the same applies to students from the most affluent areas.

White students are less likely to claim to have friends and / or family who are doctors than other ethnic groups, in common with the most affluent students.



Since doctors are well-paid and respected by society one might expect that people from a more affluent background would be more likely to include doctors in their friends and family than people from less affluent areas, but this does not appear to be the case. It may be that for people from less affluent areas a role model is very important in encouraging them to read medicine. However, the wording of the question could be misleading. I did not ask simply if a person knew someone who was a doctor, I asked if they agreed that because they knew a doctor they had a good idea of what to expect in the course.

In terms of seeking holiday employment, it is not surprising that students from the most affluent backgrounds are the least likely to seek holiday jobs, but possibly surprisingly the correlation between holiday jobs and ethnic group is in the opposite direction to most of the findings above, i.e. that White students (who on the whole have been shown to be the most likely to come from the most affluent backgrounds) are more likely than other ethnic groups to seek employment.

Overall what do the findings in this chapter tell us? Baldly, there is no direct connection between ethnicity and exam performance, nor between gender and exam performance. There is, however, a connection between social background and exam performance. Furthermore, there are some rather complex inter-connections between several factors, which, when taken together begin to draw a picture of a medical school which contains a number of discrete groups.

While exam performance and ethnicity are not linked, it does seem to be the case that British Asian: Pakistani students and White students, in particular, have different characteristics from each other. Some of these may have a bearing on the way that they perceive and are perceived by the Medical School.

The comments from the entry survey reflect many of the views expressed by the students in the pilot study. In particular they report on the volume of work and the lack of feedback from staff. Criticisms of staff suggest an unfavourable comparison between their previous experience at A-level in school and their early experience in the medical school. Certainly this seems to support the notions of successful student retention and adult learning, that students are likely to be happier (and therefore learn more successfully) if they are supported in their studies, and that such support is currently lacking according to these students' comments.

Students indicate a sense of too much work, with a feeling of overwhelming volume, and no-one to turn to for help. There is no evidence of being able to negotiate the curriculum at all. The findings in Chapter Three suggest that the emphasis on assessment is likely to lead to a surface approach. There is little chance for experiential learning, e.g. '*I found the course quite dull and it felt like a production line*'. Although the students attend GP surgeries in the first year

there was little indication of experiential learning from their comments e.g. *'I would like anatomy to be taught in a more practical way.'*

In terms of academic versus everyday knowledge it is difficult to tease this out. There is evidence of group work, for example, but with the focus on lectures it is likely that students will experience a gap between the language and concepts used by remote lecturers and their own understanding of what is meant. Where PBL and independent sessions are used some students seem to resent them – *'We have not got time to go round looking for relevant learning resources. Lecturers should provide us with...all of the core information.'*

This suggests that students are unaware of the value of activities designed to improve their ability as learners. This is symptomatic of a superficial approach to learning which is encouraged by the style of the course in most instances. Group activities may be too few to counter this approach.

The view from the students seems to be that this is a medical school where there are distinct groups of students with those from some ethnic groups tending to share characteristics that are different to those of other ethnic groups. Most students agree that the course involves a heavy workload and that there is limited support for students in adapting to the course requirements. Work by others in this area has shown that students from a deprived social background are likely to be in most need of this type of support. This therefore suggests that if some students are at greater risk of failure than others, this could be addressed by the

provision of appropriate support. Such support could consist of teaching methods that are known to aid effective learning. A heavy workload, an emphasis on assessment and little opportunity for experiential learning are also more likely to lead to superficial and therefore unsuccessful learning strategies.

In the next chapter I shall investigate the staff perspective with the aim of exploring whether the staff support the students' view and if so whether it is possible to improve the situation.

## **Chapter 8: The Staff Perspective**

### 8.1 Introduction

### 8.2 Methodology

#### 8.2.1 Interviews

#### 8.2.2 Vignette

#### 8.2.3 Observations

### 8.3 Findings

#### 8.3.1 Interviews

#### 8.3.2 Vignette

#### 8.3.3 Observations

### 8.4 Discussion

## **CHAPTER 8 – THE STAFF PERSPECTIVE**

### **8.1 Introduction**

In Chapters Six and Seven I examined the findings from the pilot study, the student entry surveys and other student data to explore the student perspective. In doing so I have established that there does not appear to be a significant statistical relationship between ethnicity and student performance but there is a link with socio-economic background, and ethnic minorities are more likely to come from less affluent backgrounds. I also began to explore issues relating to the second and third questions concerning support requirements. I will now present my research based on interviews with staff and my own observations related to these questions.

### **8.2 Methodology**

#### **8.2.1 Interviewing staff**

During 03-04 I invited all staff involved in the MBChB to an interview to discuss their concerns with the course. I was only able to arrange interviews with three, but these were all key figures in the undergraduate programme. These interviews took the form of one hour appointments during which the member of staff was asked a series of open questions designed to encourage them to explore issues relating to the performance of students, whether this has changed in recent years, what part, if any, ethnicity plays and any other aspects they felt should be considered.

During 04 - 05 I sent a questionnaire to all module co-ordinators on the MBChB (excluding those only involved in a special study module) N= 17. Using the responses as a basis for the interview I met with staff, individually in most cases, but four people met me in pairs. I was not able to arrange interviews with three of the potential pool. I took copious notes during the interviews, and typed these up shortly after the interviews. The typed comments were sent to each of the interviewees with the request that they confirm the veracity of the content. Most accepted the findings as accurate, with three making minor amendments to the text. Once the interviews were completed I reviewed them to identify common threads and minority views. The pre-interview questions and an exemplar transcript are contained in Appendix 1.

### **8.2.2 Vignette**

One member of staff wrote a description of her experiences as a teaching fellow. This was a particularly interesting case as she was appointed on a teaching-only contract, but did not have her contract renewed. The treatment of this particular lecturer was cited by most members of staff when interviewed, as an indication of the School's attitude towards teaching. The lecturer concerned left the Medical School around the time that I was conducting the interviews with staff. She was so concerned that I should be able to include her experience in the research that she agreed to write a full account of her experiences. I have reproduced this in full, apart from removing or changing names to preserve both her anonymity and that of anyone she mentions.

I have presented this data as a vignette. This method of data collection has been used in social science research to enable comparison between a number of cases, the vignette enables the researcher to include a wide range of data to avoid the threat of excluding what might prove later to be significant, while maintaining a systematic approach (Taylor, 2006). I did not use the method here for that reason, but because this particular case is unique. I had the opportunity to include the voice of a lecturer who left the School during the research project. I feel justified in including her 'story' in full.

However, this methodology has distinct limitations. In choosing to give this lecturer an unedited voice, I may be guilty of giving a biased one-sided case. While this is undoubtedly a danger, I believe that I am justified in doing this for two reasons.

Firstly, pragmatically, I feel justified because this specific case was mentioned by almost every other member of staff in the interviews and was raised by them not by me. As a consequence I felt that excluding this narrative would result in bias.

Secondly, from a philosophical and epistemological standpoint I would argue that the research picture would be incomplete without this data. If we accept the argument that even the decision to embark on research has a potential effect on the subject, the inclusion or exclusion of data has an element of subjectivity on



the part of the researcher. If that is the case, why should this particular piece of data be afforded greater or lesser prominence than, for example, than the exam results or the findings from the staff interviews?

### **8.2.3 Observations**

#### **Shadowing students**

I obtained a copy of the timetable for a randomly selected week (in March 2005) and a tutorial group of 1<sup>st</sup> year students. I attended all of the taught sessions along with the group. I took copious notes, such as impressions of noise levels in lectures, interaction in sessions, observations of teaching techniques used by lecturers and tutors. These notes were written up shortly afterwards.

#### **Year 1 Semester 1 Timetable**

The timetable for the whole semester was colour coded according to the eight modules, and analysed according to type of activity. This information was readily available as timetabling is carried out by administrators in the School Office. The person responsible keeps an accurate electronic record of the sessions, including any that are rearranged during the term. This analysis was carried out after the semester had ended, the findings are therefore based on what actually happened.

## 8.4 Findings

### 8.4.1 Interviews with Module Co-ordinators

I interviewed all but three of the 17 Module Co-ordinators. All have the same role regarding the course, but they range in seniority from Lecturer to Head of Division. All staff interviewed were extremely generous with their time, and candid in their disclosures. Appendix 1 contains the pre-interview questionnaire and an example of an interview script.

The overwhelming message that emanates from the interviews and the questionnaires, is, on the one hand, the commitment that these people show to the students and to teaching, and on the other, frustration with the apparent lack of support for teaching demonstrated by the School.

While there may well be a place for lectures in a Medical Undergraduate curriculum the proportion of passive lectures at this Medical School is excessive. There seems to be several reasons for the dependence on lectures. Several staff commented on the need to deal with large numbers of students with a small number of teachers. Lectures are one of the most efficient ways of transmitting information since one lecturer can teach 350+ students at the same time. In interviews many of the staff commented on the enormous pressure that they feel:

*‘we now have fewer teaching staff with increased numbers than we had ten years ago with half the numbers’*  
*‘it is obvious that we need more teaching staff’*

*‘some senior staff give lectures and are reluctant to give them up – they want to retain the teaching commitment that they have’*  
*‘Numbers have doubled but the resources haven’t followed. Means we have to take short cuts.’*  
*‘divisions get twitchy if suggest losing lectures because of the way that the RAM allocation is made.’*

RAM is the Resource Allocation Model: a financial model used to determine each division’s budget. A one hour lecture is allocated six hours of RAM to reflect the time needed to prepare. A new lecture will take much longer to prepare than one that has been delivered many times in the past. Some staff are therefore given an incentive to maintain lectures that they have given in the past rather than explore new teaching methods, or even change the content of a lecture.

Despite this, teachers recognise the value and importance of small group teaching sessions and tutorials in enabling students to explore issues, cement their learning and form personal relationships with a member of staff.

*‘tutorials are an excellent vehicle for getting to grips with understanding’*

While some senior staff argue that the problem with resourcing sufficient staff is that only subject specialists can teach, for example, the cardiovascular system, some lecturers contradicted that view:

*‘You don’t have to be a subject specialist to teach on biological science modules.’*

So while many agree that small groups lead to more effective learning than lectures alone, they face difficulties in arranging them:

*'Can't man the small groups – have tried getting people involved but if they aren't committed students don't turn up.'*  
*'We should admit that a group of 18 isn't small.'*  
*'there is very little genuine opportunity for individual learning in the first two years.'*

In some circumstances, this has led to the radical solution of combining two groups so that the 'tutorials' run in a staff:student ratio of 1:36, or an even more drastic solution:

*'we have introduced tutorless tutorials this year, students hate it'*

Amongst the staff with the biggest teaching load morale is extremely low. Universally, these people feel that they are not valued by those in power nor involved in decision-making, they indicate that they feel that they are under threat and that they are undervalued. They feel that they are working unreasonable hours and that their efforts are unappreciated:

*'Students bring in money too. This place seems to forget that it is a teaching institution.'*  
*'Money is the priority and students are incidental to it.'*  
*'I don't think anyone cares about teaching quality.'*  
*'Here I feel totally uninvolved'*  
*'other colleagues on campus can't believe the work load in the medical school. Seems we do far more, and so do our students.'*  
*'Undergraduate teaching is seen as very lowly.'*

The failure to renew the contract of a teaching-only fellow led to this comment:

*'a brilliant teacher, very committed, but she has gone... What message does this send about teaching?'*

This was not an isolated comment, of the 17 people interviewed 9 mentioned the case of this lecturer. This is a greater proportion than it may appear on face value, since of the remaining 8 all but 2 did not work directly with her. The 9 who made

specific reference to this case ranged in seniority from lecturer to Head of Division.

However, staff are equally clear that this is not an inevitable situation. They feel that it is possible to reward teaching:

*‘If people at the bottom were brought in to do high level jobs in terms of teaching’*

*‘Well more money for a start – we don’t get increments for teaching – noises are made to pretend that it is but teaching isn’t valued here.’*

*‘Lot that could be done to improve teaching and there are talented people there, but the problem is the mechanism. Needs to come from the Dean.’*

*‘should require more senior staff to be involved in teaching.’*

*‘can reward in various ways – recognise that an hour teaching is a valued contribution. Instead it is used as a stick.’*

In particular the banding system, which is intended to be a mechanism to reward teaching staff should be adapted:

*‘Information about this is not something that is disseminated.’*

*‘Need transparency – price list in the RAM that reflects the value of teaching.’*

As well as identifying problems caused by the management of the course, several members of staff claimed that students themselves have changed, partly as a result of changes in secondary education, and partly as a consequence of cultural changes in society.

*‘They are young, they always have been, but its different now. They live in an information age where there is so much information they feel they can get it quickly... they’re not used to getting it in their head.’*

Staff made a number of suggestions about ways in which the burden of teaching could be shared. Some mentioned the need to require research-focussed staff to

honour their teaching obligation. Others pointed out the suggestion made at the School Away Day in July 2004 that the school make use of PhD students and post-docs to teach, since this is a common practice across the University including most science subjects.

To summarise the key issues to emerge from the staff interviews concerned criticisms of the management of the School and observations about the students. Staff expressed the clear view that teaching is not taken as seriously as they felt it should be. As a consequence smaller and smaller numbers of staff were being expected to teach increasing numbers of students, and those teachers were not valued. This had led to low morale, particularly amongst those with the heaviest teaching load. At the same time as increasing in numbers, several staff felt that there had been a change in the attitudes of students. This added to the sense of lack of respect and value.

### **8.3.2 Vignette**

#### **The Story of One Teaching Fellow**

*'In July 2001 I was appointed as a Teaching Fellow. I went for the post on the advice of my reviewer at my staff development review -a decision my reviewer later apologised for, although I feel he was misled as well as me!*

*I was responsible for approximately 200 teaching hours per academic year, for a range of courses in the Medical School and in other Schools. In addition I supervised project students (approx 10 over the four years) They count as 1 hour per student per day thus 50 hours per student per project. In 04-05 I had 5 students (one part supervised) thus another approx 250 hours.*

*A research component was negotiated on my appointment with Prof NN (now retired) who told me 'I could be a Professor in 5 years going down the teaching only route'. This was confirmed as a max of 20% of my time. In reality it was restricted to vacation only, or odd weeks where the*

*timetable was light. When I was appointed the then Head of Division was happy for me to act as a 'normal lecturer' and wanted me to apply for grants. I did apply for and win a Rowbotham prelim grant (~£3000) signed by him. When I came back from maternity leave I started looking at MRC career development grants which is when I was told by the new Head of Division that I would not be supported as I had not been appointed on my research. I was not allowed therefore to apply for funding as a PI, but could as a co-applicant although the one to BHF with the new Head of Division downplayed my role considerably! I left in April 2005 when my contract expired.*

*Lack of research was not ever specifically used as a reason not to keep me - I have no documentation saying that. However I was told that 'teaching only' posts was not where the division/medical school wanted to go. Thus despite me wanting to do the 'full' job I was not allowed to change my contract as I had 'not been judged on my research'. I did publish during this period (5 conference proceedings, 4 journal articles, 2 book chapters, and I've just had my own book accepted by a publisher) and I think this would be more than expected on 20% pro rata research contract! Again this was never officially a reason not to keep me. As far I know my teaching was fine, but I was never officially told about that either! When 2 new lectureships in [a specific department] came up I was told not to apply for them as they wanted certain research areas, but then the appointments made were actually in something else!!*

*Other members of staff in different divisions on the same contract were made permanent, other members of staff re-negotiated contracts to exclude their research and became teaching only. My probation was passed with 'flying colours'.*

*My contract renewal for June 04-June 05 cited a 'fixed term on the grounds that it is funded by an external body for a fixed period' - I never managed to pin down any more information than this, and the Head of Division always maintained that it was beyond her control.'*

The account given by Dr X has been corroborated by several other members of staff. She was a very able, keen and enthusiastic teacher who immediately took on a large proportion of the teaching for the Medical School's students. She also brought income into the School by doing service teaching for other Schools. Dr X was happy to teach but saw herself as an academic, and was therefore keen to develop her research into her subject. However, when she made an application for a research project her Head of Division turned it down.

Two other teaching fellows were appointed by the School shortly before Dr X. One was subsequently given a permanent contract, the other, who was equally well-respected as a teacher within the School, had her contract extended for just one year. She took this as a lack of commitment to the role, and left to take up a similar position in another Medical School.

Dr X's contract was renewed for one year only. She therefore left the Medical School in April 2005.

Dr X's contribution to teaching is far in excess of virtually every other member of the Medical School. When she left, her Head of Division explained that it was necessary to replace her with a 'traditional three-pronged lecturer' because she believed that

*'People who are unable to command their own research income – could you justify moving them into a role in a research led institution? If they are only interested in teaching you are limited about how much they can contribute across the course as a whole. Dr Y [the teaching fellow whose contract was made permanent] has a strong research background as well as teaching – well rounded, able to teach across the board. Therefore Dr Y was offered an open contract lecturer post.' 'If you want the University to be academically one of the best then we need to have people who are research and teaching excellent.'*

Incidentally Dr Y carries a burden of teaching as high or higher than that of Dr X and is therefore highly unlikely to be able to conduct much research.

The Head of Division said of Dr X's replacement:



*'They are expected to become module co-ordinators in the future – will help them to be MC by being research strong.' 'I put the case to the Dean to replace X with a conventional three prong lecturer. It is better if you have someone who can research and build up a research team ...I genuinely believe that you are a better teacher if you are actively involved in and challenged by new ideas. I am not arguing that we should teach the latest research to medical students but because you are involved in research you do have a much broader understanding. It may be that I am a dinosaur, and have an idealistic way of looking at things rather than realistic.'*

While this is a reasonable argument it does not explain why Dr X was not only encouraged not to do research, according to her own account, she was actually prevented from taking part in research projects.

An academic from another school reported that:

*'Dr X was earning the Dean £77,000 per year from the teaching that she did for [NN School] – but now that she has been sacked [her contract was not renewed] they have lost that income. [NN School] will now source that teaching from elsewhere. The rules that are created by the people at the centre force people to behave like this. The whole Dr X issue makes no sense on any level. If you challenge the Medical School they will say it is because of the RAE, but as she was on a teaching only contract she wouldn't have counted in the RAE, that's what would have happened in [the interviewee's school], anyway. People like [Prof A] are very bitter about the loss of Dr X. It is difficult for people to operate when they have their right hand cut off, then they are told to reorganise the course.'*

The issue of Dr X has been widely discussed amongst the academics involved in teaching in the MBChB course, because it is taken as evidence that:

- a) teaching is undervalued (since research is considered to be a superior activity)
- b) teaching-only staff are a burden
- c) teaching-only staff do not have job security

- d) those in positions of power do not understand the amount of work that is being done by a small number of teaching staff
- e) they are right to be concerned since if teaching-only staff are replaced with the same number of research focused staff, even if the replacement does the amount of teaching required by their contract, only a small proportion of the teaching done by the original person will be covered by the new person so who will do the remainder?

### **8.3.3 Observations of the 1<sup>st</sup> year students**

17 sessions were shown on the original timetable, in fact two were rescheduled for a later date, and one additional lecture was rescheduled from a previous week. Of the 16 sessions that took place, 13 were lectures (81%) and three were Small Group Teaching Sessions (SGTs) (19%). The timetable was such that on Monday students had a one hour break from 11 till 12, having sat through two lectures. They then had a lecture at 3 till 3.50pm and another from 5 till 5.50pm. On Tuesday they had nothing until two back-to-back lectures starting at 3pm. On Wednesday morning a 9am lecture was followed by a SGT at 10am and a lecture at 12 noon. Thursday was spent with Community Medicine. On Friday they had a SGT at 10am followed by two back to back lectures, a break of two hours then three more back to back lectures, finishing at 5.50pm.

Students commented that this was a good week “*the timetable is quite empty*”. In discussions the students identified lecturers who they thought were particularly good, and those that they found difficult to follow. Most said that they felt that

there was more work needed on the course than they had expected. They noted that lectures were often cancelled, usually at short notice. They preferred it when a SGT tutorial followed the relevant lecture and they had time to do any associated preparatory work, but this did not always happen, as a result of the lectures being cancelled and rescheduled.

### **Lectures**

Lectures take place in a purpose built lecture theatre seating approximately 350. Most lecturers stand on a stage and use a microphone. The outside world is not visible from the theatre. Students sit on lightly upholstered seats with a bench in front of them to rest on while making notes. The lecture theatre was virtually full for most of the lectures. The noise level ranged from near silence to loud exchanges. I observed a range of activities during lectures, besides taking notes, such as:

- Listening to music on personal headphones
- Sending and reading text messages
- Amorous exchanges (!)
- Animated, noisy conversations
- Sleeping
- Laughing

Very few lectures could be described as interactive – the most common attempts at interaction involved students creating their own copies of the lecturer's

diagrams. One lecturer did attempt to engage students by asking them multiple choice questions: students responded to these. This was done without the use of technology such as an audience response system: the lecturer asked a question, showed four responses and asked for a show of hands for each option. Most lecturers provided handouts for the lecture, either beforehand, or during the lecture. One lecturer refused to make handouts available electronically.

Some lecturers used Powerpoint, several did not. Handwritten OHPs were difficult to read, and were less likely to tie in with handouts, where these were available.

During breaks between back to back lectures students interacted heavily with each other, a great deal of socialising seems to occur as well as students moving in and out of the lecture theatre. Over the week I noticed a tendency for students to sit in the same place each time. I noticed a distinct pattern of grouping: students appeared to sit in ethnically similar groups, and, to a lesser extent, by gender, particularly towards the back of the lecture theatre. When a lecture was followed by a SGT or free hour students started to pack away their things before the lecturer indicated that he or she had finished.

The students appear to value the lectures since they attend in large numbers. However their behaviour suggests that many do not regard them as intensive

learning opportunities since they choose to listen to music, and chat throughout.

One student told me that he attended a lecture because

*‘it is easier to listen to someone else reading the handout than to read it myself’.*

Some lecturers made links between different sessions, but this tended to be where the same lecturer delivered both lectures. Although I noticed obvious links between sessions during the week these links were not often made explicit by most tutors or lecturers. Few lecturers gave the impression that they were fully aware of the sessions that students had already been to or would be attending.

Very few lecturers introduced themselves – possibly this is because the lecture that I observed was not the first one that they had given to this group. However none of them said what else they did in the Medical School, and few gave clues as to how students could find them later. I did not record any reference to the lecturer’s own research.

Although lecturers are asked to finish at ten minutes to the hour, on several occasions they did not, and I noticed that students were still queuing to get into the lecture theatre at five past the hour, presumably making the next lecture start late.

There were several lectures that could easily be turned into a CAL (Computer Aided Learning) package, based on the lecture notes, which could incorporate

some self-assessment to enable students to test their knowledge and understanding.

Some lectures were combined without any prior notice. I wondered if this happened each year, in which case why timetable two separate sessions, or if it did not, what had been missed out of the two lectures in order to fit it into one 50 minute slot.

On no occasion did the students give any indication of appreciation to the lecturer, which must be rather discouraging. However I did overhear students making comments such as

*'that was really good, I like his lectures'.*

I observed a range of proficiency amongst lecturers in delivering material. Effectiveness was not necessarily linked to the use of Powerpoint, but I did notice that lecturers who used OHPs were more likely to present material that could not be read, either because the text was too small or not visible on the projector, also that those lecturers were less likely to provide handouts. Some lecturers who used Powerpoint overloaded their slides with information which they then told students they did not need to worry about. Some lecturers were far more inspirational and enthusiastic than others, some were more inclined to control the crowd than others and some offered to stay behind for questions or gave their email for later queries, whereas others seemed to want to leave the lecture theatre as quickly as possible.

### **Small Group Teaching Sessions**

During the week there were only three tutorials. One was run by a tutor who looked after two groups at the same time. In the case of this session it appeared to me that the tutor did the most work. Although the rooms used, are pleasant, they are cramped for 16 students if they are expected to work in sub-groups, as they were in this instance.

None of the tutors seemed to know the names of individual students, only one took a register, but that was not done with the intention of learning names, merely to identify who was missing.

In general students seemed keen to learn in tutorials, willing to contribute to sessions and engage in activities. As with the lecturers I observed a range of proficiency amongst the tutors, with some engaging the students thoroughly but this was not consistent in every case.

Students reported that there was no-one who saw them regularly throughout the year who could therefore identify individual students who may be in need of support or guidance. However, the week I chose at random did not include anatomy sessions for this group, and the anatomy demonstrator may be in a

position to fulfil this function. Students also see a GP tutor on alternate weeks in groups of four; these tutors should know the students well. But the GP tutor does not meet with teachers from other parts of the course.

There is a personal tutor system in place in the School. Students are allocated a personal tutor group of 20 to 25 students, drawn from across all five years of the course and two personal tutors. In most cases one tutor is based in the National Health Service (NHS) and the other is school based. The rationale is for the NHS based tutor to take responsibility for students in the last three years of the course and the school based to focus on those in the first two years. Students are encouraged to regard the system as a family, and regard both tutors and students in any year as potential sources of support. However, as the comments in The Insider's Guide to Medical Schools (Burgess, Girgis et al., 2005) quoted in Chapter Two indicate, the personal tutor system is inconsistent with some tutors showing more commitment to the role than others. The tutors are advised that their role is that of regard for student welfare rather than for their academic development, and some have very little teaching involvement in the course. Tutors meet with students three or four times in the year, and although they take an interest in students' progress are not in a position to give specific study related advice.



## Year 1 Semester 1 Timetable MBChB 2004 – 5

Figure 8.1 shows the first two weeks of Semester 1, the timetable for the whole of Semester 1 can be seen in Appendix 4.

Wk 1	Mon	Tues	Weds	Thur	Fri
9.00	Lecture			Lecture	Lecture
10.00	Library			Lecture	Lecture
11.00				Lecture	
12.00	Lecture		Lecture		
13.00		Lecture		Lecture	
14.00	Lecture	SDL			Lecture
15.00		Lecture			
16.00		Lecture			

Wk 2	Mon	Tues	Weds	Thur	Fri
9.00	Lecture			Lecture	
10.00					SGT
11.00	Lecture	Lecture	Lecture	Lecture	Lecture
12.00	Lecture				
13.00	Meeting	Lecture			
14.00					SGT
15.00		Lecture		Lecture	
16.00				Lecture	
17.00				Lecture	

Key

Behavioural Science	Learning Medicine	Ethics and Law	Biological Science
Firm 1	Basic Life Support	Musculo Skeletal	Neuro

Figure 8.1 Semester 1 Year 1 MBChB 2004 – 5 timetable Weeks 1 and 2

The colour coding of the sessions according to module gives a visual picture of the course. For example on Monday in week one students attend three lectures and a session in the library, involving two modules. In week two they have three lectures (some at different times from the sessions in the previous week) and a meeting, each for a different module. In week three there are three lectures, again

for two modules. There is no consistency in terms of activity nor of subject. Over the whole semester there were 163 sessions, plus four days spent in a GP (General Practitioner) surgery. 106 of the sessions were lectures (65%), and there was an average of 17 hours contact time per week

## **8.4 Discussion**

### **Staff Interviews:**

The views of staff support the students' findings, but give a different perspective. The staff who were interviewed expressed a virtually universal sense of frustration, cynicism and anger. They conveyed a sense of being overworked and undervalued. The underlying tension appears to be between two possibly incompatible functions: teaching and research. The vignette describes a person who took an enormous teaching load and who wanted to be research active, but who was prevented from doing the research because of the teaching load. However her contract was not renewed on the grounds that she was not research active, despite having been prevented from applying for grants which might have enabled her to do the research.

The interviews revealed that most staff perceived the lack of resources to be a political issue. Some powerful departments and individuals were exempt from teaching because this was regarded by management as necessary to ensure the continued success of the School's research activity. Furthermore tensions between departments meant that some divisional heads fought to keep the teaching structure unchanged from one year to the next as this maintained the

financial income from RAM with the minimum expenditure of staff time. It suits their case to argue that the teaching must be done by subject specialists as this precludes PhD students or other junior staff from taking on the teaching and thereby changing the status quo. Despite the apparent integration of the course in the form of systems based teaching, the subject defined divisions continue to show evidence of what Bernstein (Bernstein, 1971) calls 'collection codes' with their possessive approach to the teaching activity.

These findings are further supported by student comments, although the students seem to be more likely to be positive about their experience than might be expected, given the low morale demonstrated by the staff. One could question whether this is suggestive that effective learning is taking place because staff and students are working well together despite the comments, or whether it is simply remarkable that students remain largely optimistic in spite of the unsatisfactory conditions. Adult learning theory suggests that students learn best when they take control of their learning and negotiate the curriculum depending on their prior experience and future needs. Staff indicated that the climate in the Medical School operated against this occurring since the burden on a small number of staff to deliver the course to double the number of students has led to an increasing dependence on lectures as the preferred teaching mode. Where small group teaching sessions are used they are often under-staffed.: 'there is very little genuine opportunity for individual learning in the first two years.'

**Observations:**

My observations of the course support the impression that this is a highly structured rigid course where students are encouraged to be passive observers rather than active participants in their learning.

Students have no choice at all over the content of the course. All students follow the same content heavy curriculum delivered largely by passive lectures. Students are rarely encouraged or helped to make connections either between contemporaneous modules, or with learning that will take place later in the course or in their careers as doctors. The emphasis on individual modules and sessions encourages a superficial approach to learning and also maintains rigid boundaries between the disciplines of e.g. anatomy, physiology and biology.

**Summary**

The staff views support most of the student views, but from a different perspective. While the students see problems with the course, which may or may not be attributed to staff, the staff regard the situation as caused by political decisions by middle and senior management within the School. Senior management, in turn, seem to suggest that these decisions are out of their hands too.

There is a sense of fatalism and acceptance in the voices of the staff, which suggests that although any situation can be changed, most staff at this Medical School do not believe that it will be because those with power are interested in maintaining the status quo. I have not explored the situation from the perspective of the senior management in any depth, and this is clearly a limitation of this research. As I will show in the next chapter, this pessimism is not wholly justified, because the senior staff show that they are interested in improving the status of teaching and in addressing the concerns. What I have shown here is the view presented by the staff, there are other views to consider. What is interesting, however, is the relative uniformity of response from the staff and a consensus that the learning environment is not ideal.

## ***Chapter 9: Changes During the Research***

9.1 Introduction

9.2 Changes that have occurred since the research began

9.3 Changes that have occurred as a result of the research

9.4 Conclusion

## **CHAPTER 9 – CHANGES DURING THE RESEARCH**

### **9.1 Introduction**

This is not an experimental study and moreover, because I had an ongoing role in the department following the reporting of this research at various stages there have been some specific changes during the course of the research. Some changes have no connection with the project, but others are as a direct result of my findings. At the time that I started this research the first two years of the course were being redesigned. Part-way through the project a visit by the GMC (General Medical Council) led to a further change to all 5 years of the course in an attempt to meet their demands that 25% of the course consist of Student Select Components (in contrast with the existing 13%). These changes are explained below, but they are not an intrinsic part of the research, however it is important to note that this means that the course that exists today is not the same as the one described in this thesis.

In addition to changes that happened during the research project, there are some changes that occurred as a direct result of the research. These are also discussed in some detail below.

### **9.2 Changes that have occurred since the research began**

#### **Student Selected Components (SSC)**

As long ago as 1992 the GMC (General Medical Council) stated the need for students to have some control over the content of their studies. This Medical

School has been particularly slow to adopt this approach. Whereas the recommendation by the GMC was for 30% of the course to be student selected, the course described elsewhere in this study had only 13% of student selected content.

Following a visit by the GMC in the summer of 2005, the School realised the urgent need to adapt the course to meet the minimum requirements of Student Selected Activity (SSA). The GMC expect medical schools to meet the requirement for SSA by providing what is called Student Select Components (SSCs). The first two years of the course were already undergoing a redesign, but the 30% SSA had not been specified in the original aims. All five years of the course were subjected to scrutiny and curriculum committees were instructed to identify the aspects that they considered to be core (that is compulsory) and what could become SSA. Years 1 and 3 rolled out with 30% of SSA in the year 06 to 07, with the remaining years planned to come into line in 07 to 08.

The process of this change has not been easy. There has been enormous resistance to any change in the course, and reluctance to identify any element as being no longer compulsory. However, the detail of this and an evaluation of the effectiveness of the process should be the subject of future research.

### **New course for years 1 and 2**

The MBChB course for years 1 and 2 has been revamped for delivery beginning in the autumn of 2006. Therefore, much of the criticism of the teaching methods



may have been addressed. However an early examination of the new timetable suggests that the content has not been reduced as much as was originally planned. The new teaching methods include Integrated Problems (IPs), which is a module that uses the philosophy of Problem Based Learning. Each week students are expected to work on an IP, in groups of 7 or 8 students. They are given the problem at the start of the day. With the assistance of a facilitator they explore the issues implicit in the 'problem' (this may not be a query to solve, rather a situation or description of a particular patient), identify what they want to learn as a group, then distribute the work to the group. At the end of the day the group meets again with the facilitator and discusses the problem in the light of the subsequent learning.

The timetable for the new course is much easier for students to understand than the previous one, as each module has been allocated the same slot each week. The volume of sessions is still high compared with other courses and the number of lectures has not decreased as much as was planned but it is considered to be an improvement on the old model.

The course is still in modules, but there has been an attempt to increase the integration of the various traditional subjects into the new patient focused modules. For example the module Digestion, Renal and Endocrine has been replaced with Molecules to Man. However, critics note that the basic science subjects (IBS) are still taught quite separately from the Medicine in Society

(MIS) subjects, indeed those involved in the design and development of the new course met in their broad subject groups of IBS and MIS and rarely met as a whole. Even the Integrated Problems (IP) which were intended to integrate aspects of the whole curriculum were designed by academics in one part of the course or the other, rather than as a joint venture. It was only at a very late stage in the development that the two groups met together to discuss the final version of the IPs.

As with the design of the SSCs the evaluation of the new course is outside the scope of this research project, but there is a clear need to evaluate the effect of the new course and compare the performance of students who follow this with those who took the old course.

### **9.3 Changes as a result of the research**

#### **Away Day**

Part-way through this research project I was asked to make an interim research report. This was based on the findings that I have presented in the previous chapters. The report was a highly critical account of the state of morale amongst teaching staff and included a number of recommendations. I summarised these from two perspectives, that of the students and that of the tutors.

- Students' perspective:

- Reduce the number and proportion of passive lectures, improve the material in those that remain and support lecturers to improve their lecturing skills.
  - Increase the number of small (<10) group tutorials
  - Provide structured independent learning sessions
  - Instigate a tutorial system to ensure that individual students are seen at least once per fortnight throughout the first and second years.
  - Provide study skills support for students as an integrated (not remedial) element of the course.
- 
- Staff perspective:
    - Create a Teaching Division with the budget and authority to allocate teaching responsibilities to the other Divisions.
    - Reward teaching – for example through prizes and promotion opportunities.
    - Ensure that academics employed on research and teaching contracts are required to honour their teaching commitment, and support them appropriately in their development as teachers.
    - Make the banding system transparent to staff.
    - Employ teaching-only staff on permanent contracts.
    - Make use of PhD and post-doctorates as teachers.

As a result of the report I was asked to organise a Staff Away Day. This took place in June 2006. The intention of the Away Day was to signal to the school-based academics that the school did value teaching and in particular the efforts of those most involved in delivering the MBChB. This outcome of the day was mixed. The event did achieve its aim of raising the profile of teaching. However, some of the key figures involved in teaching were cynical about the motives of the day and showed a degree of hostility towards presentations from the Staff Development Unit (a central university service) and the internal Medical School Education Unit (MSEU). As a Medical Education Developer I am part of the MSEU. The day began with a presentation of the findings from the report and an indication that the Away Day was being held as a result of the research. Although I had anticipated that this would have been welcomed by the teaching staff; instead some reacted negatively.

Although this was the reaction of a small minority of the sixty-plus people present, it was a particularly vocal and vociferous response which may have had a disproportionate influence on the way people perceived the event. Change in the culture of an organisation as complex as the Medical School will not happen overnight and will take more than the occasional teaching related event to turn around.

## **Learning Medicine Module**

The new course for years 1 and 2 includes a module aimed at improving the support given to students to develop their learning skills. As a result of my involvement in this research I was asked to co-ordinate this module: Learning Medicine. In the previous iteration of the course the focus of this module had been almost exclusively on orientating students to the use of IT in the course and in the Medical School. It was designed at a time when students entered Medical School with a limited knowledge of word processing and internet use. The module had become less relevant to the needs of students in recent years.

Although I kept the original name of the Module I re-designed it as a study skills module aimed at encouraging the students to develop as self-motivated lifelong learners. The course evolved as a largely web-based set of resources which provide a written guide to the course and helps students to develop specific study skills. One aim is to help students find their way through the early weeks of the course in particular. My original intention was to appoint tutors to groups of 7 or 8 students to meet each week. However it was not possible to get the agreement of management to resource such a commitment. In the light of the SSC initiative it was agreed that mentors would be allocated to groups but that they would only be required to meet twice each semester.

The course is web-based for two reasons. The first is pragmatic: in the absence of a weekly tutorial, web-based delivery was the only option available. Secondly, I wanted to accommodate the range of needs in the student cohort with some

students needing more or different support than others. The module gives students guidance in the following:

- Computer facilities
- Student Selected Component
- The Reflective Learner
- Information skills
- Rights and Responsibilities
- How and Where to get Help
- Assessment
- Reading research papers
- Introduction to statistics
- Time Management
- Medical Language
- Plagiarism

The Module aims to support the students in their transition from A-level to 1<sup>st</sup> year medical undergraduate students. They are given most support and guidance in the first few weeks with the advice gradually reducing over the first semester. However, since the advice is contained within the virtual learning environment, they can access it at their own pace. Some students may choose to work through the material at a faster pace, while others may decide to revisit aspects originally presented in an earlier week of the course.

The design follows the principles of Kolb's experiential learning (Kolb,1984), in particular I attempted to instil the practice of reflection and planning, encouraging students to take a questioning approach to their learning, to seek connections and patterns with prior learning and to take responsibility for their own progress.

At the time of writing, the module is still in progress. It is therefore not possible to include an evaluation of it in this study.

### **Staff Development**

While conducting this research project I have been involved in some staff development initiatives. I recognised the need for pedagogical staff development. However the hostile climate and low morale of the teaching staff has resulted in a lack of enthusiasm for any such venture, as is evidenced in the account of the staff Away Day.

The University has a central Staff Development Unit which offers a Post-Graduate Certificate in Learning and Teaching in Higher Education. All staff, particularly newly appointed lecturers, are encouraged to attend, but the course is not compulsory. Some of the staff involved in the MBChB have completed the Certificate, however this has been the younger members of staff, such as the person who provided the vignette in Chapter Eight. Senior staff are unlikely to attend.

I was appointed Module Co-ordinator for a new module: the Associate Pathway Module: Teaching for Health Professionals. This is a 20 credit 'baby brother' to the PG Cert. Completion entitles participants to associate membership of the Higher Education Academy (HEA), whereas completion of the PG Cert. leads to full membership.

I was also appointed joint Module Co-ordinator for a parallel course which is part of a joint project with the School of Education at Birmingham and the West Midlands Postgraduate Deanery. This Module is part of the Postgraduate Certificate in Education for Health Professionals.

Both modules have proved popular with the clinical teachers (that is NHS based doctors), and is beginning to be taken up by Medical School staff, in particular the anatomy demonstrators who, in the past, received no formal teacher training, but who are expected to take on a considerable teaching role. As with the Learning Medicine module, this is at an early stage, but it is to be hoped that the take up of teacher training will be an increasing trend amongst academic staff in the Medical School.

## **9.4 Conclusion**

When I embarked on this research I did so with the dual aim of exploring the teaching and learning experience of first year medical students at this Medical School and completing a thesis for a doctorate in education. I did not anticipate that my research would lead to tangible change in the Medical School.



Some of the recommendations that I made in the interim report have been put into place while others are under consideration and discussion. I have had most impact through those that relate to the students.

*‘Reduce the number and proportion of passive lectures, improve the material in those that remain and support lecturers to improve their lecturing skills’.*

With the exception of the Learning Medicine module, I had no influence on the design of the new 1<sup>st</sup> and 2<sup>nd</sup> year course, and the design is not, in my view, ideal, but it is true that the number of lectures has reduced compared to the previous course. Some lecturers have indicated interest in exploring ways to increase interaction. My Medical School Education Unit (MSEU) colleagues and I demonstrated an audience response system at a recent workshop which consists of hand-held keypads which can be used to record answers to multiple choice questions during a lecture. Several lecturers present said that they would like to use the system in their lectures.

The provision of formal teacher training modules will help to address the development needs of the teaching staff. Given the resistance amongst teaching staff to ‘being told’ about teaching by the MSEU, formally credited courses may be more readily accepted than internally organised teaching events.

*'Increase the number of small (<10) group tutorials.'*

As the number of lectures has reduced the proportion of small group tutorials (SGTs) has increased. In particular the introduction of Integrated Problems (IPs) in the new course has led to more SGTs. This is a development that was already underway before I wrote the report and therefore cannot be attributed to it.

*'Provide structured independent learning sessions.'*

This recommendation has been addressed in the design of the new course through the introduction of Integrated Problems (IPs). Although the report may have helped to raise this as an issue it is again true to say that the new course was designed to include this element before the report was presented.

*'Instigate a tutorial system to ensure that individual students are seen at least once per fortnight throughout the first and second years.'*

*'Provide study skills support for students as an integrated (not remedial) element of the course.'*

The last two student focused recommendations have been addressed by the development of the Learning Medicine Module. As explained earlier, it has not been possible to implement this as I would have liked because of constraints on resources, especially staff time. Even so the students now have access to a 'mentor' twice a term whose focus is specifically on their academic development

as opposed to their welfare which remains the concern of the personal tutor. All students are encouraged to develop their study skills and are given resources and activities aimed at helping them do so. I have therefore achieved my aim of raising the profile of study skills away from a perception that only students who are deficient require this support.

The recommendations relating to the staff perspective have had an influence, but in many cases any change will take some time to effect.

*‘Create a Teaching Division with the budget and authority to allocate teaching responsibilities to the other Divisions.’*

This suggestion was discussed at some length at the Away Day. The discussion was extremely helpful for several reasons. Several staff welcomed the opportunity to take part in a debate. This alone signalled that the School Management were willing to discuss issues; this sent a powerful message to previously disgruntled staff. The debate enabled people to raise concerns touched upon in the report, regarding the disproportionate value given to research and teaching activity and the political dimension of the resource allocation model.

The idea of a Teaching Division continues to be a subject for debate but as yet there has been no practical change to the organisational structure of the School.

*'Reward teaching – for example through prizes and promotion opportunities.'*

The Dean responsible for the University's system of promotion gave a presentation at the Away Day in which he explained how staff could apply for promotion based on their teaching contribution as well as on their research. This was helpful as several staff appeared to be unaware that such a system was in place. However it remains the case that there are few tangible rewards for teaching and promotion is more difficult through teaching than through research. Greater effort has been made to ensure that School staff are informed of central University initiatives aimed at rewarding teaching excellence such as a scheme funded by the Teaching Quality Enhancement Fund (TQEF) which is a Higher Education Funding Council for England and Wales (HEFCE) funded resource.

*'Ensure that academics employed on research and teaching contracts are required to honour their teaching commitment, and support them appropriately in their development as teachers.'*

*'Make the banding system transparent to staff.'*

Senior management continue to exert pressure on the various Divisions within the School to honour their teaching commitment. Following the Away Day the Director of Finance made a presentation to the Curriculum Development and Implementation Group (CDIG) with the intention that the information in the presentation would be disseminated across the School. In the presentation he explained how the banding system currently works. He went on to present

possible models for a Teaching Division which included suggestions for dealing with the problem of gaining equal commitment to teaching. This is an aspect that continues to be debated.

*'Employ teaching-only staff on permanent contracts.'*

*'Make use of PhD and post-doctorates as teachers.'*

Although both of these recommendations continue to be debated neither have been implemented to date.

While the effect of these recommendations overall has been small, it has not been insignificant. I hope that the changes provoked by my findings will prove beneficial to the students involved. However most of the issues explored in this research are complex and inter-related. Many of the drivers are subject to numerous influences. Before I conducted this research some of these factors were commented on by those affected but more frequently they were not discussed openly. One advantage of this research has been to obtain data which has helped in supporting or challenging some of the previously held beliefs. In the next chapter I shall summarise the outcome of the project as a whole and indicate directions for future work.

## **Chapter 10:     *Looking Back and Looking Forward***

10.1 Introduction

10.2 The Research Questions

10.3 What were the main limitations of the study?

10.4 What next?

## ***Chapter 10 – Looking Back and Looking Forward***

### **10.1 What Have I Achieved?**

I began this research project in 2003. Since then I have located data that was not previously available and I have sought the views of people some of whom feel they had not previously been heard. Over the period of the research I have struggled with the task of pulling together the disparate threads to weave into the story that I now present. I do not believe that I have uncovered a fundamental truth, rather that I have produced a necessarily subjective perspective but one worth considering. I hope that I have been open and transparent in recognising bias or potential conflict of interest in the research findings and subsequent discussion.

As I discussed in the previous chapter, there have been some tangible effects of the research both in the treatment of staff in the Medical School and in a module in the undergraduate medical degree. I hope that some of my findings will be of use to researchers in the wider community of Higher Education and in medical education in particular.

In this chapter I will discuss the research in terms of my research questions. I shall go on to describe the key limitations of the study. I shall conclude with a discussion of the direction in which I would like to see research continue in the future, to follow up lines of enquiry started in this work.

## **10.2 The Research Questions**

### **1. Is there a connection between student ethnicity and performance in end of first year exams?**

When this research began the Medical School did not have access to data regarding students' ethnicity. Several staff promoted the theory that students from some ethnic groups were more likely to fail than others, specifically Asian students. An external examiner made a similar observation based on the names of students listed as failing an end of year exam. While there was an acknowledgement that this may be the case, it was not possible to verify nor to identify causes if it were.

The findings reported in Chapter Seven suggest that although more Asian British: Pakistani students, rather than any other grouping from Asian British: Indian, White or Other, do appear on the list, this is not at a statistically significant level.

Among some immigrant communities high value is given to second and third generation children achieving well (i.e. succeeding in prestigious occupations) in the dominant society as Modood and Acland (Modood and Acland, 1998) argue. This may account for the disproportionate representation of e.g. British Asians among medical students, both in medical schools in general and in this one in particular.



It is possible that students from all classes and socio-economic groups apply to study medicine as a result of direct or indirect pressure from their families. Since medicine requires exceptionally high A-level performance, it is also possible that students are encouraged by teachers or career advisors to study medicine because they are good at science subjects, and not because they are particularly interested in becoming a doctor.

The survey findings (Chapter Seven) suggest that Asian students may be more likely than their White peers, to choose medicine as a career because of pressure from other people and from a desire to be respected.

At the start of this research I expected to find that some students take a highly strategic approach to learning in which they see exams as hurdles to pass, not as stages in learning as a whole. The culture and attitudes prevalent in some ethnic groups may encourage this approach, which may in turn lead to a disproportionate number of, say, Asian students, failing one or two exams.

However, the findings suggest that while some groups, for example Asian British: Pakistani, may be more likely to fail or to be in the bottom 25% of the cohort, this is not statistically significant.

The findings from the student survey and personal data suggest a correlation between socio-economic background (IMD) and exam performance such that exam performance improves the greater the affluence of the student's socio –

economic background. They also show that most students come from the more affluent areas of the country. However British Asian: Pakistani students are more likely to come from the more deprived areas than other students, and students from the most deprived backgrounds are more likely to be Asian British: Pakistani than any other ethnic group. This supports the findings of Greenhalgh et al. (Greenhalgh, Seyan et al., 2004) who also found that students from Asian British:Pakistani group were more likely to apply to medical school than students from other ethnic backgrounds in the same socio-economic category. Although the method of calculating social background was different (Greenhalgh used parental occupation whereas I used IMD) the findings appear to support each other. This suggests that students' weak performance may be related to their socio-economic background rather than to their ethnicity. Indeed other cultural factors may offset socio-economic background to enable a disproportionate number of students from less affluent backgrounds to enter medical school.

This has significant implications. Students' socio-economic and ethnic backgrounds were not recorded at the University of Birmingham prior to this research. Assumptions were made based on superficial indicators such as surname. A closer examination of the data using the IMD based on the students' postcode and their self defined ethnic grouping has led to the observation that socio-economic rather than ethnic background may be the most reliable predictor of student performance. This raises the question: Why? I would suggest that some students are more socially equipped to deal with the learning environment

presented at this Medical School than others. In particular there seems to be a culture of learning from other students which students from the dominant affluent backgrounds may be in a stronger position to exploit than others. Students from less affluent backgrounds seem to be more likely to live at home while studying. This may add to their isolation and exclude them from informal student support. For example, that which is open to students who live in University accommodation with other medical students.

There were distinct differences in the ratio of men to women between ethnic groups, with white females outnumbering white males, but roughly equal numbers of Asian men and women, regardless of sub-category. This confirms Greenhalgh's (Greenhalgh, Seyan et al., 2004) findings across other UK medical schools. However, no connection was found between gender and examination performance, either overall or within particular ethnic groups. This is at odds with Ferguson's (Ferguson, James et al., 2002) findings that female gender is associated with success.

In Chapter Four I reviewed the literature regarding selection and retention of students. Table 10.1 presents a summary of this (based on table 4.1) alongside the findings from the research.

Table 10.1 Summary of student selection, retention and predictors of failure; and implications for research

<p><b>Aspect:</b> Range of selection methods in use</p>	<p><b>Implications:</b> What, if anything, is the connection between factors used in this medical school to select students, and their subsequent exam performance?</p>
<p><b>Findings:</b> White affluent students do better both in the selection process and in the end of year exams. Asian British: Pakistani students do better than their IMD group peers in getting into this medical school, but along with their IMD group peers perform less well than other students in end of year exams.</p>	
<p><b>Aspect:</b> Desirability of widening participation in medicine. The current profile of students across medical schools suggests strong inequalities in participation according to social class and, to a lesser extent, ethnicity</p>	<p><b>Implications:</b> What is the socio-economic and ethnic make up of our students? Is there any link between either factor and exam performance?</p>
<p><b>Findings:</b> Our students are largely from affluent backgrounds, but there is a mix of ethnic groups. IMD and exam performance are linked but ethnicity and exam performance are not. Gender and exam performance are not linked either. Although there is imbalance in the numbers of men and women studying medicine at Birmingham and whilst there are more white female students than white males, there are more Asian men than Asian women in the student body.</p>	
<p><b>Aspect:</b> Students in HE in general – from poorer backgrounds need more support than those from more affluent backgrounds. Staff need training to be able to provide appropriate support</p>	<p><b>Implications:</b> Are students in this medical school from poorer backgrounds in need of and / or getting the appropriate support? Are staff provided with appropriate training?</p>
<p><b>Findings:</b> While previous research indicates that students from less affluent backgrounds do need more support, it appears that no students regardless of background are getting appropriate support in the transition from school to university, there is an over-emphasis on assessment and very little feedback to students about what is expected and how they perform. Where students are getting support it is largely from other students. The informal system of student support may not be available equally to all students. Staff are not required to attend teacher training courses nor offered specific courses to support student transition or learning.</p>	
<p><b>Aspect:</b> White students are more likely to be from more affluent backgrounds</p>	<p><b>Implications:</b> Is this the case in this medical school?</p>
<p><b>Findings:</b> Students from less affluent backgrounds are not well represented in the cohorts, except for those from the Asian British: Pakistani ethnic group. The majority of students are white and likely to be from affluent backgrounds. This suggests that Asian British: Pakistani students are gaining entry despite IMD, in contrast with other ethnic groups.</p>	
<p><b>Aspect:</b> Retention is more likely if students adjust to their new university</p>	<p><b>Implications:</b> Are students encouraged to adjust to university life, are they</p>

life smoothly, are able to cope intellectually with the work, perceive a 'fit' between themselves and the institution, and feel a sense of belonging and connection	helped with the transition to a new style of study, do they have encouragement to engage with the institution, to make friends and to form an identity as a medical student?
<b>Findings:</b> The findings suggest that adjustment is up to the students with little support from the school. Some groups are more successful than others in managing this transition. Where students do report an identification it tends to be with the School rather than the University in general. Furthermore Asian students are more likely to live at home and not mix with other students in student accommodation, thus adding to their potential sense of isolation from the majority culture.	
<b>Aspect:</b> Retention is more likely if the curriculum is learner-centred, and makes use of concepts associated with adult learning. Students who show academic preparedness and a strategic learning style are less likely to drop out.	<b>Implications:</b> Does the curriculum show evidence of a learner-centred approach where students are supported in their development as learners?
<b>Findings:</b> There is very little evidence of a learner-centred approach. The evidence from staff, students and observations suggests the reverse.	

In Chapter Five I reviewed the literature regarding the effect of race in HE. In conclusion I said that I would investigate whether students from an ethnic minority perform less well than the majority group, and whether the socio-economic background of students from ethnic minorities is consistently different to the socio-economic background of other students. The findings suggest that some ethnic groups are more widely represented in Birmingham Medical School than others. The largest group, White, are more likely to be from an affluent background than a deprived background. Asian British students, of Indian or Pakistani origin (but not Bangladeshi), are more highly represented in the student group than in either the national or local population. However Asian British: Indian students are more likely to come from an affluent background, while Asian British: Pakistani students are more likely to come from a less affluent

background. This suggests that Asian British: Pakistani students are gaining entry to this Medical School despite their IMD which is in contrast with people from other ethnic groups with similar IMD. Other ethnic groups are also represented in the student body, such as Chinese and Black, but in relatively small numbers such that it was not possible to apply meaningful statistical analysis to the findings.

## **2. Is the experience of medical students at this medical school conducive to effective learning?**

There has been a marked increase in the number of students studying medicine. Numerous members of staff have commented on the reduction in teaching staff, but it has not been possible to corroborate this with any records. The proportion of students failing at least one exam at the end of the first year has also risen. My observations demonstrate a high reliance on teaching methods that make efficient use of staff time such as lectures to the whole cohort and ‘tutorless tutorials’.

Whether these factors can be said to cause the higher failure rate of students is yet to be proven, but several teachers made this connection.

The reason for this situation can be explained in economic terms. Universities in general, and individual schools in particular, are required to operate within financial constraints. This means that not only are they expected to teach students and carry out research, but they are expected to operate within budgets. Each student brings a sum of money into the School. The more students that can be taught with little or no increase in expenditure, the easier it is for the School to

meet its budget. However, as Wilson and Sweet (Sweet, Huttley et al., 2003) argue, this is not an appropriate defence for a Medical School to fail its students because it is focusing on research output.

In interviews staff repeatedly claimed that an ever decreasing number of staff are expected to carry the teaching burden for the rest. The phenomenon of increased numbers combined with an emphasis on research output is not peculiar to Birmingham University Medical School, but it does appear to be having a particularly detrimental effect on the available pool of teachers for undergraduate medical students.

It is, however, difficult to determine whether morale has actually deteriorated and, even if it has, whether this has a direct impact on the failure rate of students. It is certainly the case that students comment on the difficulty of knowing who to contact when they have a problem with their studies. The 'new' course involves double the number of assessments compared with the pre 1995 course. This would suggest an increased demand on teachers both to create the assessment papers and to mark them. It may also increase the chances of students failing. It should give an increased opportunity to give students feedback about their progress, although formative feedback is considerably more useful to students than summative feedback (Black and Wiliam, 1998). However student comments suggest that there is insufficient feedback of either type, despite the increase in assessments.

Bernstein's (Bernstein, 1990) description of a performance based education rather than a competence (student-centred) based approach gives a way to frame the context and culture at Birmingham Medical School. While most of the teaching staff espouse a commitment to student centred education, which aims to produce independent learners able to take responsibility for their education, the experience of students is of a performance based approach heavily in the control of the teachers. This contradiction of aim and outcome is inevitably going to result in frustration at the very least for the staff, and an unsatisfactory experience for students.

An analysis of the timetable (Figure 8.1) both for the week that I shadowed and for the whole of the first semester shows a high proportion of lectures to small group teaching sessions. It also shows very few opportunities for students to create their own learning, to generate deeper and more complex models underpinning their understanding of the world as advised by Anne Edwards (Edwards 2002), for instance.

As described in Chapter Two, the curriculum for the MBChB is intended to be integrated. Prior to the 'new' course in 1995 students were taught subjects according to academic discipline, such as physiology, anatomy or basic science. The course introduced in 1995 was designed around modules that focus on body systems, such as cardio-respiratory or digestion, renal and endocrine. The



rationale is that as a doctor it is necessary to have a holistic view of the patient and of bodily functions. Thus rather than, for instance, learning about the physiology of the heart in semester 1, then the anatomy of the heart in semester 2, all aspects of the heart and how it inter-relates with knowledge about the lungs is taught in one module.

I examined the timetable in an attempt to establish whether the intention of the curriculum planners was reflected in the experience of the students. The colour coding helps to illustrate that there is no consistency in the presentation of modules. For example, the module 'Behavioural Science' has at least one session every week of the semester. In week 1 there are 4 sessions on a Tuesday. In week 2 there are none on Tuesday, instead one on Monday and three on Thursday, and in week 3 there is one on Tuesday, Thursday and Friday. This means that unless a student is exceptionally aware of the course structure, it is not obvious that a particular lecture relates to other specific sessions in the module. This is particularly the case given the volume of sessions. A student is most likely to think 'I have three lectures today', rather than 'I have a lecture in such and such a module today.' This approach is likely to encourage students to regard each learning experience as a discrete event rather than make links between so-called integrated sessions.

Despite the claim of the post '95 course to be integrated, it is actually closer to Bernstein's definition of a collection than an integrated curriculum (Bernstein

1971) since units of the course are delivered as discrete entities by subject teachers who maintain control over the content of the learning with a heavy reliance on didactic lectures, and a jealous loyalty to their subject.

As I have established in Chapter Three, passive lectures without student activity or interaction are known to be inefficient learning experiences. Inefficient though they may be in terms of learning, with a staff:student ratio of 1:380+ they are highly efficient in economic terms.

Both staff and students agree that the situation could be improved, with many staff commenting on the lack of small group teaching sessions while at the same time acknowledging their role in meaningful education, and students commenting that they did not know what was expected of them in assessments.

Only around half of the students pass all their exams at the first sit, a significant number do not. From my observations of the students, and an awareness of programs and activities provided by some other HE institutions, it would seem sensible to provide all students with clearer support and guidance as they make the transition from school pupil to medical student. Certainly Tinto's (Tinto, 1993) work supports this, as does that of Wilson and Sweet (Wilson and Sweet, 2003).

The comments from students support my own observations that students are treated as one large homogenous group. They put themselves into groups (as observed in the lecture theatre) but this is not necessarily conducive to optimal learning strategies. This aspect deserves far more exploration, to establish whether the School can, and should, do more to encourage students to integrate with each other and with the school culture. Much of the work done so far by other researchers has focussed on small minority groups. Although each student is a unique person with their own individual set of variables, the 'minority' group of British Asians is a considerable entity (over 30% of the cohort) and therefore justifies the expenditure of significant effort on the part of the School. However Purwar's (Purwar, 2004) point is important, that there is a danger of assuming that all people from a minority are alike since this raises the danger of ignoring the effect of individual circumstances.

It is vital to collate data about ethnic group and socio-economic background in order to explore whether any particular social group is more likely than any other to fail. At first sight it certainly seems the case that British Asian students are not being discriminated against at the point of admission since they are over-represented in the student body compared with the wider population. However Black students are particularly poorly represented, as are most students from the least affluent backgrounds with the exception of Asian British: Pakistani.

Given that only about half of the students pass all exams at first sit can it be argued that the school is supporting the majority adequately? It may be the case that with greater support most students would benefit by learning even more, even those who pass first time, or feeling more in tune with their environment.

There does appear to have been a cultural change in student attitude, which may have been driven by several factors. Since students no longer receive grants but are made explicitly aware of the connection between payment on their part and delivery of an 'educational product' on the part of the medical school, many academics have detected a change in students' approach. This is manifested in a decrease of respect shown by students to lecturers. They claim that students are more likely to ignore a lecturer or use a mobile phone during a lecture, for instance. This was discussed at some length by a lecturer who had been involved in disciplining students for this behaviour; and I observed some inappropriate behaviour in lectures.

However the students' comments give a more complex picture. Several of the students show a sophisticated awareness of the tensions experienced by teachers such as demands on their time, and an awareness of the nature of learning required of them, especially in comments about rote learning, lack of feedback and limited support. The teachers on the other hand see support or the lack of it in terms of what the school does or does not do for them, rather than the support that the teachers give to the students. When I shadowed the students I was particularly

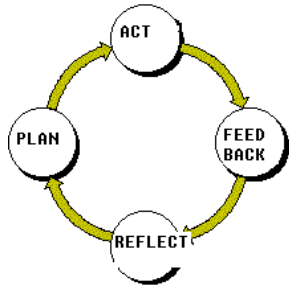
struck by the lack of direction that the students were given. I noticed a tendency for them to support each other, asking a neighbour rather than the lecturer, for instance, about handouts; or comparing answer problems in the small group sessions. The staff commented on the students' lack of self direction and their desire for answers, saying that they demand to be spoon-fed. However it is difficult to see how the students could behave more independently than they do already and pass the exams. The conditions created by the teaching methods, which are in turn determined by the allocation of resources, seems to lead almost inevitably to the behaviour demonstrated by the students, and complained about by the staff.

Findings from the entry survey indicated that most students expect to have to study for longer and in a different way from the approach that they took at A-level, but I found little evidence of the School providing guidance about how that was to occur. The students who are successful seem to acquire their knowledge about the required study approach through inference and discussion with other students.

Another potential influence lies in the changes that have been experienced in primary and secondary schooling. Schools have become economic units, which compete with each other in order to attract pupils and therefore funding. There is a suggestion that teachers have become skilled, in the more successful schools, in getting pupils to achieve the highest grades at GCSE and A-level. The suggestion

is that since medical students are selected largely on the basis of their predicted and actual grades at A-level, the production of for instance three grade As, may not be as significant a predictor of future success if the person who achieved these grades was coached through the course, in comparison with a student from 20 years earlier who was taught the subject, not the specific tactics to pass the assessment hurdle. Although McManus et al (McManus, Smithers et al., 2003) showed in their prospective study that A-levels do (or did) predict future success in medicine, other studies such as Ferguson et al (Ferguson, James et al., 2002) indicate that measures of previous academic performance tend to over-predict for ethnic minorities but to under-predict for white students. The findings from this research suggest that success in A-level may be a predictor of success at this medical school, since as A-level score rose so did exam performance in terms of z-score. However it could also be the case that the conditions that suited some students who gained the highest A-level grades are in some way mirrored in this medical school, such that those students are able to benefit from the environment or the system and achieve the best exam results, while those students (particularly those from less affluent backgrounds) who gained lower A-level scores are less able to benefit.

The learning theories explored in Chapter Three tend to share some common properties. Most suggest that learning is more effective when the learner has some control over the process, has feedback about their progress and is encouraged to reflect on their experience. This cycle is shown again in figure 10.1.



*Figure 10.1 Learning Cycle*

The findings in Chapters Six to Eight suggest problems in each of these areas.

**Act – Feedback**      There is limited opportunity for feedback, either in terms of how students perform during the term, or what they will be expected to do in the end of year assessment. This is partly due to the structure of the course but also because of the limited student/staff contact.

**Feedback – Reflect**      The lack of extrinsic feedback makes it difficult for students to reflect. Reflection is further hampered by the lack of space in the timetable, due to the large number of lectures; and a lack of encouragement by teachers to guide the students towards this approach. Furthermore there is a lack of contingency between feedback and performance (i.e. a time lag), such that when feedback is given it is perceived as less relevant by the students than if it was given nearer to the time of the performance.

**Reflect – Plan**      Limited reflection reduces the ability to plan. This is further reduced since the students are given so little opportunity to determine their own learning. Those

students who want to plan their approach to their learning are given no support to do so. It is possible that students from more affluent backgrounds are more likely to be equipped with the study skills before entering medical school and are therefore more likely to pass the end of year exams.

Table 10.2 compares the summary of effective learning and learning theory (from table 3.1) with the findings from this research.

To summarise, the findings suggest that the answer to this question is ‘no’ – medical students at this medical school do not benefit fully from what is known about effective learning and theories of learning.



Table 10.2 Summary of effective learning and learning theory compared with research findings

<b>Theory</b>	<b>Findings</b>
Adults' learning is not the same as children's learning: adults need to negotiate the curriculum in line with their needs and aspirations	Students are given no opportunity to negotiate the curriculum, the content and mode of delivery are predetermined by the course designers and all students follow the same path.
Deep vs surface learning	Heavy reliance on lectures and multiple exams with little feedback encourages a surface rather than a deep approach to learning.
Experiential learning: Students need to be active, reflective, to theorise and to plan related to their personal goals and styles; to learn to learn	Students are expected to learn how to be students with little or no guidance, they are not encouraged to reflect on their learning, and the main teaching method requires passive involvement by the students.
Social activity – situated learning	Despite spending one day per fortnight in a GP surgery learning is mainly in the medical school, in the first year there is very little situated learning that gives authentic practice opportunities.
Content (classification) and delivery methods (framing) can be weak or strong	Both content and delivery methods are strong, although the modules are said to be integrated they are taught as discrete disciplines and the method of delivery is highly controlled by the teachers. This links with the promotion of a surface rather than deep approach to learning.
Academic vs everyday knowledge, complexity of learning -communication mediated by language and other artifacts	The content of the course is intended to prepare future doctors, however the delivery is by academic specialists largely in passive lectures with little opportunity for interaction or knowledge construction through individual or collaborative extended projects, therefore the chances of students absorbing the full meaning of discipline specific terms and creating their own meaning or inter-topic relations is low.
Structured learning covering all six levels of learning from knowledge acquisition to evaluation	The nature of the course delivery and the style of assessment suggest that the focus will be on the lower levels of knowledge acquisition and comprehension rather than those of synthesis and evaluation.
Competence preferable to performance based education	The assessment system is such that it emphasises a performance rather than a competence based approach to education.

### **3. What, if anything, could be done to improve students' learning?**

A review of the research findings and the discussion so far suggests that there are significant improvements that could be made to the course which would result in an improved learning environment for students. In Chapter Nine I described some of the changes that have already been made.

The key issue appears to be one of resource. Although the School receives a significant amount of money from HEFCE (Higher Education Funding Council for England) per student, this is not being spent directly on teaching students. The '*Guardian*' table demonstrated that Birmingham has one of the lowest spends per student of all medical schools in the UK. The school has followed a policy of increasing student numbers at every opportunity. By doubling numbers in the last five years this School is now one of the largest in the country. However, student comments, staff interviews and my own observations all show that there has not been a commensurate increase in staff involvement with the students, particularly in the first two years of the course.

Some members of staff have responded negatively whereby the few who carry the largest burden of teaching feel that they are under threat and have become defensive. In order for this to change it will take more than a reallocation of resources, although as a first step this is vital. Staff attitudes will only change if the School at the highest level, conveys a message of support and value for

student-centred learning which is backed up by appropriate staffing levels, educational resources and staff development.

If a change of culture takes place it will then be possible to redesign the curriculum to meet the needs of the students as proto-doctors, rather than pander to the bunker mentality of subject teachers under siege experiencing stress and frustration. Specifically there needs to be a shift from the emphasis on lectures to learning opportunities which require the active involvement of students. While there may be a place for high quality lectures in a medical course, as I discussed in Chapter Three, these should be balanced appropriately with individual and collaborative learning opportunities to which they link explicitly and practically. Teaching methods should include a more problem based or situated approach and be reformed to include much higher levels of interaction, better quality resources and integration of media that support active learning and engagement, for example through responsive modes: lectures should not be passive experiences. Attempts should be made to involve the students in the learning events, by encouraging them to think about the content before they attend, using devices in lectures such as audience response systems or paired activities, and signposting future work such as follow-up reading and possible connections with other course elements.

Research regarding student transition from school to university shows that students are more likely to be successful if institutions support them by

acknowledging their needs. Given that the competition for places in medical school means that all students have high A-level grades, all should be capable of academic success. Therefore the requirement for a medical school is to consider the aspects such as those identified by Tinto (Tinto, 1993) of adjustment, isolation and incongruence. Furthermore it is vital to acknowledge that the student body is not (and never has been) a homogenous group with all students responding in the same way. In a cohort of over 350 it is particularly important to ensure that students create their own sense of identity. As the student comments show it is very easy for people to feel isolated in a large group. While this may appear to be an oxymoron, it is not uncommon to find that the larger the group the greater the chance for an individual to feel that everyone else has friends and fits in. The School does run Freshers' Week activities which have not been discussed in this research, but much more could be done to help students to establish themselves as medical students. There is a welfare tutor system, but many students meet with their tutor minimally. The school could instigate a tutorial system whereby students met with their tutor alone for a minimum of 15 minutes each week. This would enable students to form a relationship with a specific member of staff and would provide a focal point for any concerns. In the pre '95 course staff were able to offer this facility. The expansion in numbers and reduction in staff time per student has prevented this model in the current course.

A wider institution, indeed sector- wide, issue is that of the relationship between research and teaching. All research-led institutions, which includes all UK

medical schools, are faced with a tension between these two activities. However, the climate at this particular school has moved so far towards research that it may have led to a decline in the experience of students. This climate is not going to change over night, and it is this that will influence the allocation of resources.

### **10.3 Limitations of the study**

Some of the many limitations of this study have been referred to in the methodology sections of Chapters Six, Seven and Eight. The principal limitation is that this research is highly specific to this particular Medical School. Although the research draws on the work of others in medicine in general and in the wider Higher Education sector, the particular findings are specific to Birmingham. However, some of the conclusions such as the link between socio-economic background and exam performance may be helpful in determining appropriate learner support for medical students in other schools.

The intention of this research was to discover whether or not there is a connection between particular ethnic or social groups and exam performance. Because of the number of variables it has not been straightforward to identify causal links between factors. It may be that some of the inferences have been open to subjective value judgements which will be rightly challenged by others. However, as I explained in Chapter Two, I have sought to minimise this threat to validity by using a range of research methods with the specific intention to reduce researcher bias.

As I discussed in Chapter Two, the combination of the context of this research and my own position is such that I have felt pulled in two directions throughout this study. This tension may contribute to the strength of the resulting thesis, but may also raise some limitations. The principal weakness, in my view, is the danger of having fallen between two paradigms. In trying to defend my work from accusations of weak science or subjective claims, I may have taken a more positivist and quantitative approach than I would otherwise have chosen, and yet still not satisfy those critics, for example, who would like to have seen far more multivariate analysis of the data and who would argue that I have therefore not been robust enough. Similarly, those from an interpretivist perspective may take issue with my choice of methodology, questioning why I chose to include any quantitative data at all. From their perspective the quantitative data, rather than adding 'scientific' weight and the potential to reproduce my results, the inclusion of this data serves to detract from the richness of the picture created by the qualitative accounts. The inclusion of both types of data may result in a jarring effect as rather than add to the total richness each detracts from the impact of the other.

There are some specific limitations which arise from the way I chose to analyse and collect the data. For example I restricted the study to students who actually sat the end of first year exams. This clearly excludes any students who left the course for whatever reason before the end of the first year. Also since the student survey was not compulsory I did not obtain data about all of the students such as

ethnicity for example. This is a significant limitation, particularly as the response of the second cohort was particularly low. The use of the IMD as a means of identifying socio-economic background is not without problems, particularly when discussed in the context of ethnic background. It is possible that some ethnic groups are more likely than others to live in an area which may be considered relatively deprived while actually being quite affluent. There is a suggestion that ethnic minority students are more likely than white students to fall into this category, since people may prefer to live within a community of people from a similar ethnic background, rather than a community of people with a similar level of income. A student's IMD therefore indicates the level of affluence of the area where the student lives, according to the Census data, and is not necessarily an indication of the actual deprivation or affluence experienced by the student. Further research into the circumstances of students is needed to investigate this suggestion.

I did not widen the research to include all students who applied to this Medical School. Therefore I could not claim that certain groups were more likely to be admitted to medical school than others since I could not identify if, for example, the reason why more white women gained places than white men was partly because more women than men applied.

Robson refers to Lincoln and Guba's (Lincoln and Guba, 1985) classification of potential threats to validity in terms of reactivity, respondent biases and researcher biases. Reactivity involves the affect of the researcher on the

respondents' behaviour. As I am a member of staff in the institution which is the setting for the research, it is highly possible that this could be a factor. In particular, one method of data collection that I used was field notes taken while observing a group of students for a week. I asked all of the lecturers concerned if I could observe their lectures. I did this as a matter of courtesy and because I felt that as a middle aged woman I would be highly visible to experienced lecturers even in an audience of 350+ 18 year old students. It is therefore possible that the lecturers altered their behaviour as a consequence. I tried to counter this possibility by observing an entire week, and by asking students whether aspects that I observed were typical.

I used questionnaires to gather data from the students. Although I introduced myself and the research in a covering letter (electronically in the case of the full cohort surveys). I think that it is unlikely that any but a few students would have been able to identify who I was. The few who would were the three or four students in each cohort who were in my personal tutor group.

My greatest effect could have been on the staff. To counter this I interviewed and surveyed most of the staff involved in co-ordinating first year modules, including those from other schools.

Lincoln and Guba explain that respondent bias can take a number of forms, including an attempt to give the researcher the answers they think the researcher



wants, or on the other extreme, seeing the researcher as a threat and consequently withholding information or deliberately misleading them. It is quite possible that some of the respondents amongst the staff in particular may have perceived me as a threat. I tried to counter this by interviewing as many of the relevant staff as I could. I feel that the consistency of responses from the staff suggests that this was not a significant threat to the validity of the findings.

Finally Lincoln and Guba's classification of researcher biases touches on the criticisms of interpretation and theory described above. They point out the danger inherent in the researcher approaching the research with preconceptions and assumptions which affect the research process. As an interpretivist and constructivist I can not argue with this as I contend that we all have preconceptions and make assumptions which necessarily shape the way that we interpret the world. However I have tried to maintain an awareness of my own prejudices and beliefs and tried to question my interpretation as I have arrived at my representation of this case study.

Robson (Robson, 2002) suggests a range of strategies which can help to reduce the potential threats to validity. He suggests that prolonged involvement reduces the threat in terms of reactivity and respondent bias, but increases the threat in the form of researcher bias. This research has taken place over a period of four years. Triangulation, according to Robson, reduces threat in all three aspects. I have aimed at triangulation by drawing on my own observations, students' views, staff

views and independent data. Peer debriefing and support has no effect on reactivity and respondent bias but does reduce researcher bias. The doctorate process means that I have been able to discuss each stage of the research with my supervisor. Member checking, that is asking respondents to comment on transcripts reduces threat in all three areas. I did this with regard to the interview transcripts with staff as I sent the transcript back to the respondent within a week of each interview asking them to confirm whether I had accurately captured the essence of the interview. Negative case analysis has no effect on reactivity or respondent bias but does reduce researcher bias. I attempted to do this during the course of the research, not least in response to prompting by my supervisor, as I struggled to arrive at an interpretation of the data. Finally Robson describes the use of an audit trail as a means to reduce researcher bias, although it has no effect of reactivity or respondent bias. From day one of the Ed.D I have been encouraged to keep a reflective learning diary. This has proved invaluable in charting my journey through this research project.

As well as charting a research project this thesis presents the results of my own development as a researcher. I have described how the research evolved over time. I began by conducting a pilot study to gain data about students. I elaborated on this later by conducting a questionnaire with the whole cohort of 1<sup>st</sup> year students in two consecutive years. My development as a researcher can be observed in the different approaches that I took to the two stages of the student investigation. In the case of the pilot study I asked various questions, both closed and open, which

generated a range of data. I analysed the results of the closed questions in a rather basic way. I compared responses between those who passed and those who failed. This approach helped me to identify the broad issues that I then researched further in the second stage.

The second stage in the research into students' views took place over a two year period. During that time I enrolled myself onto a statistics course run by Southampton University. This was funded by my employers at Birmingham University Medical School. As a result of this course I felt better equipped to analyse the data from the entry surveys in more depth than I had attempted with the Pilot Study. I took each of the questions and compared responses according to ethnic group and socio-economic background.

As a consequence of this process I feel more confident that my findings have some scientific justification that my earlier observations may have lacked. Furthermore I feel this has enabled me to identify subtleties in the inter-relationship of the data that would have been missed by the approach I took to the Pilot Study.

However, as I explained in Chapter 7, despite the additional training and advice that I sought from beyond the School of Education I remain a novice statistician, and I freely acknowledge that as a consequence some of my analysis may lack the sophistication that may be expected by quantitative researchers in other fields. In

particular, my omission of a multivariate analysis leaves me particularly vulnerable to criticism. I would argue, however, that this weakness does not detract ultimately from the findings of the research. Furthermore this is an obvious area for other researchers with more appropriate skills than me to investigate further.

However this process has not been smooth. Educational research draws on the development of other disciplines such as psychology and sociology. It is a discipline that makes use of methodologies borrowed from other areas. As a consequence it seems that there is not always a unanimous view about the appropriateness of certain approaches. As I discussed, earlier, there is the further complication for this research in producing work that also 'fits' the medical paradigm. I have attempted to marry the various concerns of different disciplines and combined my own preference for qualitative impressionistic data with what I perceive to be the requirement for a medical audience for quantitative reproducible data. I believe that the outcome of this approach is a multi-faceted picture, from which I have drawn conclusions. I recognise that there is a danger in trying to meet the concerns of two or more apparently contradictory groups, of failing to meet the needs of either.

#### **10.4 Future work**

This project has touched on a wide range of aspects, despite the initial focus on the apparently narrow question of whether or not there is a link between ethnicity

and exam performance. In my view the particular area that would benefit most from future research is the further analysis of student expectations and motivations by ethnic and socio-economic background, with a view to informing practice to ensure that students from the full range of society are encouraged and appropriately supported to study medicine. Any such research would benefit from an examination of the changing culture and expectations on the part of students: for example fee structure, changing use of media in society; and on the part of teachers: for example, the effect of the Research Assessment Exercise (RAE) and career paths for teachers in Higher Education.

Specifically, research is needed in the following areas:

- The provision of IT and Library resources; to what extent does this affect student learning? Does it affect all students equally or are students from, for example, a deprived background affected disproportionately?
- What are the differences between ethnic groups of motivational factors affecting the choice of medicine as a career?
- Should Medical Schools act proactively to help students to integrate into the prevailing educational culture, and if so how?
- What is the effect of the changing educational, social and technological context on students' approaches to learning?

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## **Appendix 1**

### **Staff Interviews**

Pre-Interview questionnaire

Example of interview transcript

## Meeting with Dr XX March 23<sup>rd</sup> 2005

Getting out of hand – only my 4<sup>th</sup> year so hard to tell, but it has got busier each year, partly because I have gradually picked up more work. But also reason is that 3 people have left from my department who are only partially replaced in terms of teaching effort. Lost one – retired, mainly teaching, and not been replaced. Another was 50/50 teaching and research – more than would expect, but replaced by someone who has protected time – does 20% teaching, has targets to meet for research.

When med school student numbers increased, took on 4 people, 2 on standard lectureships and 2 on teaching only. [Named person] was the other one. Offered 1 year extension and impression was given that would not be renewed further, so she has now gone to Cardiff. [Named person2] in similar position and she has now gone. But I was made permanent. Don't understand why. Therefore the teaching falls to me but this gets out of hand. In term-time it is ridiculous – I keep sane by telling my self that I will work fewer hours in the vacation – but there are resits in the summer and departments admissions for BMedSci. August is in fact the busiest time. Cant avoid deadlines – if you are teaching at 11 you simply have to be there. RAM business is almost offensive because it is swinging what is happening. For instance BMedSci say will give lecture then don't turn up etc. Once or twice can cope but across the course is a problem. 80% of my time is teaching – contact teach 7 months of the year. Marking is supposed to be built into RAM – should have 6 – 7 hours per lecture for preparation and assessment, but it takes 6 hours to mark one exam question for 360 students, and realistically even longer.

Response – try to build in assessment into RAM but then have to account for every minute. Does not account for quality at all. Only by student feedback which seems if get good feedback asked to do even more.

I do enjoy teaching, I like it if I give a good lecture – so that the students know more at the end than they did at the start. Tutorials are an excellent vehicle for getting to grips with understanding help to see links across subjects. Not fundamentally stupid – various reasons why they don't do well. I saw that the BBC have a revision series – Bite size – that is the sort of thing that adds to the problem – present learning as something that you do in small unrelated chunks. We then have to help them to unlearn the habits that they have learnt at school. Study skills are not serving them well.

Interviewer suggested Learning Medicine idea – of having a weekly tutorial. – Can no longer staff tutorials for pharmacology. [Named colleague] complained that there were not enough staff told have to use other staff. The problem is that they don't have pharmacology knowledge. Can provide tutor notes but if don't do much teaching and don't understand the course, they just do the session and go. [Senior colleague] sees everyone for anatomy across the course and I see students

across several elements, which helps me to pull together strands for the students – can make links for them.

I really enjoy tutorials as can make the biggest difference but hard work and have to know your stuff. Some teachers prefer to lecture because you don't get challenged by students in a lecture.

In SGT for cardiovascular go over material from lectures – tell them to bring their lecture notes, but only 50% bring their notes – why? Not only had it spelled out but also had experience from previous SGT that need their notes. Attendance is an issue – I am against monitoring it, but I do understand the reason – to do with handling mitigation. Turn up to tutorials and say nothing – I'd prefer it if they didn't come to be honest, as the numbers can inhibit those who might otherwise contribute.

Now have tutorless SGT – problems and exercises for the students to do, and there are some hints – all the material is on WebCT. Students meet as a group, discuss the issues and then they post their answers. [Named colleague] and I are the teachers for all of it. Find it hard to post to the student discussions in time. Students hate it. Prenominate a facilitator to collect in attendance and post the answers. What they do is simply print out the attendance list and get it signed. Tough for them, at school have to do as they are told, some find it a tough transition, but if you baby them through it just delays when they have to manage for themselves.

They don't engage with the material. When ask them say if you don't understand some key concepts you are absolutely stuck and have no one who can pick up the pieces you do have and help you to move on. In tutorial can do that – change of emphasis of area need to work on.

Wasters think it is great – don't have to go. But a significant number don't have the confidence to believe what they read. Are obsessed with answers – [Senior colleague] has this all the time with her anatomy workbook.

Benefit with 1<sup>st</sup> years – make them do things on their own.

Interviewer suggested what about reducing so some tutorials are with a tutor? Problem is finding say 11 people to cover even a reduced number of tutorials. Take pharmacology – there is not a pharmacology module - teach across several modules in both years therefore that is a couple of tutorials in each module. Therefore it would be hard to reduce. Would be easier to do that in BMedSci.

Reason can't use other people is from outside division – is a myth that want to keep the money in the division but is not true. I'm employed to teach not to worry about how I'm financed. [Named academic] is a pharmacologist, for example, but he is the busiest person on the planet – have asked him to do one or two, but he doesn't help with the bulk of the work. Becomes hard work if have people without the right background as have to support them.

Have used PhD students in the past – last year we used them. Problem is that they don't have a feel for where the tutorial fits into the course. Interviewer asked - Could I help with that? Possibly. At the moment don't have medic tutorials so the problem has gone away but the feedback will be awful. Not had time to reflect on this yet.

Comes down to quality issues. Need to be prepared to put the work in. Do find it stressful but because tutorials are so structured, could prepare thoroughly for them. Often a lot of them put in a lot of effort, some supervisors felt they were putting in too much effort at the expense of research.

Interviewer pointed out: Students bring in money too. This place seems to forget it is a teaching institution. Was told that I bring in double my salary in terms of the teaching that I do. Now have £800 per annum for conference attendance, just come in this year, so that is an improvement – recognised that it is difficult to keep up in your field when you are teaching a lot.

I do feel valued by students – I get good feedback, often named as a good teacher, which is great. Also valued by my colleagues - I know that everyone knows I'm doing a lot of work and my research colleagues appreciate it too – they know that if I wasn't doing it they would have to do it.

Starts falling apart above that though. RAM – turn up for an hour and that is fine, quality is not an issue, hassle to get contract made permanent also seen [Named person] go elsewhere and [Named person2] is going too. [Named person] – the students loved her too – we chose teaching only position because we wanted to do it – you get a broadness of teaching everywhere which is valuable.

I agree that we need to be research active but you need a balance of people. 2<sup>nd</sup> year module little that is cutting edge – is basic science. Be very surprised if [Professor] gives anything other than the basic functioning of systems – nothing has changed – 3<sup>rd</sup> year BMedSci is another issue – do bring in cutting edge stuff. But need a balance of people who can see over the course as a whole and people who have a specialism.

Medicine would be a disaster if didn't have people focused on teaching. Research stars only want to teach their own area, and tend to pitch it at the wrong level for the students. Find lectures interesting but they don't basically learn anything.

Is very hierarchical here at all sorts of levels. I am the minnow – only me and [Named colleague2] who are on a teaching only lecturer post – [Named colleague] and [Senior colleague] are Senior Lecturers. Get asked to do jobs with lot of responsibility. But it is hard to tell a professor that they are wrong, especially when you know they will simply ignore you. Often very strong and difficult to break down.

Tutorial – can give the same one 4 times in the same week – eg twice to medics, once to dentists and once to BMedSci. It can be hard to keep tabs on who has done what, can be even harder over a 2 week period. Might have medics one week, dentists two weeks later. Have to keep extensive notes so know who has done what.

Interviewer: How to value teaching? Hierarchy business could be a way forward. If people at the bottom were brought in to do high level jobs in terms of teaching. I do a lot for BMedSci – [Senior colleague2] values me a lot. Ignores the fact that I am a lecturer, not a Senior Lecturer. In Medicine is not the case. I am involved in high level teaching work, but no-one listens. Divisional Teaching Committee becomes a counselling session! Mutual support. But most people say is impotent. Last year said we couldn't do the teaching but what can they do? How can we influence what is going on higher up. Last QAA pointed out dislocation of division and teaching. Reason for division is to do with research, but don't seem to consider the teaching load when appoint new staff. I am disturbed to hear people saying that should decrease the standard student numbers and increase the GEC because reduces the staff time needed. Not sure if that means more GEC or more PBL for u-g but in either case need more staff time not less.

Peripheral things that people forget - extra courses, such as Bio chemists, GEC etc. Run an elective and that is more work but doesn't hit the radar for most people. At the end of the year have a print out of teaching on a table. You have to check that that all you did is on there, but that is just the contact hours.

Banding system of 0 – 3 – that is all that I know about it! Don't know where I am on it. Year before I was told I was a 2. Presume I am still the same. To be a 3 have to do 80% teaching. Since then have made it so that being a module co-ordinator counts – don't know. I haven't had a divisional manager for several months. Information about this is not something that is disseminated.

Interviewer – Can I help? Problem when you do everything yourself is hard to identify what you can pull out of. Supporting the students and their learning – say it all at the beginning but drift off.

[Technical support manager] team is an issue. I had a CD – a publisher sent round a flyer – I thought it could be useful as an extra resource, as it had quizzes etc. So I sent for an inspection copy. It wouldn't replace teaching but it would be useful for revision etc. I showed it to [Senior colleague3], as was to do with neuroscience and endocrine. He was module co-ordinator. Agreed to get some money for it. Procedure started in August 2003. Sent to various committees, and eventually in December 03 some committee agreed to it (only cost £1,000 for a year). I wanted to use it and evaluate it with a view to maybe incorporating it into the Electronic Curriculum. [Sub-Dean for Education] eventually said the situation was ridiculous and should simply pay for it (there had been an ongoing argument

about who would actually pay for it). Saw [Senior colleague3], in the corridor who told me it had been approved. Time went on. [Admin support] got it sorted out. March 2004 the CD finally arrived. I wanted to think about how I would present it to the students. At the time we were swapping over onto WebCT so I thought that if I got the students to use something other than WebCT then they might not use it – it seemed sensible to use the one point of access. Spoke to Wiley (the publisher) about access – all fine. Asked [Technical support manager] to meet before term ended in June. Busy with WebCT etc, then I realised that I needed it to be in place by the start of the year so could show the students a screen shot of how to access it so that they could see what it was that they were supposed to access. Also wanted to get feedback from them, and when I gave the relevant lecture to refer them to the CD. Nothing happened. Eventually I lost it one day, felt really cross about the money that was being wasted. I had given the CD to one of [Technical support manager] 's team who asked [Named academic] to put it on the cluster. I had spoken to [Named academic] about this in the first place and it was he who recommended that I go via [Technical support manager]'s team. [Named academic] tried to sort it out but it meant that he had to mount it separately on each computer in the cluster and because there was a problem to do with the licence he had to rewrite code to do it. Eventually it was made available in November. However as the relevant modules all run in the 1<sup>st</sup> semester I lost the window of opportunity to use it. Can't use it now until next semester. Therefore I am not predisposed to do anything else with the team. The idea of generating things in house is not appealing.

Interviewer offered to speak to [Technical support manager] –find out whether it is now in place, and if can put in a link for students from WebCT.

License only accessible from on-campus computers, so need a message to pop up to that effect.

I need to know what state it is in so that I can tell the students where to find it, how to use it etc, and plan how to prompt them to use it. Can't do this unless I know how they will access it.



## Lecturers' Questionnaire

Name: Prof S

Division: Medical Sciences

How long have you been teaching undergraduate medical students? 34 years

Which module(s) do you co-ordinate? Digestive system

What does this involve? Please see the module coordinators job description – It would take too long to detail it here

Are any duties delegated to other people, if so which? General secretarial duties

Do you teach on any other modules? If so, which? SSM Cholinergic diseases. GEC Fuels module. (also BDS and BMedSci modules)

For each, what does this involve? I prefer to talk about this

Are you a personal tutor on the MBChB course? No

If yes, how long have you been a personal tutor?

Please indicate your agreement or disagreement with the following statements in relation to the students you teach on the MBChB, in each case there is space for comments if you would like to elaborate your answer:

- The majority of students are willing to learn

Strongly Agree	<b>Agree</b>	No Opinion	Disagree	Strongly Disagree
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- The majority of students respect academic staff

Strongly Agree	<b>Agree</b>	No Opinion	Disagree	Strongly Disagree
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- The majority of students respect each other

Strongly Agree	<b>Agree</b>	No Opinion	Disagree	Strongly Disagree
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- Student behaviour in general (e.g. in lectures) has improved over recent years

Strongly Agree	<b>Agree</b>	No Opinion	Disagree	Strongly Disagree
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- I enjoy teaching medical students

<b>Strongly Agree</b>	Agree	No Opinion	Disagree	Strongly Disagree
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- Compared to when I started teaching I now enjoy teaching medical students

Much more	<b>More</b>	No change	Less	Much less
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- Students enter medical school with as much or more scientific knowledge than they used to

Strongly Agree	Agree	No Opinion	<b>Disagree</b>	Strongly Disagree
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- Students are as well or better prepared for study when they enter the 1<sup>st</sup> year than they were.

Strongly Agree	Agree	No Opinion	<b>Disagree</b>	Strongly Disagree
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- Students are offered appropriate help to improve their study skills

Strongly Agree	<b>Agree</b>	No Opinion	Disagree	Strongly Disagree
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- My contribution as a teacher is valued by the School of Medicine

Strongly Agree	Agree	<b>No Opinion</b>	Disagree	Strongly Disagree
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- I have sufficient time to prepare for my teaching sessions

Strongly Agree	Agree	<b>No Opinion</b>	Disagree	Strongly Disagree
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## Open comments

Do you have any suggestions as to how the Medical School could improve the support that is given to teaching staff?

Provide more **dedicated** teaching staff

Do you have any suggestions as to how the Medical School could improve the support that is given to students?

Ditto

Please comment on any aspect of your experience in teaching MBChB students, either to elaborate on answers to questions asked overleaf, or on any other aspect that you feel is relevant.

The students are overworked, sometimes having 3 or 4 lectures in a row.

Please return your completed questionnaire to: Celia Popovic, MSEU, School of Medicine.

## **Appendix 2**

### **Pilot Study**

Open Text Responses

## Appendix 2: Pilot Study Open Text Responses

### Methodology

A 20 item questionnaire with space for free text comments, was sent out to 227 students who took the 1<sup>st</sup> year MBChB exam in 2002.

15 withdrew from the course

28 were required to repeat the year

18 external re-sits – i.e. did not repeat the year nor progressed into year 2 but were allowed to re-sit the exams the following year

103 internal re-sits – i.e. failed at least one module exam the first time round, were allowed to progress into year 2 but had to re-sit the exam with 1<sup>st</sup> year the next year

63 passed all module exams the first time round.

The pass students were selected by gender and ethnic group as a control group to the withdrawn, repeats and external re-sit candidates.

83 questionnaires were returned (37%)

4/15 – 27% withdrew

7/28 – 25% repeat the year

8/18 – 44% external re-sits

39/103 – 38% internal re-sits

25/63 – 40% passed

The following pages show the open text responses from students split by those students who passed and those who failed.

### Open Text Responses

Complete findings

Comments from students who failed.

- I felt that although my grades through the year were low, mainly due to my social life! I could still have passed the year if I'd had the motivation. I left the med school because I realised that I didn't want to be a doctor, and didn't really enjoy the course. I wanted to change to something I found more interesting and would be motivated to pass! F1
- I feel that other factors, not mentioned in the questionnaire contributed to my failure, such as a lack of support from the medical school. I don't think the questionnaire has been entirely successful in displaying possible reasons for my failure and I would be happy to elaborate on some of these if required. F2
- I became disillusioned with medicine during the 1<sup>st</sup> year, from one gave me the impression being a GP was quite mundane and reading the BMJ suggested medicine wasn't all that it was portrayed as. I also made the decision I didn't want my life to be just medicine as I felt it would have to be, many of my friends in the second year have probed

this to be the case. I found the course quite dull and it felt like a production line with little individual initiative required. I find learning by rote and regurgitating information uninspiring and was often turned off work due to this. I hope these comments are of help. F3

- During the summer I had to re-sit 4 modules. However, in order to support myself I worked a full time job which affected my ability to revise more than I had anticipated. Hence I am now externally re-sitting one module. Although I can appreciate that there is no-one else to 'blame' but myself for my situation, I do feel that certain things could have been of benefit. I did not feel that the majority of lecturers were approachable, particularly when one announced in the lecture theatre that she wanted to be left in peace to eat her lunch and didn't want to be bothered anymore! I did not study A level biology and found this a great disadvantage in some modules. Some extra help maybe in the form of extra lectures would have been good as an alternative to trying to make up the extra with the useless recommended texts for non-biologists. I found the anatomy sessions good for discussing what we were able to find out ourselves and clarifying points but unuseful for obtaining answers to questions we could not determine on our own prior to the tutorial. I am sure that this is not the first year to have students fail modules so I am surprised by the lack of information the Medical School could or would provide us with in September/October 2002. My family attachment lady was subsequently messed about and I felt isolated and forgotten about. F4
- I found that teachers were approachable but they refused to acknowledge that I had problems and so little help was given. I was a non-biology A level student that was put in form/tutor group with other non-biologists so that we could receive extra tuition but nothing was ever given. Throughout the whole year, only one essay was set (for Firm 1) and so we were given very little practice for the written biological science exams. In fact the only way we were assessed for the above was via exams/tests. Could an essay/research project contribute to this so its not based purely on exams or 'in course tests'? F5
- The course content was not that difficult to understand. However I felt I received more memory recall not understanding. Also at times I felt quiet a few students didn't actually know how much each assessment was worth and what the assessment would be assessing. More exam type questions practice would help and ANSWERS! Not knowing where half the marks came from on written papers didn't help!! F6
- My mother became extremely ill having contracted Tuberculosis so all of her day to day responsibilities of being a housewife were referred to me. Coming from a strict Asian family and being the only female daughter around, this change in roles was seen as normal and expected part of the process. My university work only really suffered in the second semester around the time my mother became ill. The pressures of University work and medical exams that required a lot of concentration, became overwhelming. Consequently this resulted in poor exam results and numerous re-sits. I felt extremely stressed and upset, so some of the house workload was shifted onto my sister when

she returned from University in the summer. Having not passed 1 re-sit was primarily due to the same problems and pressures and lack of concentration. With my strong faith in God and hard work, I hope to successfully pass all of my 2<sup>nd</sup> year exams with my re-sit module too. F7

- Please only contact me by email (email given) if there is anything you would like to discuss. I had no problem with the course itself. I just had some problems at home which interfered with my work and attitude to work. I don't blame anything on the medical school, in fact some of the staff there have helped me a lot. And even with what was going on at home, I still enjoyed the course, and being at medical school. F8
- Don't worry about the details! I am still happy to discuss any answers and feel I was not supported through failure and am keen to help do something about it. F9
- Although I did not go into the 1<sup>st</sup> year in 2001, I did go into the first year in 2000, failed it by one module, failed the re-sit and had to redo Neuro as an internal student in 2001/2. I am also in the process of being assessed for dyslexia which understandably played a part for me. I would be more than happy to talk to a researcher as I am probably an example of at least 4 or 5 reasons people fail (one of which is not drunkenness either!) F10
- I feel that too much was weighted on the January exams in the first year. At this point, medical students have only been at university for 3 months and they may still be getting used to living away from home as well as the course. Going to university is a huge change for a person of 18. Also, at this early stage it is difficult to judge the level expected in the exam as the exams are very different to A levels. If a student fails to pass exams in January, it is very difficult to make up enough marks in the summer. This seems unfair. Maybe it would be better to allow students to retake January exams in the summer, as by this time they will have a better idea of what is expected of them and will have had time to adjust to the academic level required of them. F11
- It was very easy to fall behind in work during the first term especially, and then because you were so far behind it was difficult to 'pick up' again. I think it would have helped me to have been spoken to after I failed both mini tests in the first term so I could have been told what work I was expected to do. F12
- In the summer of year one I failed 1 module with a D grade. This was mainly due to my poor performance in the Christmas exams for which I got an E and an F in this module. I think that the importance of the Christmas exams needs to be made clearer to the 1<sup>st</sup> year students – as if these are failed then a student must pull the grade up in the summer and this is very difficult. It is not fair that after just 11 weeks at uni students have such important exams – as most of the first term should be settling in. It was hard to study in general last year as I shared a room in halls with another student – it seems a bit stupid to put a medic sharing a room due to the large (relatively) workload and the 9 o'clock lectures every morning. F13

- The assessment of the course work I felt doesn't test the basic knowledge enough and just tries to ask random questions that are almost completely impossible to prepare for. I know many other students who feel the same. With respect to Behavioural Science retake the amount of marks awarded for each section didn't make sense e.g. 16 marks for 4 bullet points! Whereas earlier only 4 marks would have been available. F14
- The timing of assessments in relation to other assessments/deadlines/busy weeks adversely affects student performance as can generally bad timetabling of lectures etc. Feedback from students and a more student orientated timetable is needed for greater success on the course. F15
- 3 – I don't feel the teachers provide enough opportunity for us to contact them by email or appointment. 4 I have been quite lonely in Birmingham but don't ever get homesick anywhere else or ever before. This is mostly due to being separated from my boyfriend and not making as close friends in Birmingham as at home. 10 – I think more revision packages should be available and also accessible outside Med School using some kind of login externally from home. 20 – I don't think we really understood what some of the exam questions were getting at in the first year, and the formative assessment this term proved that more often than not the fault was in the wording of the questions and the answers did not seem to answer the question set. F16
- I knew the course would be hard work and was prepared to work. The 1<sup>st</sup> term I didn't do enough – being in Halls, coming back to work after a gap year, making friends and getting to grips with a new lifestyle interfered with that. 2<sup>nd</sup> term I tried harder but still my head wasn't used to having to remember so much and I found it hard. F17
- My first year was affected by illness. I got taken into hospital my 1<sup>st</sup> term and therefore I missed several weeks of work. Consequently I didn't do very well in the January exams. There was a lot of work and the exams were very difficult. F18
- I entered the MBChB course in 2000, failed 4 exams at the first sitting, and failed CVS after summer. I re-sat this exam internally 20001/2 and now I am in the second year. I feel that maybe I didn't do enough work in the 1<sup>st</sup> year as I lived with 4 non-medics, so I could not compare myself and my workload to anyone. My group of friends that I socialised with was also made up of non-medics. F19
- The library is a disgrace for a Medical School. Not enough copies of recommended books and only available for one day (a big problem if the next day is Firm 1 or during the holidays). Tutorials held in CM rooms were rubbish. Tutors assumed students knew everything from lectures and refused to accept 'I don't know' as an answer and they would not teach you. There is a lack of information from the Medical School to the students and everything is based on rumours. Many lecturers were poor and could not lecture adding to the increased stress. F20
- I failed as I didn't go to a lecture on which an exam question was based. I won't make that mistake again. F21



- Feeling at home in the med school is a strange concept because you pretty much don't spend anytime anywhere else at uni except at med school. I don't like how it is so isolated from everywhere else like university centre and the guild. No wonder other people have issues with medics and how they don't make an effort to socialise with anyone else. The food is appalling considering how much we spend there in the first two years – my school and college food was better! The new tutor system isn't working for everyone, if people have problems there really is not many people to turn to. For a school that talks a lot about wanting to help us not a lot is apparent to us. If you can't understand things and you have tried to look them up yourself and have asked people to explain them to you and you still don't understand in theory you can email the lecturer/anatomy demonstrator to ask them, but evidently they don't have time to explain things to you in detail again so what are we meant to do?  
Workshops and more prosection time might be useful. The library facilities are substandard – the number of books available to us to use are inadequate the short loan section takes up one corner of a 4 floor library! The remaining space taken up with books that are really old and except maybe one week loan book for the corresponding short loan – and of course that's easy to get when the module has started. Medicine is a course which strongly advocates keeping up with up to date information. And also other university medical schools like Nottingham have a 24 hour library – modern, sophisticated and which the students can take full advantage of. I don't like complaining this much normally, but since you asked for feedback I'm giving it. It is a good medical school but the way some of my friends feel and also myself is guilty when we do things other than work – whether this is a problem with our own time management or not, I don't know, but nevertheless it is how we feel. F22

#### Comments from students who passed

- Teachers are approachable, but are not always accessible. Because of the large number in the year, teaching often feels impersonal. Lead teachers who give lectures may be very busy. It could possibly help if small group teachers were the same for a certain subject, or each M group was given the email address of an optional tutor or someone to see in a particular department. Anatomy demonstrators are very useful, although hard to find a good one! Although most of the time this is clear, it doesn't always happen. More information about exam technique, or requirements would be helpful. Problems with large numbers of people wanting to short loan books at the same time. I found adjusting to university work a learning process in itself. This has been my only real difficulty. P1
- Assessment – we don't get enough feedback on our progress and often don't get basic test results. If things go wrong people (teachers) don't seem to be much help and are reluctant to discuss our results. Exam/test results need to be turned around faster. We need to be able to discuss our individual exam results with the relevant lecturer. P2
- Illness has played a part but not overtly. P3

- I had to repeat the first year in full and am now through to the second year, preparing for those exams. I have had reflux oesophagitis which meant I have been ill quite frequently during my course. I am not from a typically 'rich' background as many students are at the medical school. I feel one of the main reasons I failed the first year is I didn't realise what was expected of me. P4
- I live at home it is often difficult to get a computer to use. P5
- Any academic problems I had last year were mainly based on the assessments. Although I think that the methods of assessment were fair, the timing of them was bad. I appreciate that fitting them into the timetable was difficult but I like many others have to work full time in all my holidays and so find it hard to try to revise as well. This is particularly bad at Xmas, as some of my better off friends spent the whole holidays revising giving them an advantage. Finding time to revise in the last week of term when some in-course assessments are was also difficult as there are a lot of social and sports events then! P6
- Library: the short loan section is good, except that if you want to take a book out to use on your day off that's not possible. The rest of the library is severely under-stocked. Both for key texts and others. We're told all the time to use current research, yet so many textbooks and pre-1985, which is appalling and frankly, useless, if you want to write an essay with any relevance today. Other reasons why I did well: 'Hindsight' – I know junior doctors. Motivation – I didn't get in first time. Living with non-medics out of halls, less distraction and stress. Good health – I worked for each little test. Moved out of home some years ago so didn't have to cope with that. I like the anatomy workbook format – and our tutor always checked we'd filled it in which was good motivation. P7
- IT facilities could be more extensive – I dislike using MAC computers and yet there are more of them than there are PCs. Also with reference to friendship groups there are lots of cliques which form very early on and it might be harder for people who end up in a group that they are not happy in. P8
- I think my year 1 success was due to having very well taught Biology A level, I had a good basic knowledge of a lot of topics which I could easily build on. I think the main reason, however, was having an excellent anatomy demonstrator. P9
- I did A level Biology and that is really helpful. I would have really struggled if I hadn't studied the basic concepts before. P10
- I feel that exams sometimes do not give you the opportunity to prove yourself as a lot of material has to be learnt for a small exam. Work often comes in peaks and troughs resulting in times which are very busy and stressful and others times where there is not much to do – is there a way of spreading the workload more evenly? Otherwise, Birmingham Medical School is a very enjoyable place to study. P11
- Just to elaborate slightly on a few points: I think that there should be more PC computers, perhaps at the expense of some Macintosh computers: the computer cluster is always overcrowded on the PC side, and is impossible to get a computer when a deadline is close by. The number of books in the library is totally inadequate, especially

considering the huge number of students. There should be many more copies of essential books for major modules, even if they are only short loan books. I believe that the second year has been very poorly planned : the workload has increased dramatically, not only from my first year, but from previous second year also. The exam timetable has also been very strenuous. Due to the increase in modules, I think it's only fair that students who have found it difficult to pass all their exams this year should receive some kind of concession. Perhaps there should have been more exams in January. Please feel free to contact me. P12

## **Gender and Ethnic grouping of respondees**

Gender	Unknown	UK Major	UK Minor	Total
Male	1	17	11	29
Female	3	37	14	54
Total	4	54	25	83

NB Data regarding gender is accurate, but the grouping into major and minor ethnicity is unreliable as is based on a rather crude classification based on surname. Students from Afro-Caribbean backgrounds, for instance, would probably have been put into the class of major.

## **Appendix 3**

### **Entry Survey Open Text Responses**

03-04 Cohort

04-05 Cohort

## Open Text Responses 03-04 Cohort

### Support from Staff

Please give us more time to relax and wind down! Please give us more time to finish the Anatomy works! Thank you☺ (M1-1)

I feel that there was not enough supporting the early stages which had caused me to feel depressed. However near the Christmas holidays I have begun to enjoy it however I started badly in making notes and going to lectures. Also the false impression that all the presentations of the lectures were on the electronic curriculum was very off putting. I feel we must have more time in understand the anatomy – they should also hand out past papers for exams. I would suggest that the medical school should set up seminars for taking notes and studying at this level. (M1-2)

The course has been more challenging than I expected. The worst part being an unhelpful anatomy tutor who appears to target certain members of the group. (M1-3)

I feel that it is highly beneficial to have done A level Biology and without it I would of felt behind other students in the early IBS lectures. The main part of adjusting to this course from studying at school for me is the fact that there is rarely personal communication between tutors and students and its sometimes difficult ot know if your on the right track with little guidance. (F1-1)

I am pleased that I have a tutor group consisting of all the years of medics – I find this very helpful for finding out more about what is expected of me within the course and also for advice about housing/socialising. (F1-2)

I would have liked to have been given past papers for the January exams – and I don't think that we were given any guidance on the microscope drawing e.g. can you shade or colour – (F1-3)

The student experience is trying for those that do not fit with the majority group. AS a fairly significantly mature student I have little common ground or interest with most of my fellow students. I had hoped that there would be some form of mature student group or support – not necessarily in the med school but university wide. This has proved not to be the place. (M1-4)

Often difficult to get balance right between study and other activities. Academically work is of suitable level that I am able to understand it – there is just a lot to learn and learning approach is a lot different to A level. Sometimes difficult to sit down and focus on work. Med school building is v. depressing. (F1-4)

I think – that the course material is all relevant and although I find it challenging – I am determined to pass the year. A little extra personal advice from anatomy teacher (someone seen on a regular basis) would have improved matters a little more for me – since reassurance that your on the

right track plays a large part in constituting my own motivation. The ethics lecturer (Dr X) is perhaps the only lecturer I feel that I can ask questions to – although this is of course only limited to her subject. (F1-5)

I didn't study Biology at A level – only gcse. It was only mention by my father (doctor) that it doesn't matter – noone said anything else about how relevant or even the fact that I hadn't done it. (Makes the start of the course very hard – but rest seems OK so far). (M1-5)

Everything I found when I arrived in Birmingham is more or less what I expected. I'm having the time of my life!! However I have two complaints: a) I feel I need more help with the type of tests we are expected to sit. E.g. past papers would be an immense help. B) I was completely disappointed with the way I performed in the musculoskeletal minitest and the anatomy presentation in the last week of term at uni. I come from 3 thousand miles away and I hadn't seen my family in 3 months – yet I was only a week away from seeing them. I don't think anybody can be expected to perform under those circumstances. I feel that the Med School should have looked out for students like me... (M1-6)

### **Pressure**

Please give us more time to relax and wind down! Please give us more time to finish the Anatomy works! Thank you☺ (M1-7)

Sometimes - there are a lot of lectures in a day from morning till evening ie too much input per day. So – I might get tired and have no time to revise as there's still work to follow up for the next day. (F1-6)

The staff spend a lot of time telling you how many people are kicked out/fail/etc –which makes you feel negative about your work (F1-7)

Rumours about the course and about assessment need to be suppressed by better communication between the medical school and the students. (M1-8)

After a hard term – looking at next terms timetable (which seems even more intense) was a little daunting. (M1-9)

### **Type of Activity**

Sometimes - there are a lot of lectures in a day from morning till evening ie too much input per day. So – I might get tired and have no time to revise as there's still work to follow up for the next day. (F1-8)

The course is not what I expected thus far. While I understand the anatomy and other such subjects – the emphasis on presentation skills is a little too much I feel. I would rather concentrate on strengthening my basic clinical pre-clinical skills and knowledge before learning how to give a presentation. (M1-10)

I would like anatomy to be taught in a more practical way. (F1-9)

Too much assessment! (M1-12)

It might be better if the lecture notes were put up on the web more promptly – or lectures gave sufficient time to take notes during lectures – otherwise it can be difficult to keep up with work during the term. (F1-10)

As a university and city in which to study I am very happy with my decision to study at Birmingham. However – the way in which Anatomy is ‘taught’ greatly increases workload and does not help in better learning. Through speaking to students at other top medical schools – such as King’s – the method of learning anatomy adopted by Birmingham makes the learning process unnecessarily difficult and time- consuming. (F1-11)

I feel that it is highly beneficial to have done A level Biology and without it I would of felt behind other students in the early IBS lectures. The main part of adjusting to this course from studying at school for me is the fact that there is rarely personal communication between tutors and students and its sometimes difficult to know if your on the right track with little guidance. (F1-12)

The constant assessments are a good idea as they encourage me to wrk as I go along – rather than trying to cram at the end of the course. However I feel that it is not very encouraging having no feedback on our progress. I think it would be extremely beneficial if we could have our tests back after we have completed them – or at least go through what the correct answers are so that we can learn from our mistakes. Sometimes it feels that although I put a lot of effort into the course – I don’t get anything back. Also it is difficult to know who to turn to if we are worried about our results – and I feel that I don’t know how well we are expected to be doing – in comparison to other students on the course. (F1-13)

First three months very difficult as you are trying to fit in and make here your home – and learn to do your own washing!! Then at the same time work load is more than you are used to and the work is different i.e. you have to find out a lot more yourself. You learn lessons quickly though that if you are serious about this you need to organize yourself – giving yourself time to do your work – and to socialise – and to keep yourself alive!! Think a lot of things will change next semester – now we have settled in. (F1-14)

Anatomy SGT provides little learning benefit and there is not much help available. Much time is wasted in these sessions and the tutors don’t give answers to the workbooks – and therefore we don’t acquire all the necessary notes from which we need to learn. Additionally the workbooks take much time to complete in advance and I personally (and indeed many others to whom I’ve spoken of this) feel this is not the best learning method. Completing these or something similar in the sessions (or simply being taught for that matter!) and doing my own notes and reading at home would be far more beneficial. I often have to read random parts to get the answers and so don’t have time to read for a general understanding – thus leaving gaps in my knowledge and understanding. When I have had the opportunity to read/make

my own notes –or when I’ve simply chosen to do this instead of the workbook – I find I understand concepts better and feel more confident in talking about the topic. There is a limited amount of prosection – and it appears this will continue throughout the course – with only a select few attaining this educational assistance in reasonable depth next year. Most lectures are poorly thought-out and contain irrelevant information. For instance some lectures put up the most complex diagrams on their p.point presentations and then proceed to say that these diagrams are far too complicated to look at and don’t help – or include the most trivial and unrelated/extended info on the slides which they don’t mention or say you don’t need to learn. Lecture handouts are in most cases OK. With some lectures we have none when handouts would be much appreciated (we narrow our attention for the purpose of ‘read-memorise sentence – write sentence down’ and so don’t have the chance to listen to the lecturer or understand what it is we are writing down.) (M1-13)

There are way too many in course exam (F1-15)

I feel I was unaware when applying to Birmingham and when starting the course on number of assessments in the medical school compared with other medical schools (F1-16)

I am amazed by the amount of work I have to do – which has meant I have had to make sacrifices regarding social interests – but I think that it will be worth it in the end. (F1-17)

## **Positive**

Love it. (F1-18)

I think the course has given me a lot more than I have expected. Both the social and academic life is really good. The actual work – while there is a lot – is really interesting and I enjoy it a lot. (F1-19)

I would like to take this opportunity to praise [Dr S] for putting up an exceptional amount of support material on the web site for the IBS module. This has helped me enormously during revision and I think other module coordinators should do the same. It is disappointing to find very little in the musculoskeletal and neuroscience sections on the electronic curriculum. (M1-14)

I have enjoyed the course so far but finances are a problem (F1-20)

The course has so far exceeded my expectations and I’m thoroughly enjoying being a part of the Birmingham medic’s life! (F1-21)

Excellent course (M1-15)

## **Belonging**

I find it difficult – when being told that the med school is isolated and you need to make an effort to become integrated in the whole university – when I



play for a university sports team but am unable to attend away matches due to small group work. I know that there are other members of the year in similar situation and I do not see why a session to catch up on the missed work from Wednesday mornings could not be put on another day of the week. I know speaking for myself that I am working really hard at the course and in all aspects of it in my own attendance and also in the effort that I put in outside of lectures and to be told that there is no way of coming to an alternative arrangement for Wednesday mornings other than to turn up for sessions or you'll be excluded – I feel that something should be arranged to cater for those people who are talented sports players representing the university and excelling in their sports to be able to continue competing at the same time as studying – very hard – to become tomorrow's doctors. (F1-22)

First three months very difficult as you are trying to fit in and make here your home – and learn to do your own washing!! Then at the same time work load is more than you are used to and the work is different i.e. you have to find out a lot more yourself. You learn lessons quickly though that if you are serious about this you need to organize yourself – giving yourself time to do your work – and to socialise – and to keep yourself alive!! Think a lot of things will change next semester – now we have settled in. (F1-23)

I am pleased that I have a tutor group consisting of all the years of medics – I find this very helpful for finding out more about what is expected of me within the course and also for advice about housing/socialising. (F1-24)

I don't feel I do enough outside the medical school – because most of the medical school freshers events were during the sports and societies fairs – making it difficult to find out about extra medical school clubs etc. (M1-16)

## Open Text Responses 04-05 Cohort

Can we have Neuroscience lectures before 5 o'clock please Usually people switch off otherwise (F2-1)

I think it will be useful to ensure that all the anatomy workbook answers were available after a certain time as it is very rare that we get round to going through some of the additional and clinical questions in a one hour session one hour sessions for anatomy are too short (M2-1)

I think students should be guided more in their learning We hav not got time to go around looking for relevant learning resources Lectures should provide us with booklets for each topic which contains the all of the core infomation Problem based and self directed learning is very time consuming Learning process is very inefficient most time is wasted looking around for relevant information as docters i appreciate the fact that we will be responsible for our own learning however once we have become a docter there will not be such a huge volume of work which we have to learn as there is now so the argument lecturers use saying that when your a docter your learning will be self directed doesnt count because as docters we wont be learning such large amounts Also lectures should put there work on the webct site its often difficult to copy everything down when they go so fast especially when trying to listen at the same time (M2-2)

so far the course has been good and what i expected i am however disappointed at how we are currently learning pharmacology as i feel that if its problem based learning the problem is the learning the idea is good but i feel a definitive answer to the problem would be helpful as something substantial that we can take from it also a longer time in the prosectorium would be much appreciated (F2-2)

it has been a shock to have to learn as independently as we have to it would be nice to have more staff contact (F2-3)

I choose to work in the holidays for extra income for things my allowance is not for (M2-3)

Each lecture should have a handout or if not should have a web link [Dr X] lectures are too fast and should follow the format pace and delivery of [Dr Y] (M2-4)

did not realise how little work other subjects had in comparrrison was sure I wanted to be a doctor before I came but now not so sure as beginning or term put me off (F2-4)

Dont have enough money to pay for accomodation let alone eat and socialize (F2-5)

There is a slight error in the second question of the second set, re; age groups. I chose Birmingham because of its excellent academic reputation, its openness to all student educational backgrounds, the early clinical contact, and the fact that i was treated with respect in the interview (compared to other unpleasant interviews). (F2-6)

Birmingham is everything i expected and more. the teaching style suits me as it is less restricted and enables further reading and self motivated investigation to become a natural part of everyday life in university. (M2-5)

The medical school does not provide adequate help for students who feel unsure of their commitment to eventually becoming a doctor. At the moment i have queries about my choice of degree and my future as a doctor but the opinion i was met with when i approached a member of staff was, 'your either a doctor or your not!' Not really very helpful. We are told at the beginning of the course you have four weeks to decide to stay, change or leave. My feet did not touch the ground in those first four weeks and i was in no position to decide if this was truly what i wanted. I think there should be more info for students with concerns about this course. (F2-7)

I have felt that the support from the medical school staff - is very different from what i was used to at my last school. I have felt that i wouldn't know who to ask about the course if i was having problems with understanding anything and i feel that communicating through the e-mail all the time doesn't really suit me. (F2-8)

## **Appendix 4**

### **1<sup>st</sup> Year Timetable**

## Semester 1 Year 1 MBChB 2004 – 5 timetable

Wk 1	Mon	Tues	Weds	Thur	Fri
9.00	Lecture			Lecture	Lecture
10.00	Library			Lecture	Lecture
11.00				Lecture	
12.00	Lecture		Lecture		
13.00		Lecture		Lecture	
14.00	Lecture	SDL			Lecture
15.00		Lecture			
16.00		Lecture			

Wk 2	Mon	Tues	Weds	Thur	Fri
9.00	Lecture			Lecture	
10.00					SGT
11.00	Lecture	Lecture	Lecture	Lecture	Lecture
12.00	Lecture				
13.00	Meeting	Lecture			
14.00					SGT
15.00		Lecture		Lecture	
16.00				Lecture	
17.00				Lecture	

Wk 3	Mon	Tues	Wed	Thur	Fri
9.00	Lecture	SGT		Lecture	Lecture
10.00	Lecture		Lecture		Lecture
11.00				SGT	
12.00		Lecture	SGT		Lecture
13.00					
14.00					Lecture
15.00	Lecture	Anat Prac			
16.00				SGT	

Wk 4	Mon	Tues	Wed	Thur	Fri
9.00					
10.00			Lecture		
11.00	Lecture	SGT	SGT	SGT	
12.00	Lecture	Lecture			Lecture
13.00			SDL		
14.00		Lecture			
15.00		Lecture			
16.00		Lecture			SDL
17.00					Lecture

<b>Wk 5</b>	<b>Mon</b>	<b>Tues</b>	<b>Wed</b>	<b>Thur</b>	<b>Fri</b>
9.00		Lecture			Lecture
10.00		Lecture	Lecture		Lecture
11.00		SGT	SGT		Lecture
12.00	Lecture	Lecture			
13.00					
14.00			SDL		Lecture
15.00					
16.00		Lecture			
17.00	Lecture				

<b>Wk 6</b>	<b>Mon</b>	<b>Tues</b>	<b>Wed</b>	<b>Thur</b>	<b>Fri</b>
9.00		SGT			
10.00			Lecture		
11.00	Lecture	Lecture			Lecture
12.00	Lecture	Lecture	SGT		
13.00	SGT				Lecture
14.00					
15.00					Lecture
16.00		Lecture		AnatPrac	
17.00	Lecture	Lecture	SGT		

<b>Wk 7</b>	<b>Mon</b>	<b>Tues</b>	<b>Wed</b>	<b>Thur</b>	<b>Fri</b>
9.00		Lecture	Lecture		
10.00	Lecture		SDL		
11.00	AnatPrac		AnatPrac		AnatPrac
12.00		Lecture			
13.00					
14.00	Lecture				Lecture
15.00	AnatPrac	Lecture			
16.00		Lecture			
17.00	Lecture				

<b>Wk 8</b>	<b>Mon</b>	<b>Tues</b>	<b>Wed</b>	<b>Thur</b>	<b>Fri</b>
9.00				AnatPrac	
10.00					Lecture
11.00				SGT	SGT
12.00					SGT
13.00	Lecture	Lecture			
14.00			SDL		
15.00	Lecture				
16.00	Lecture	Lecture	SDL	SGT	Lecture

Wk 9	Mon	Tues	Wed	Thur	Fri
9.00	Lecture	Lecture	Lecture		Lecture
10.00		Lecture	SGT		Lecture
11.00					SGT
12.00		SGT	Lecture		
13.00					SDL
14.00	Lecture				Lecture
15.00					AnatPrac
16.00		Prosect			

Wk10	Mon	Tues	Wed	Thur	Fri
9.00	AnatPrac		Lecture		Lecture
10.00			SDL		
11.00	Lecture	Lecture		SDL	Lecture
12.00	Lecture	Anat Prac	SDL	Anat Prac	
13.00					
14.00					
15.00	AnatPrac	Lecture		SGT	
16.00		Lecture	SDL		

Wk11	Mon	Tues	Wed	Thur	Fri
9.00	Lecture	Lecture	Lecture		
10.00	Lecture		SGT		
11.00		Anat Prac			SGT
12.00	Anat Prac				
13.00					
14.00	Lecture	Lecture			
15.00					
16.00	SGT				

Key

Behavioural Science	Learning Medicine	Ethics and Law	Biological Science
Firm 1	Basic Life Support	Musculo Skeletal	Neuro

## **Appendix 5**

### **Field Notes – Example of Lecture observation**



## Day 1 7<sup>th</sup> March 2005

### Bronchodilators – Dr X 9 – 10am

Went into lecture theatre at 8.50 – began to fill. Spoke to a couple of students re whether or not a lecture later that day had been rescheduled, I thought it had (notice posted via the School office website) but students thought otherwise. They said they looked at physical Year 1 noticeboard and electronic noticeboard in the foyer. Students said that this is a good week – ‘timetable is quite empty.’ Lecture – Hand out of 1 page with 6 slides was made available at the start of the lecture.

There was a student announcement about a fund raising event. The lower part of the hall filled first.

Dr X asked students to hold up any spare copies of the handout – pass them to the end of the row – this seemed to be an efficient way of ensuring even distribution of the handout.

9.05 – hall was quite full. Approximately 20 – 30 seats seemed to be empty.

9.07 lecture made a start – students quietened down. The lecturer wore a microphone, but had a strong voice anyway.

Handout is a summary of the slides used in the lecture, but lecturer used other slides as well.

Used initials, e.g. VIP – but did not write down what these meant or elaborated verbally – assume that the students are familiar with the meaning.

PAF – I think this is platelet activating something – this was only said once and not written anywhere.

9.20 aware of sound from the builders of drilling – but could hear the lecturer clearly above it.

Gave names of drugs – said that students always ask ‘how many of these names to we have to learn?’ Answer is – all of them. Are far more drugs than you will ever hear about in lectures – do you have to know them, well will you use them in your future career – of course you need to. This was a good link to their future career, and a clear message – but may be considered to encourage a superficial approach to learning!

9.20 Low level of conversation between students, but most of the room were taking notes and paying attention. 9.23 conversation stopped. 9.25 started again. 5 asian lads sitting at the back.

The lecture seems to be all text (in the form of slides and hand out) and talking by the lecturer. Could have illustration, e.g. of what the drug packaging looks like, or someone using it.

There was a student on my row who was constantly shaking her leg, so that the whole row of seats moved. Noises all around of people coughing and sniffing. The building noise began to be distracting.

Said 'If any of you have seen someone using a Nebuliser you will have noticed smoke around the mask' – why not have a picture to illustrate? Interocular pressure can be affected causing blindness – again could have illustration of this. Dr X is very funny and entertaining, but noticed that each time she made an amusing aside the level of noise, especially from the back row, increased. NB another lecturer mentioned idea to install CCTV – I'm not sure that this would help with the distracting low level chatting.

Lecturer used her hand as a model of axon reflexes – and reminded them of this by referring to her arm again in a later slide – this made the message much more memorable, but a diagram or animation would have been even better.

9.50 – indicated it was the end of the lecture – 5 noisy students at the back rushed out first even though the next lecture was due to take place in the same hall at 10.00.

There was no interaction with the students at all – all from the lecturer to the students.